

THE UNIVERSITY OF HULL

**Developing a Systems Approach for  
Multi-Agency Co-ordination and Community Engagement in Disaster Recovery**

Being a Thesis submitted in partial fulfilment of the requirements for the

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Doctor of Philosophy

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By

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## Abbreviations

GPS	–	Global Positioning System(s)
HUBS	–	Hull University Business School (University of Hull)
MSF	–	Médecins Sans Frontières (Doctors without Borders)
NGO (also INGO)	–	(International) Non-governmental Organisation
'Umbrella'	–	to mean, 'as a coverall' to the matter discussed
UN	–	United Nations
UNDAC	–	United Nations Disaster Assessment and Coordination
UNDR	–	<b>United Nations Disaster</b> (proposed new UN organisation)
VSM	–	Viable System Model(s)
WWW	–	World Wide Web, the Internet

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### *QUOTATION*

“It’s only when we recognise our past in all its complexity, including its pain, that we can hope to be reconciled with it, as well as to the people involved in it”.

BBCR4, Today, 30Jun12, ‘Thought for the Day’ by Brian Draper

### *PERSONAL ACCOUNT*

The above quotation speaks very loudly to me, and in two very distinct particulars. First, it concerns the enormity of a natural disaster event that envelops the wholeness of a person, bringing instant change to a pattern of life holding value but which is now so very different; this is what my research project has been all about. Second, it concerns the person that I am and of the significant changes I have faced and experienced through my life, notwithstanding the new philosophical challenges in how I needed to approach my PhD project; this is about the person that I have become today. Part of my philosophy of life is based in the recognising of existential and metaphysical aspects of the ‘what’ has been my earlier life, that is of my education, and therefore of the ‘who’ I am today that brings me to this point; thus, it is the structural framework for the ‘where’ I am now going forwards in my new-person life.

I recall from boyhood, but still experienced these days as this adult man, looking up into the dark night sky from my family’s countryside garden, and

“Looking out into a universe with billions of planets, [where] I certainly experience a sort of existential vertigo. It is a bit like standing on the edge of the Grand Canyon, but whereas the vast space of the Grand Canyon makes me feel physically small, the vast and unfathomable universe makes me feel metaphysically insignificant”.

BBCR4, Today, 09Jan13, ‘Thought for the Day’ by Michael Banner

The wonder of that universe continues to make me think about my own ‘smallness’ as a man in God’s Creation – I am a Christian (Roman Catholic), and hold thankfulness about what it is that God has provided for me to live within. But there is discord among the people; there is devastation for the people; and there is destruction round-about the people, of each person’s space – be this a grand mansion or a ramshackle hovel: for all of this occurs during the many forms of natural disaster. I cannot be ‘god’ and make things right; what I can try to do is my little bit to endeavour to make a small change: this research project is about that concept of ‘smallness’:

“The disciple is not above his master; but the fully trained disciple will be like his master, alleluia”

Antiphon: Thursday, week 4 of Eastertide, RC Morning and Evening Prayer, page 252

This leads me to express my thankfulness for what God has done for me – certainly so, but too, of others of my mankind who have contributed to what is now presented in this thesis of mine.

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The University of Hull

The Business School (HUBS) and the Dean

The PhD Research Office staff

The Graduate School Research Office staff and

The Library staff

There is the likeness to a family that exudes from an academic institution; I have felt such a resonance during my study time at Hull.

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Dedication: for his concern and for his love of me, for wanting me to achieve and to succeed, and for letting me write to him many words about ‘this, that, and the other’, it is my closest friend, my buddy and mate – all rolled into one man:

Abdul Rauf

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Peter G Munday

Kingston-upon-Hull

September 2015

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## **Abstract**

This research is concerned with natural disasters located in developing countries. Designing a structured capability to properly and fully respond to such disasters is its principle remit. For many developing countries, the relative impact that a disaster has depends on the response offered. Therefore, the first focus of the research was to determine, through consultations with experienced disaster response professionals, where they believe the management of disaster responses can best be enhanced. Their answer was two-fold: multi-agency co-ordination, as literally thousands of governmental and non-governmental agencies can be involved in large-scale disaster responses; and community engagement, as too often it is the case that disaster response agencies cause new problems by imposing solutions on local people instead of working in partnership with them.

To develop an appreciation of how multi-agency co-ordination and community engagement could be integrated into a new model of disaster response, a systems approach was adopted. Systems approaches seek to develop multi-faceted understandings of problematic situations in order to propose more holistic solutions or ways forward than might be possible through a more traditional ‘command and control’ management philosophy. Taking advice from the disaster response professionals involved in the study, the research focused on developing an ideal ‘blueprint’ for a new organisation, to be located within the United Nations, with the authority to co-ordinate disaster response activities. The Viable System Model (a systems approach to organisational design) was used to develop the blueprint, and this was used, not only to demonstrate how multiple agencies could be co-ordinated, but also to show how community engagement could be integrated into the co-ordination efforts.

The contribution to knowledge of this thesis is therefore to both systems methodology (showing how the VSM could be utilised for the integration of multi-agency co-ordination and community engagement) as well as, potentially, to future deliberations among governments and aid agencies wanting to improve the delivery of international disaster response efforts.

## **Keywords**

Boundary critique; Community engagement; Developing Countries; Methodological pluralism; Multi-agency working; Natural Disaster; Non-governmental Organisations (NGOs); Systemic Intervention; United Nations; Viable System Model (VSM).

**Developing a Systems Approach for  
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**Peter Graham Munday**



## Chapter 1: Research Project Overview

*“Disaster in Haiti is now turning to disgrace.”*

(The Times (Leader), 2010)

While there have always been disasters, whether natural or man-made, many today are well-publicised with near-instantaneous immediacy, across newspapers, radio and television, and increasingly now via the Internet and social networking. However, it was through television news reports, some seventeen years ago, that I began to feel a deepening sense of exasperation about disaster recovery management and planning: *why wasn't something faster being done?*, plus *what was holding back aid efforts?* So I monitored reports for years, continuing to think those same questions, but then adding, *what could I do to help?* This doctoral thesis is my next and significant staging-post toward trying to address those much earlier questioning thoughts.

That *Times* leader-writer, perhaps lambasting ‘the world community’ for ineffectual efforts to that point, continued with,

“The international community is failing the people of Haiti because no one can answer the simple question: who is in charge? A week after the earthquake [*which occurred on Tuesday, 12 January 2010*], it is unclear who is directing the attempts to get aid to those who need it – and people are dying as a result. Effective government is rarely the direct and immediate cause of life and death. But that is the situation in Haiti today. Who could provide the leadership that has so far been so disastrously absent? The candidates are America, the UN or Haiti’s faltering Government. There are problems with all three”.

(The Times (Leader), 2010)

It would appear to be true that no one single person or government department or national/international non-governmental organisation (NGO) takes responsibility. Rather, it might be surmised, each person or corporate body takes collective responsibility; but then, *who is in charge?* (*ibid*). What planning at national or international level has been done, tested, revised, and revisited? Where is the global ‘master-plan-of-action’ that may be referred to at the point of crisis, and who does/would hold and manage it anyway? With time, I began to frame my own thinking, devised a research proposal, and have now *begun* to look at such questions. Here I present the beginning of my research journey, because I know that disasters of all types and forms will continue to occur and happen. But I need to know that I have made some effort towards answering the questions I started with some years ago, with a view to making a future contribution to actually helping communities hit by natural disasters.

## **1.1 What am I starting with?**

First, I offer a simplistic circular illustration (Figure 1) that tries to highlight the journey I have been on in undertaking my doctoral research; the various elements noted here are expanded upon and clarified throughout this thesis.

I begin my illustration with Gaia, Lovelock’s Earth in ‘*homeostasis*’ (*q.v.*, Lovelock, 1979; Joseph, 1990). Lovelock saw Gaia (the planet Earth) as a self-sustaining organism [in the sense of regulation, maintenance, corrective mechanisms and buffers (Joseph, 1990)], which is also a systems view of the human body. Rounding right, see now there is an image of human beings; this brings the connection of *Gaia* (representing ideas of natural disaster) together with *community* (representing the need to form engagement with the eco-system). However, *Gaia* (Earth) is volatile: disasters occur.



Moving further round towards the bottom, see now a natural disaster happening; the community damaged and needing help, the multi-agencies offering assistance, the media reporting back to readers, viewers and listeners as to how their money is (or is not) being spent. From the bottom of my circle and up to the left, view now an annotated model showing multi-agency co-ordination and community engagement as two pivotal concepts, contributing to my intervention / research project. To begin completing the circle and near the top left, I offer a set of *Multi-Agency Viable System Models (VSMs)*; the VSM was developed by Stafford Beer (q.v., 1972). The VSM, grounded on Beer's "study of the human nervous system" (q.v., 1972, p.89ff), is a model of an ideal, viable organisation that can be used as a template for organisational design. Beer also uses that word '*homeostasis*' (q.v., Beer, 1985). Thus the circle is completed to its top, helping to bring *homeostasis* – self-sustaining and self-stabilising qualities, into the disaster management response process. Three words at the centre, *Relief – Recovery – Resilience*, illustrate what I am working towards (Munday, 2013). In this research I am particularly concerned with the middle 'Recovery' phase.

There are various boundaries that will be met when dealing with any disaster. Most disaster events involve human beings; and all disasters, even those where no humans are involved (such as a fire in a remote forest), are called 'disasters' by people because they involve the destruction of something that matters to them. It is people who face the impacts of a disaster, or who are trying to help and support the victims, or again are working on ideas that may alleviate future disaster intensity or suffering. Human beings have power relations/relationships to cope with every day: in this thesis, I shall refer frequently to 'communities' and to 'multiple agencies' as key collective groupings of people in a disaster situation, and different agencies and community groups are likely to have different boundaries of concern (Midgley, 2000). I will argue in the thesis that it is

the tensions and interactions between agencies, and between agencies and communities, that cause the complexities that frustrate people's attempts to recover from a disaster. Reference will also be made to 'feedback (loop) mechanisms' between community and multi-agency – these may be positive or negative.

## 1.2 Why am I researching what I am researching?

My project concerns natural disasters located in developing countries, and is concerned with the interface between communities and multiple agencies, when people are trying to bring about change. So it is high-level, not specific to any single disaster context. However, a number of such disasters will be used for illustrative purposes. Much more, my project is about *systemic* disaster management activity. The word 'systemic' is the adjectival form of 'system'. 'Systemic thinking' is here taken to mean:

“... a particular way of approaching issues of concern that includes seeing wholes ... a way of thinking that sees phenomena in context ... a way of thinking that alerts us about networks of interactions producing wholes ... helps us to think about required wholes in order to produce desirable outcomes”  
(Espejo and Reyes, 2011, pp.3; 17).

I selected this quotation simply because it targets the 'what' (the 'system') that systemic thinking is founded upon.

It will help that 'natural disaster' is defined. Of its essence, I mean an event occurring in the natural environment. Thus 'disaster' may be, for example, an earthquake, a tsunami, tornado storms, significant wide-spread flooding, drought, or a volcanic eruption; that is, *any climatic or geological condition* that human beings have not instigated, even though their social organisation may make the situation considerably

worse than it could have been. This is my pragmatic definition for this project. Therefore I am offering a counterview to the perspective on the social construction of disasters, such as offered by Smith (2006, opening paragraph):

“It is generally accepted among environmental geographers that there is no such thing as a natural disaster. In every phase and aspect of a disaster – causes, vulnerability, preparedness, results and response, and reconstruction – the contours of disaster and the difference between who lives and who dies is to a greater or lesser extent a social calculus”.

I simply assert that there is an element of environmental causation which interacts with the “social calculus” that Smith mentions. Without the human element there would be no disaster, but without the environmental element this is equally true.

However, it is not the primary purpose of this thesis to rethink or refine the definition of a natural disaster; my task is to address the impacts upon affected communities. This leads now into the need to consider the wider setting, so a brief discussion on Gaia follows.

### **1.3 Gaia**

Gaia, of Greek Mythology, is depicted as “the Earth personified as a goddess”, but is also discussed as “a vast self-regulating organism” (Oxford Dictionary, 2005). It is this latter understanding that James Lovelock developed in his book, *Gaia* (1979), and it is (in part) the theory that “the presence of sufficient living organisms ... is needed for the regulation of the environment” (Lovelock, 1988, p.63), thus necessary for the continuance of (human) life. The use of this theory has two implications: a) that this project is concerned with the consequences of the self-regulating actions of the planet

that we (humankind) effectively have little control over, and b) that natural disasters will continue to happen, and our focus needs to be on how to limit and respond to the social impacts. I also note in passing that the systems idea of self-regulation within Lovelock's (1979, 1988) Gaia theory and Beer's (1985) VSM are mirror images of one another, so it makes intuitive sense that one answer to dealing with the social impacts of natural disasters could be the effective use of the VSM. The impacts of natural 'disaster' events affect the natural structure and the experience of living on Planet Earth, on Gaia. It is in this sense that the Earth is 'a living creature' / 'a self-recycling system' (see: Lovelock, 1979; Joseph, 1990) and therefore pertinent to how this project is viewed, and thus pursued as a research project.

Humankind itself, similarly, impacts on how life is lived on this planet, through agricultural practices, the building of towns and cities, industrial manufacturing and production processes, the uses of natural resources such as coal, iron ore, wood, and water, etc. Humankind's social, intellectual and philosophical activities have an impact too by informing our individual and collective actions.

Moving from the hunter-gatherer phase, through the agrarian and industrial phases, and into the more recent intellectual and electronic communication phases, the Earth's resources have been used in different ways. More recently, these uses have impacted the natural balance of our planet, in terms of the depletion of non-renewable resources. Where once food was killed-as-needed or was gathered in its natural season to feed the family unit or community, so growth in populations necessitated expansion of industrial-scale food production to feed an increasing world population. People moved, leaving rural areas to reside in urban areas. With such people movement, the ways in which food is perceived, grown, and used have radically changed.

The concentration of mass numbers of people requiring shelter, food, employment, entertainment, social care, education, healthcare, and so on, within towns and cities across the Earth's surface, into very tightly-controlled areas, have brought about changes in how society collectively lives its life. Population increases have dictated that populations became more structured, and the development of the urban 'community' [as now understood] came together. But this merging of people into ever-tighter or socially-concentrated locations can bring about chaos and great destruction when natural disasters occur. And this last point is most relevant for *developing nations*, as they generally do not have the same resources to deploy as developed nations when disaster strikes.

## **1.4 The Proposed Contribution**

The primary **contribution** of this project is to the systems thinking knowledge-base. While I have sought to answer my starting questions about how responses to natural disasters in developing countries can be better co-ordinated, I realised that a systems approach would be useful (see Chapter 2). First I give a commentary about how systems thinking is viewed and used in two associated (to this project) arenas, often related as they frequently provide funds and people to disaster management projects, the public sector and the not-for-profit sector.

## **1.5 Systems Thinking: Public Sector and Not-for-Profit Sector**

The use of Systems Thinking methodologies within the public and not-for-profit sectors has been highlighted as of recent raised interest, especially to make service provision more 'customer-' or 'client-' or 'end-user-' oriented: "Britain's public sector is becoming familiar with [systems thinking] tools as they are employed by consultants to



improve processes” (Seddon, 2008a, p.67). The concept is often to bring multiple agencies together for co-ordinated service delivery (e.g., Midgley *et al.*, 1997a; Gregory and Midgley, 2000, 2016). For example, for elderly people leaving hospital after medical care to receive at-home living and social/nursing care, where the NHS and Local Authority services are institutionally connected to provide a streamlined health and community care package (for instance, Midgley *et al.*, 1997b). A by-product may be savings in institutional financial budgets, although current financial constraints appear to be moving cost-saving up the agenda.

### **1.5.1 The broad storyline**

Increasingly, both the Public Sector and the Not-for-Profit Sector are evolving new approaches by which to undertake tasks they traditionally do ‘in-house’ and now too are often ‘out-sourcing’. Procurements and logistics have been streamlined and connected through end-to-end supply chain management (*q.v.*, White, 2001; Walker and Brammer, 2009; Mulgan, 2013; these give indications of the processes and direction of approach taken). This suggests two ideas: 1) that how something is achieved does not necessarily have to remain ‘traditional’, and 2) that ‘value for the end-user’ is becoming a real factor in terms of (especially, public) finances. Part of the underlying thinking underpinning this change has been the use of systems thinking philosophy, methodology and practice: Seddon comments,

“Local authorities that have learned to take a systems approach are now studying demand to tell them what is not working for citizens. They improve the services so that the unwanted calls stop coming in. [...] By removing waste, they increase capacity, improve quality and lower cost” (2008a, p.55).

### 1.5.2 The Public Sector

Demos [a UK-based independent think tank] has published a book called *System Failure* (Chapman, 2002) which highlights the need for ‘perspective change’ in policy-making across government. This discusses what the author considers the “means for the use of system[s] thinking in government” and, importantly, that this “enables people to see a bigger picture that makes more sense of their world” (Chapman, 2002, pg.9). The ‘world’ of British Government and of ‘law-making’ is sometimes given the lens of ‘The Westminster Bubble’ by the media, suggesting an enclosed, high-walled enclave that is impervious to change or criticism, and one which follows its own ways of doing what it does, come what may. Indeed, there are strong arguments from cyberneticians and systems theorists that many of our modern institutions have become ‘autopoietic’: self-producing, where all decisions are taken with reference to existing framings and precedence, making it impossible to initiate any kind of radical change without fundamental institutional reform (Luhmann, 1986). Seddon discusses “...how ‘bureaucracy and red tape’ have driven public services in the wrong direction” (2008a, p.iv), and explains this is why he wrote his book, suggesting that ‘The Bubble’ may not be able to meet the task much longer using the ‘traditional’ ways of managing UK PLC. Seddon illustrates his argument with historical perspective but quickly refocuses the reader to the philosophy of systems thinking applications.

The challenge faced by the Public Sector is that most of what it does is ‘service’ oriented; there is no physical object manufactured or produced for sale. The problem, as Seddon & Brand (2008, p.8) write, is that “to focus on activity is to fail to realise that the performance of an individual is governed by the system”, and this failing philosophy is driven by ‘target-based requirements’ (including management by check boxes) or fulfilment-to-specified-levels. This is the sense of “command-and-control thinking”

(Seddon, 2008a, p.4), where no-one is viewed as capable of ‘owning’ their activity and fulfilling needs adequately without being fully (i.e., with attainment targets) controlled by a raft of hierarchical managers. *Heterarchy* (devolution of power within constraints) can be contrasted with hierarchy (*cf.*, Beer, 1985), and this makes sense for my project [see Chapter 5.2 in this thesis for further context].

Whereas there were previously ‘directives’ sent from ‘Bubble’ Departments to outsourced bodies, White (2000, p.162) opens up the discussion on “increasing interdependencies” for the Public [and for the Not-for-Profit] Sector(s), saying there have been great adjustments over the years. For White, these adjustments stem from a much needed “change in attitude to public sector reform” (*ibid*, p.164), where the connectivity of different Departments or Authorities was needed so that they could begin to work together more effectively. For example, Jackson *et al.* discussed social housing, which is principally owned by Local Authorities, but the provision of maintenance and repair activity is largely contracted out (2008, pp.186ff). Their research used the “systems thinking approach called ‘lean systems’” (*ibid*), and concluded that there is “much to gain from carrying out further experiments ... both with [‘lean systems’] and with other systems methodologies” (*ibid*, p.197).

Employing a multiple methodological approach, the combined use of Soft Systems Methodology (SSM) (Checkland and Poulter, 2006) and the Viable System Model (VSM) (Beer, 1985) was applied to an environmental scanning (foresight) project in a public sector setting by Clemens (2009, p.249). Clemens notes that “[wicked] problems are also recognised as a growing challenge in public policy, governance and organisational activity” (*ibid*, p.254). For intervention, this requires what Chapman terms “perspective change” (2002, p.14), so that “change in governance systems” gives

“opportunity for organisational change” but is concurrent with the “need for participants to change themselves” (Clemens, 2009, p.257), thus making co-operation effective for the end-user. Clemens (2009) highlights that the VSM’s ‘System 4’, which explores the organization’s environment for information and feedback, provides a useful tool for “scanning during periods of rapid change” (*ibid*, p.271). The Public Sector (in the UK especially) is facing great change, and needs to address many ‘wicked problems’ (Rittel and Webber, 1973).

### **1.5.3 The Not-for-Profit Sector**

Public Sector activities are funded by Government through taxation levied on the general population. Not-for-Profit Sector organisations – primarily holding charitable status in law (NGOs, etc.) – raise funds through donations and gifts, but now increasingly through contracted-for-fees services and business (-like) activities. This sector often uses volunteer help, other than for delivery of contracted services, where the employment of paid staff is the norm.

As a generalisation, many early not-for-profits – perhaps those pre-1980, were volunteer-managed and run, and in the main were more geographically ‘local’ in how they administered their activities (other than explicitly national and international charities of course). With time, this simplification has evolved so that many not-for-profits are now regional or national, and increasingly global in their outreach. This evolution has necessitated a radical review in terms of the practice of management. Increasingly now, the philosophy of Systems Thinking is being applied so that such bodies can fulfil their mission statements in a more ‘business-like’ manner (*q.v.*, Prasad and Nori, 2008; McIntyre-Mills and de Vries, 2009). Based in the USA, Tucker *et al.*

(2005) raise serious “questions about the future role of non-profit organisations” (p.483): they scrutinise the balance between engaging in for-profit activities versus remaining faithful to their “non-profit status and mission” (*ibid*). They argue that the charitable status of NGOs is now becoming very murky, and many today are now ‘businesses’ in the same sense as would be found in the Private Sector. Here in the UK, for several decades now, government policies have supported not-for-profits in contracting for services. The initial rationale was that charities campaigning for the rights of groups in the population (e.g., MIND for people with mental health problems; SCOPE for people with cerebral palsy) better understand what matters for service delivery to those sectors, and can deliver more effectively than a less nimble statutory service (*q.v.*, Domberger and Jensen, 1997; Darwin *et al.*, 2000; Cunningham, 2001). However, the use of outsourcing has now grown to encompass all kinds of services that can be logistically separated from their parent organisations, whether or not they have a specialist remit (e.g., catering is a good example of the kind of non-specialist service that is commonly out-sourced).

Tucker *et al.* (2005) go further to state that not-for-profits seeking to bid to take over statutory services need to “adopt a business mind-set” and become, in American terminology, a “social purpose organisation (SPO)” (2005, p.483). SPOs are a new style of NGO that seeks to provide ‘social good’ activities, but does so in a business-like manner with commercial revenues: it is arguably the case that this NGO-style is also evolving in the UK. The authors proceed to describe the use of System Dynamics methodology as a route to developing this new style of NGO (*q.v.*, Cooper, 2003; Forrester, 2009; Duryan *et al.*, 2012, for discussing the broad implementation of SD methodology). Tucker *et al.* discuss the use of dynamic models to test the possible effects of proposed interventions, and claim that this kind of approach can build the

capacity of not-for-profits so they can expand from being purely ‘local’ to becoming ‘international’ in scope.

A further approach to looking at the role of not-for-profits is provided by Oliver *et al.* (2016). This article uses Soft Systems Methodology (SSM) (Checkland and Poulter, 2006) – and of soft systems thinking more generally, to place “integrated thinking” (Oliver *et al.*, 2016, p.229) uppermost in the management’s psyche, and to manage good business practice with a broader mindfulness of the organisation’s environment. They argue for focussing less on hard accountancy needs, and more on the “broader requirement for organisations to focus on all capitals, not just recording the decisions which generate actual cash flows” (*ibid*, p.245). The other capitals include social (e.g., stakeholder connections) and environmental (e.g., ecosystem services). However, it remains to be seen whether the increasing business focus of not-for-profits will ultimately restrict this potentially useful focus beyond finances alone. Luhmann (1986) claims that a strong business framing excludes the meaningful consideration of non-financial concerns, other than those that must be addressed by law.

#### **1.5.4 Section Summary: Impact potential in both sectors**

The potential that seems apparent for both Public and Not-for-Profit Sectors’ service provision *and* activity rests as a need to be able to change perspective on ‘how to do’ service provision; Systems Thinking can play a role in *redeveloping* how models are promulgated or implemented. Systems thinking models, as a methodological approach, bring change across these sectors’ environments but there have also been wider, and often international, events which have brought about systemic change as well.

In the short- or medium-term, there are *shakeouts* of financial problems [the Banking Crisis, 2008] and sovereignty issues [for the UK, the European Union Referendum during 2016]. There are also issues around the acceptance (or not) of globalisation [international Supply & Logistics Chains, or connectivity by Internet]. There is a perception that the world is becoming a smaller place. Many commentators, in many different media, use this perception to put across both the international perspective of the world community, of globalisation, and – due in many senses to the breadth-catchment of the Electronic Age – so the World Wide Web (WWW; the Internet) offers this inclusiveness-sense of ‘coming together’ of Nations and Peoples. Wilhelm Raabe (a 19<sup>th</sup> Century German Realist writer) used this phrase about linking and networking for interaction (Göttsche and Krobb, 2008, p.16); many other writers have used this same phrase.

The longer-term prospect, surely, is that people will still require goods and services provided by someone, and when funding is tight, Systems Thinking methodologies and philosophies may be useful for these two Sectors in securing efficiencies. One potential methodology, which is Systemic Thinking, has “a recursive heuristic systematic analysis” (Mojtahedzadeh *et al.*, 2004, p.13). The authors describe this as driving feedback loops, discovering pathways around their described model, uncovering behaviours within the model, to ascertain the best mathematical model variables (*that is and therefore, of which systemic methodology to deploy*); it is about ‘*Digest*’ – “an experimental piece of software” (Mojtahedzadeh *et al.*, 2004, Abstract). This description may be equated to Stafford Beer’s *Viable System Model* (1985, and others of his publications). Mojtahedzadeh *et al.* describe ‘*Digest*’ as helpful in the “search for insightful, system level understanding [through] the telling of ‘system stories’ (2004, p.1) versus Beer’s VSM that “... derives not so much from the fact that the pathology of

the viable system can be investigated with ease, as from the speed with which the diagnosis can be made” (1984, p.17). Therefore systems stories and variable patterns are uncovered.

There are some themes coming through in this section that are systemic for these two sectors, and need to be addressed both systemically and systematically. Much is to do with processes; of administration, management and service delivery. However, there is also an age-old ‘this is how it’s always been done’ attitude in the Public Sector; and in Not-for-Profits, the move away from reliance upon volunteers to paid staff brings with it a culture shift from an organisation that negotiates deliverables (always mindful that volunteers may not stick around if they become alienated from decision making) to one where deliverables are contracted and therefore non-negotiable for front-line staff. Seddon notes the need to “distinguish between ‘command and control’ thinking and ‘systems’ thinking” (1997, p.22). The objective now is leadership “abandoning command and control of people in order to get control of the system” (Seddon, 2006, p.10).

Seddon reflects that the Public Sector – and here I include the Not-for-Profit Sector too – requires reform (*cf.*, 2008a). He especially observes of “the regime itself, the vast pyramid ... of people engaged in regulating [etc.] ... [and] instructing and coercing others doing the work to comply with their edicts” (*ibid*, p.193). My sense is that ‘groupthink’ could easily prevail in such a situation, and I discuss this further in Appendix 06. Another risk that Seddon (2008a) notes is that the HQ can become divorced from the front-line, with the former not appreciating the changing requirements of service delivery, and the latter struggling to make changes with insufficient resources, and becoming alienated in the process. I believe my use of the



Viable System Model [Chapter 5.2] could assist in avoiding this scenario in the context of disaster response. A final word from Seddon suggests, “Think Systems: Fit for the Future” (*q.v.*, Seddon, 2008b).

A great deal of systems research is focused on the development and evaluation of methodologies and methods for intervention, as demonstrated by Midgley *et al.* (2013). While my proposed design for a viable set of United Nations organisations to co-ordinate multi-agency working in the context of community engagement may have some practical utility in the future, if it is taken up by the disaster response practitioner community, the development of the design forced me to confront a new challenge for systems research: most VSM applications have been to the design of single organisations rather than multi-agency systems, and the few multi-agency VSMs that have been reported in the literature have not had to integrate community engagement too. Therefore, my thesis seeks to make a methodological contribution by showing how the VSM can integrate multi-agency co-ordination *and* community engagement.

My **methodology** is based on *Systemic Intervention* (Midgley, 2000) because both boundary critique (the exploration of the context) and methodological pluralism (choosing the right methods for the problem from a set of alternatives, rather than assuming that there is one ‘correct’ method that will always be best) were going to be important to my project. Systemic Intervention is founded on both these ideas. In terms of boundary critique, I initially explored the views of disaster response professionals to test whether my initial concern with multi-agency co-ordination would actually provide a meaningful boundary for a systemic study. I did not ask leading questions about this, but the issue was clearly of paramount importance. Also the theme of community engagement came to the fore. In terms of methodological pluralism, I considered a

variety of different approaches, and the VSM seemed to provide the best option (see sections 2.6 and 4.3).

## **1.6 The Research Project's *frame-of-reference***

The following research reference-points have been used and are referred to through the following chapters; these have evolved through this exploration:

### Exploratory Proposition:

*The overall PhD research project holds the proposition that a timely and more sufficient disaster recovery process is secured by community engagement with co-ordinated multi-agencies, so providing enhanced resilient communities against future disaster events. [Briefing Case Study]*

### Research Objective:

*To devise a new systemic framework or systems methodology to support effective integrated processes of community engagement and multi-agency co-ordination (includes international agencies) with the ultimate aim of improving future disaster response. [Formal Assessment]*

### Research Question:

*How can multi-agency co-ordination and community engagement be more systemically and effectively integrated in the context of disaster recovery?*

## **1.7 Summaries of the subsequent chapters**

Following, I give an indication of chapter content in pursuing my project.

### **1.7.1 Chapter 2: Systems Thinking – The Writers’ Views**

Within this Chapter I ground the thesis in the systems literature. I explore the following concepts and methodological ideas: system; boundary (*cf.*, Ulrich, 2000b); Systemic Intervention (*cf.*, Midgley, 2000); and the Viable System Model (VSM) (*cf.*, Beer, 1985).

### **1.7.2 Chapter 3: Building the Discussion’s Argument, a Case Study**

This chapter deals with my research *modus operandi*. The matters discussed here concern the research tools used; the case study approach that I initially used as an exploratory aid to clarify the key issues to be addressed; my primary data-gathering tools of *Exploratory Interviews* and *Advisory Group* panel responses; the Viable System Model (VSM), in more detail than in Chapter 2; the *Design Team* (a group of disaster response professionals to examine and critique my VSM design); and I discuss what other methodological tools could have been used and why I chose the ones mentioned. This methodology held two stages. Firstly of boundary critique using Ulrich and Midgley, which examined how the boundaries comprise of and of how these are differentiated to be worked upon. Secondly through using the Exploratory Interviews’ data to examine the attributes of how multiple agencies operate (at the high level); this was framed using the Viable System Model.

### **1.7.3 Chapter 4: My Researching Application**

The chapter discusses the qualitative data obtained. First, the raw conversations and questionnaire responses from an initial set of boundary critique engagements were analysed into appropriate ‘dialogues’, prior to their interpretation. Second, I needed to

use these data to decide on the appropriate methods for a systemic intervention. I demonstrate in this chapter that the main themes requiring intervention were multi-agency co-ordination and community engagement. However, it was never going to be possible for me to engage in a real disaster situation, as I did not have the agency position or experience to initiate this kind of intervention, so I decided that whatever intervention I conducted had to be desk-based. Midgley and Ochoa-Arias clarify that even desk-based studies can be interventions; just interventions into the knowledge base rather than actual organisations: “Some people write ... for publication, while others ... engage in practice ... without writing ...” (2004, p.2). Third, I discuss the responses of my Design Team to my VSM designs.

#### **1.7.4 Chapter 5: The Primary Data Shows...**

Across the chapter there are a number of sections. Firstly is a brief reprise of how the primary data was gathered, drawing from sections 3.2 to 3.5, which gives the foundation to constructing the practical application out of the theory and primary data. Following is a section about ‘the ideal solution’ and about what this implies to praxis, the natural disaster-front. Then the framework of Viable System Model, of Stafford Beer – as is discussed in section 4.3, is used to design and ‘build’ three models as the heterarchical intervention – being a formal structure of linked systems, though not as a hierarchical structure with ‘top-down’ management, with a discussion about how the models meet the research objective. With earlier data-gathering necessarily combined, a potentiality-driven primary users’ enquiry was designed and activated, to theoretically test the capacity of the models; the Design Team is explained, with commentary about a necessary change-in-approach as this was not fully completed.

### **1.7.5 Chapter 6: My Observations, Contribution, and Proposals**

I have developed this chapter reflectively, by taking a look across the time zone since beginning with that frustrated observation of humanitarian aid apparently not reaching the disaster victims, through my raising of various questions to my Research Proposal, and now of writing this thesis. Here I make my proposals for the interventions – the VSM designs – that I sense will produce better outcomes for those same disaster victims. The chapter begins with reflective observations, reiterates the Research Question and how it was addressed, examines the various findings, discusses the further and future research possibilities, and notes limitations experienced in the researching process. A brief commentary is provided about how systems thinking and practice have affected this project. A reflexive account of the project brings the chapter to its close. A thesis conclusion gathers salient points together and observes that change and progression are part of this project's guiding marque.

Appendices and References are given at the end of the thesis.

### **1.8 Chapter Summary**

This chapter has set out the research matter and about how this will be investigated.

Next, the contribution that the systems thinkers over many decades have published is used to support and to criticise the topic. This will develop the project's argument.

## Chapter 2: Systems Thinking – The Writers’ Views

This chapter grounds the thesis in ‘systems thinking’ and explains how this has developed over the decades.

### 2.1 Why Systems Thinking?

A common refrain in the literature on systems thinking is that it is especially useful to address significant complexity (Flood and Carson, 1993) or *wicked problems* (Head and Alford, 2015; Yawson, 2015). The term ‘wicked problems’ was first defined by Rittel and Webber (1973). It refers to situations where multiple issues across scales are highly interconnected, there are conflicting objectives and perspectives, nobody can see the whole picture, there are no clear right or wrong answers; intractable aspects can often only be *managed* rather than solved (Rittel and Webber, 1973; Brown *et al.*, 2010).

It is undoubtedly the case that most disaster recovery situations in developing countries fit this definition of a wicked problem, as they are characterised by large numbers of agencies trying to help beleaguered communities, with significant problems hampering recovery being frequently encountered (e.g.: Aceh - BAPPENAS, 2005; Haiti - The Lancet, 2010; Somalia - Menkhaus, 2011). Hence, situating this research in the systems literature is appropriate, and (as we shall see later) there are specific systems approaches that carry the potential to address the problems of multi-agency co-ordination and community engagement that I identified in Chapter 1.

This section begins to outline the contents of the following sections and two other chapters of connected interest. Its purpose is to introduce each section’s topic and, by doing so, start to frame the methodology of this project.

### **2.1.1 What is System?**

A ‘system’ comprises a number of parts or elements or aspects that have some meaningful interaction together. A definition of ‘system’ is: “a set of things working together as a mechanism or interconnecting network” (OED, 2006). The point, generally, is that ‘the whole is greater than the sum of the individual parts’ (Flood and Carson, 1993). There are numerous forms and styles and types of system.

In the natural world, *ecosystems* are examples of system; it is often said that human beings compromise them. A human/ecosystem definition is, “the provision of food, fresh water, energy, and materials to a growing population, has come at considerable cost to the complex systems of plants, animals, and biological processes that make the planet habitable” (Millennium Ecosystem Assessment Board, 2005, p.5). In the human world, there are families, groups of friends, teams of work associates, organisations, and so on: Espejo and Bendek write about an “idea of organisation ... of a closed network of people in interaction and not that of an institution” (2011, p.477). Commerce, manufacturing and production all form ‘processes’ within systems.

This project looks at systems comprising disaster-hit communities and multiple agencies endeavouring to respond. One aspect of the investigation concerns the forms of connecting, of communication, between the multiple parties. This means looking at the bounded perspectives of each party, whether these hinder or encourage actions.

### **2.1.2 Boundary Analysis**

The phrase ‘boundary analysis’ is used here, more for its convenient phrasing and descriptive state, which represents a much wider philosophy that many authors have

reported on and discussed. ‘Boundary Critique’ (a methodological process), however, does not seem to be enough (a sufficiency) as a tool for this project. Ulrich describes boundary critique as “...not boundary setting but rather boundary testing” (2003a, p.334); it is seen as a process of examination and re-examination of facts, situations, settings, and so on. While useful, this alone is insufficient to generate new forms of organisation to address problematic situations (Flood and Jackson, 1991).

The essential concept of boundary is as *a conceptual marker* that defines ‘inclusion in’ or ‘exclusion from’ a system (Midgley, 2000, p.36). They are often seen as parochial and unassailable. But specifically for this project, boundaries are to be testable and breach-able. Many ‘boundaries’ tend to isolate or determine a position; they may, therefore, constrict the capability to incorporate and involve all relevant parties. It is useful here to observe that organisations have boundaries: in this project, ‘multiple agencies’ is used to refer to NGOs, Governments, and bodies that *respond* to the disaster-hit community. There are many concerns that may be highlighted in bringing together multiple agencies, especially surrounding their sense of autonomy. Gregory *et al.* (1994) allude to constraints that can be encountered, and these will be particularly relevant if the organisational design produced in this research is taken up for implementation, as there can be a propensity for people to resist boundary *reformation*.

Also, different stakeholders tend to operate with different boundaries, such as those focused on infrastructure, or organisations, or communities, or the natural environment. Very few pay equal attention to all four (Munday, 2011). To address this problem, a diagnostic tool was earlier devised (Munday, 2011, p.65). The tool, *Systemic Boundary Analysis* (*ibid*), is introduced later. A methodological approach with boundary analysis as a central concern is Systemic Intervention (Midgley, 2000), which is discussed next.



### **2.1.3 Systemic Intervention**

Midgley (2000, pp.113-133) defines ‘Systemic Intervention’ as “purposeful action by an agent to create change *in relation to reflection on boundaries*” (*ibid*, p.129, original italics). This requires “Critique” (of boundaries and values), “Judgement” (on what methods will be appropriate) and “Action” (to define recommendations for improvement) (*ibid*, p.132, figure). Midgley’s point there, accepted by me, is that overly-rigid boundaries form principle, significant, barriers to effective intervention. To produce effective intervention, boundaries require analytical investigation and often change.

The agent (as key worker, or a researcher, facilitator, etc.) seeks “comprehensiveness but knows that this is unattainable ... [so] reflection on the boundaries ... [gives rise to] options for inclusion and exclusion” (*ibid*). This aspect is important within my project, and is specifically actualised via a set of interviews with disaster response professionals to hone the focus of my research.

Systemic Intervention is the ‘umbrella’ methodology of this project. Of itself, it allows for a plurality of methodological tools to be utilised. So here, Boundary Analysis, Viable System Model (VSM), primary data-gathering (Interviews and Questionnaires), and the psychological concept of Groupthink are brought together. These are all discussed further below, starting with the VSM.

### **2.1.4 Viable System Model (VSM), in brief**

The VSM was developed by Stafford Beer to model a system’s organisational structure, and is specifically used in this project to frame how multiple agencies and communities

may interact in an improved organisational system. Beer's textbook, *Brain of the Firm* (1972), takes the reader through steps to construct a VSM. The fundamental point is to show the processes of viability within an organisation.

The theoretical VSM, as Beer devised it, and the practical VSM devised as the designed solution for this project, are all fully discussed elsewhere in this thesis. Therefore I proceed to outline other research matter; next concerns the concept of Groupthink and its applicability to my research here.

### **2.1.5 Groupthink**

This is a psychological phenomenon. Groupthink is described as “a deterioration of mental efficiency, reality testing, and moral judgement that results from in-group pressures” (Janis, 1972, p.9), leading to faulty decisions. The implication for this project is that the headquarters of large-scale agencies often have an element of groupthink within ‘their cultural, deep thinking’, and they therefore develop generic policies that have adverse consequences when translated into action in localised, unique, disaster situations. These generic policies do not allow sufficient (or sometimes any) leeway for disaster-fronting teams to deviate in solution-resolution. Hart strongly alludes to this scenario, discussing US White House strategic policy-making versus operational decision-making processes enacted by numerous activated groups of other civil servants, citizens and military personal, and Hart suggests a White House “inner circle” (groupthink) existed (1990, pp.226-227). The relationships between distant HQs and front-line delivery organisations can be represented using the viable system model, and hopefully their communications improved. A fuller explanation of groupthink is offered in Appendix A06 below.

This leads me to a consideration of how systems practitioners might use knowledge and expertise to obtain both further understanding and, more importantly, devise better approaches to natural disaster response. Having a good theory is one thing; knowing how to best put that theory into good practice is another.

### **2.1.6 Systems (Thinking and) Practice**

Systems (thinking and) practice is considered in précis in Appendix A07. It might also be designated as ‘reflective practice’ (e.g., Ulrich, 2000a; b; van Woerkom and Croon, 2008). The objective, particularly for this research project, is in finding the interface or the ‘bridging’ (discussed by Ulrich, 1988) between thinking and practice; between the ‘cerebral’ and the ‘functional’. Essentially, this is where *intervention* comes in, and is why a Systemic Intervention approach (Midgley, 2000) is useful, as opposed to a purely analytical research methodology. While implementation of my VSM design has not been pursued during my PhD project, due to logistical and time constraints, there is still intervention into the knowledge base that could inform practical implementation in future years.

‘Systems (Thinking and) Practice’ [*a deliberate subterfuge in this title*] is really to drive the focus of learning towards practical application: to help disaster-hit communities have better post-disaster recovery and then achieve longer-term resiliency. The *thoughtful* activity is very important to me and is a significant feature I enjoy; however, the *engagement* to find ‘the change point’ is a needed feature too, and so *practice* – not necessarily or ultimately by me – can be informed by my contribution. I argue that, to be beneficial, thinking should grow into practice, and this is a theme that has been discussed regularly, over the years, by systems thinkers (Churchman, 1979; Checkland,

1981; Jackson, 1991b; Midgley, 2000). The commentary provided in this thesis is to reflect both the author's learning-curve interest and the recognition of its importance to System Studies, as the academic and practitioner philosophy.

Following, I develop these broad themes through these subsequent sections and chapters.

## **2.2 What is System (Systems Theory)?**

In many ways, understanding the principle framework for my project comes from grasping closely what the stem word – *system* – means, and then being able to follow the progression logically forward towards what *Systemic Intervention* becomes. For shorthand here I use 'system' rather than 'systems theory', though it could be argued that – for my purposes anyway – they are one and the same concept.

The *Oxford Concise Dictionary* (2006) identifies a system as “a complex whole ... the human or animal body as a whole”. The *Oxford Dictionary* (2005) expands this to, “a set of things working together as parts of a mechanism or an interconnecting network”. These concepts begin to express the complexity of my project, by defining the interconnectedness of so much within it – natural disaster, location, people, agencies, politics, and so on. However, I should try to give a much firmer definition that draws on systems thinkers' perspectives on this word 'system'. These definitions also hint at the tools of my methodology.

From the dryness of definitions, I bring 'system' to life with a look at some of the Systems' Thinkers and their projects, which have developed the approach I use here.

### 2.2.1 Some System Thinkers

There has been a cohort of men and women across the decades that are seen as system thinkers. Here I have provided a brief pen sketch of five thinkers' ideas – it turns out to be an all-male list, but I will not digress into discussing the issue of gender (suffice it to say that, like most scientific communities, the systems community has been heavily male-dominated over the earlier years, although notable women can be identified). These are “the people who shaped an idea – that to make sense of the complexity of the world, we look at wholes and relationships, not splitting to parts and isolation” (Ramage and Shipp, 2009, p.1, abridged).

### 2.2.2 Bertalanffy and General System Theory

Bertalanffy developed General System Theory (also: General *Systems* Theory; GST), which is “an expanded version of the Open Systems Theory, [providing] the needed conceptual framework for the basic unity of human knowledge, for the unity of natural sciences and humanities” (Weckowicz, 1988, p.13). In essence this is a broad study, across disciplines, about what ‘system’ is and of how system encompasses the ‘wholeness’ of a situation. There is the strong association with ‘ecosystem’, which links to Beer’s viable system application.

Mandel (1995, no pagination) states,

“Most systemicists have accepted Bertalanffy’s minimal definition – elements, relations and wholes – going on from there to derive their particular system ... [and of Bertalanffy himself, Mandel comments,] his perspective was a humanist perspective, a reconstruction of the individual not as a separate entity in a struggle against the world, but in a resonance with the universe”.

These two ‘explanations’ add context to the driving-force of this project: individuals and communities are a vital focus in relation to the multi-national organisations they engage with, and both are a part of the overall system of Gaia. GST has been used in sociological studies [Talcott Parsons], and by Niklas Luhmann in his *Systems Theory* (2006), and a brief comment on this latter follows now.

### **2.2.3 Luhmann, developing Social Theory**

From a lecture, translated and published in English, Luhmann (2006) outlines the foundations of his social system theory based on the notion of difference and distinction. He speaks of four important elements: the difference between system and environment; of a system defining itself through a single mode of operation (e.g., everything in the science system has to be justified as scientific as opposed to non-scientific); of seeing internally the system’s own distinction, with this not always being visible from outside; and this has impacts on other social zones, as a system sees the activities in those other zones only through its own terms of reference. These elements help me form the ‘linking understanding’ between the principles of my research and the practical application of addressing a disaster event. An illustration here will help.

A Non-governmental Organisation (NGO) is itself a system, often addressing a particular form of response-need, so it sees itself distinctively. That NGO sends disaster responders into the field, they work with other organisations that are themselves distinctive, and (should) co-operate with each other to fulfil related tasks. However, if different agencies define their core concerns very differently, collaboration can become highly problematic and fraught with misunderstanding and conflict. There is therefore a need for *a new collective system identity* in the field to facilitate collaboration. The

agents can then demonstrate some sense of united action during the time they are what they have become – a new system. This sense of difference and of distinction is an important concept in my project: that the boundaries formed around each system (an NGO in this example) are not as pliable as might be necessary. This point is explored later in the Boundary Analysis chapter [section 2.5]. Also, the VSM can help provide a new system identity for multi-agency co-ordination.

#### **2.2.4 Capra and Boundary**

Through outlining the research of Lovelock (1979) on Gaia, Capra draws a close parallel between Gaia theory and autopoiesis – that Gaia is self-bounded and self-producing (Ramage and Shipp, 2009, p.249, summarised). Let me bring some threads together here.

What I am now beginning to sense is that ‘system’ contains a variety of bounded, self-contained, but necessarily linked elements (sub-systems). I argue that, *for each element* of a disaster response system, there must be some form of tangible connection with other responders’ work that is meaningful in terms of the purposes of the wider system. However, it is possible that sub-system boundaries will be too tight and rigid, too parochial, to allow this to happen. Again, what I am advocating is that a new form of organisation is required to bring a new system identity, and meaningful connections can be made within the context of this.

#### **2.2.5 Senge: his ‘fifth discipline’**

Peter Senge (e.g., 1990; Senge and Sterman, 1990) has quite a lot to say about that stem word, ‘system’. Certainly system and the world of business activity are intricately

linked, for without the controls of system there would be chaos and little would be achieved. Senge refers to *systems thinking* as the “fifth discipline” (1990, p.69), with his book of the same title explaining, clarifying, and supporting his argument. He writes that “Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static ‘snapshots’ ...” (1990, p.68). Such a definition dovetails with my interest in looking at the connections between agencies and between agencies and communities. And this neatly brings me to discuss the VSM, the Viable System Model, and its deviser Stafford Beer for his contribution to this research.

#### **2.2.6 Stafford Beer with the VSM**

Having presented a highly-abridged overview of ‘system’, and along the way supplying broad context for the relevance of this concept to my project, now I wish to introduce the VSM and how it guides me. In ‘Diagnosing the System for Organizations’ (1985), Beer explores the nature and context of ‘system’ from the viewpoint of its viability, and here I am coming to the nub of my research – finding viability. What Beer does – cover-to-cover – is to construct by explanation an organisational system, as a model, and he defines its application in practical spheres. Beer observes that it is necessary to know what organisation is being modelled, “and to specify its boundaries” (*ibid*, p.2). The VSM will be explained in much more detail later in the thesis [sections 4.3 & 5.2].

#### **2.2.7 System, for this project**

As this research project has progressed, two realisations have occurred to me, which in retrospect perhaps should have been obvious. First is that, whatever I may think about disaster responses, the various multiple agencies across the world that respond to natural



disasters already have their own methods (e.g., Chou and Chen, 2013). Second is that, for the most part, these methods work *to an extent* (as a commentary, e.g., Zaidi, 1999). However, and this is my crucial point, disaster response needs some (re)development to improve upon already existing processes, because of extant problems so often encountered during disaster responses. Here is how my ‘system’ enquiry begins, and my methodological stance is clarified with the following two notes. Firstly that,

A “self-organizing system ... [shares] the need to remain Viable ... continuing to exist ... until the purpose has been achieved ... [The] Viable System Model claims to reveal the underlying structures necessary for a system to meet this criterion of viability [and that] ... all self-organizing systems conform to this model ...” (Hilder, 1995, p.17).

And secondly, “A system does not exist until it has been specified by an observer who defines this system and establishes its boundaries according to some purpose or set of criteria” (Leonard and Beer, 1994, p.4, original underscores). I do not claim that what existing agencies do is fundamentally flawed; just that it is possible to *increase the viability* of disaster response systems.

I also want to highlight that communities are often ‘side-lined’ by disaster response systems (e.g., Somalia - Gundel, 2002; USA (Hurricane Katrina 2005) - Cutter *et al.*, 2006). My project seeks to address this. So ‘system’ is my *mode d’emploi* in beginning to analyse the whole matter: there is a systemic anomaly here.

As is observed elsewhere herein, the ‘system’ may be both an encompassing whole or be a subsystem – a system within a system. As will be seen through the use of the VSM (Beer, 1985), systems have boundaries and are also circular in their way of functioning, and this brings in the word ‘autopoiesis’ (originally introduced by Maturana and Varela

(1987, 1992). It may be that circularity is the downfall of disaster response agencies: “This circularity is crucial: the nature of the autopoietic system is that it maintains itself solely through its own activities” (Ramage and Shipp, 2009, p.201). My own interpretation of this suggests the boundary of the ‘system’ is often too rigid, with each agency expecting others to behave according to its own rationality, and that for multiple agencies’ disaster-fronting teams little leeway is presently available to appropriately react to changing situations and requirements of community members.

So I now briefly describe autopoiesis, understanding it to be an adjunct to the process of system, as demonstrated by Beer through his VSM. The sense of autopoiesis was introduced by Maturana and Varela (1987, 1992): coming from the Greek, ‘auto’, means ‘self’ and ‘poiesis’ means ‘creation or production’, so autopoiesis refers to a system capable of reproducing and maintaining itself. Maturana and Varela were looking at and describing biological organisms, and since then the concept has been transferred to social systems (Luhmann, 2006). Beer himself uses the term autopoiesis to refer to organisations: “The enterprise, that arbitrary ‘whole’, *produces itself* too ... it has and retains its **identity**. [...] In the concept of autopoiesis we have the final testimonial to viability. The viable system is directed towards its own production” (Beer, 1979, p.405, original italics and bold). And then, “... the first subsystem of any viable system consists of those elements that *produce* it (they are the system’s autopoietic generators, to use Maturana’s terminology). These elements are themselves viable systems” (Beer, 1984, p.14, original italics).

And to sum up what an autopoietic system means, Hilder (1995, p.17) gives this thought:

“Self-organizing systems have many purposes, some of which may not be at all obvious; however, they all share the need to remain Viable. This simply means that they share the aim of continuing to exist, at least until the time when their purpose has been achieved”.

This supports the argument for my use of the VSM, but it does not support the fundamental notion that maintaining viability means everything should stay the same. If the circularity of the system is holding back beneficial outcomes of disaster responses, then such issues need to be tackled.

Thus this now leads to me detailing the ‘thinking’ part of my research and how I begin to think ‘systemically’.

### **2.2.8 Systemic Thinking, the task**

Espejo (1994) asks directly, ‘What is Systemic Thinking?’ and he demonstrates the need for ‘thinking’ to be turned into ‘practice’. Espejo & Reyes (2011, p.3) offer “that systemic thinking is a particular way of approaching issues of concern that includes seeing the whole”. A few pages further on they then provide that it “is a way of thinking that sees phenomena in context” (*ibid*, p.17). They also write of ‘networks’, ‘interactions’, ‘wholes’, ‘complexity’, ‘relationships’, ‘components’, ‘autonomy’, and ‘ethics/ethical behaviour’ (*ibid*): these common nouns are some of the concepts that cohere around ‘systemic thinking’. They also begin to describe the *modus operandi* of the Viable System Model (VSM) and its application to this project, which is fully discussed in later chapters [at 4.3 & 5.2].

A useful composite explanation comes from an Open University module concerned with ‘managing complexity in the environment’. The introduction says:

“When you meet with a situation you experience as complex you need to think about yourself in relation to the process of formulating a system of interest. Only with this awareness, can you increase your range of purposeful actions in the situation which are ethically defensible. To do so is the hallmark of systemic thinking and practice ...” (Open University, 2012).

I find this statement helpful; it brings issues I research in this project together ‘under an umbrella’, because the nature of a natural disaster for a developing country is complex. Also,

“*Viable systems* invariably contain a number of Operations, each of which has an associated Management function, and operates in its own Environment. [...] To be viable, these Operations need to co-operate with each other, and maintain a suitable state of balance between [each element]” (Hilder, 1995, p.23, original italics).

It is this sense of viability in the face of complexity that systemic thinking addresses, and for the survivors of a natural disaster somewhere in a developing country with limited resources, it is the international support – properly constructed and configured to meet unique needs, so it can contribute to community viability – which really matters to me.

Therefore systemic thinking is a deep, structural reflection on a problem that must be reframed and acted upon. It is necessarily addressing the whole situation by bringing into the picture as many elements of interest as possible, but without compromising intelligibility (Churchman, 1979). It begins to put the person into the scenario: and perhaps because there is inevitable complexity, it needs to find ‘the best balance’ within

‘the system’ under question, to ensure (a community’s) viable continuity. The community and its future (all of its needs, i.e. economic, social, religious, and so on) must, here, be at the very heart of my own systemic thinking process. This explains my use of Systemic Intervention (Midgley, 2000), which has been practiced most extensively in the context of community development projects.

### 2.2.9 The ‘algedonic signal’ teaser

I introduce a brief ‘teaser’ thought here, which will be more fully addressed in the VSM section, but is relevant to the points raised in the above section on systemic thinking. This point ‘sweeps’ in the idea of groupthink, of boundedness/boundary, and of self-contained (or autopoietic) systems: the word is ‘algedonic (signal)’. This is a term coined by Stafford Beer at the end of *Diagnosing the System for Organizations*, just as the real sense of the Viable System Model is brought to fruition (1985, p.133). He uses it in relation to “... an occupational hazard of System Five [S5; strategic management that] ... will hear the whole organism droning on, and simply ‘fall asleep’” (*ibid*). Beer’s ‘answer’ is “a special signal (I call it **algedonic**, for pain and pleasure) ... The cry is ‘wake up --- danger!’” (*ibid*, original bold).

‘Algedonic signals’ are also referred to as “alerts ... sent for good or bad performance ... [and are] escalated if performance is not returned within capacity within a given time” (Green, 2008, *no pagination*). And specifically, “The Viable System Model includes a special alarm signal to alert System Five to a threat or opportunity which has implications for the whole [multiple agency, or community, or disaster response task event]” (Leonard, 1999). This last is what Leonard calls the instinctive and protective action response in rapidly pulling away from something extremely hot: “touching a hot

stove” (*ibid*). The points here are that information feedback and detailed response analysis should be returned to headquarters, to be acted upon, particularly if issues of concern are raised.

The ‘teaser’ characteristic is perhaps more of a question that I place into the ‘systemic thinking’ definitions above, as to the feed-back of response, of information, about what is happening on the disaster-front for the community. The point is asking whether the ‘algedonic signals’ – of the VSM – are actually being returned at the current time to the multiple agencies’ management teams at headquarters, being understood, and/or acted upon. I believe this is probably a systemic failing, partially or fully present, and can be addressed through this research project for a potentially satisfactory conclusion; the use of the Viable System Model and my own proposals may offer a way forward.

#### **2.2.10 Section Summary**

This section has introduced the idea of system and systemic thinking for this project, by briefly observing a few of the many contributors on the subject, and I have discussed a number of relevant system attributes. This section has necessarily been succinct, but many aspects will be explored more fully in relation to the project’s context in the following chapters.

Next is a series of sections discussing and exploring the paradigms of systems thinking, beginning with Hard Systems Thinking. My sequence shows a simplified mapping-out of how Systems Thinking has developed, and I have followed Jackson (1991b) and Midgley (2003b; c; d; e) in this regard.

## 2.3 Hard Systems Thinking

What is hard systems thinking, when did it become useful in systems thinking and how is it contributory to this project's reflective process?

The 'label' of 'Hard Systems' covers what Midgley (2000, 2003b; c; d; e) describes as 'the first wave methodologies' and embraces the analytical and cybernetic philosophies, "which take as given the problem or need" being researched (Ramage and Shipp, 2009, p.151). This was the first of three waves identified by Midgley. First wave methodologies strive for objectivity by looking at what is present, but have been criticised by 'soft wave' and later systems thinkers for "regarding models as representations of reality" (Midgley, 2000, p.191), thus not allowing for multiple perspectives, which are necessary to understand to enhance learning. One aspect 'not seen' in the first wave of systems ideas was how some stakeholders (e.g. disaster-hit community members, in the context of my thesis) might face 'a change recommendation that would not be acceptable' and might not have been adopted if their perspectives had been considered (*c.f.*, Rosenhead, 1989). This is where the thinking "was dominated by the positivism and functionalism characteristic of the traditional version of the scientific method" (Jackson, 1991b, p.5). Typical methodologies here included System Dynamics (SD) and hard Operational Research. System Dynamics defines "problems dynamically, proceeds through mapping and [modelling] stages, to steps for building confidence in the model and its policy implications" (System Dynamics Society, 2011). Results are gained through examining feedback loop processes, achieving understanding to implement change through "the continuous view [focused] not on discrete decisions but on the policy structure underlying decisions" (*ibid*). Hard Operational Research (OR) "methodologies make explicit or implicit assumptions about the world they seek to understand and change" (Jackson, 1993,

p.569). Ormerod terms OR, “a practice discipline supported by academic research” (2014, p.1245), and it has its roots in the US and “the UK during the Second World War ... [and] was developed ... as a deliberately multi-disciplinary approach to develop innovative solutions to new problems” (Hoverstadt, 2008, p.217).

As I am using Beer’s (*c.f.*, 1972, 1975) Viable System Model (VSM) as part of my methodology, I make the observation here that VSM is situated within this first wave of ‘hard systems’; its structure is cybernetic, and Beer first developed it in the 1950s. Nevertheless, subsequent authors have further developed VSM theory and practice (for example, see: Espejo and Harnden, 1989), in the context of a new, second ‘wave’ of methodologies with ‘softer’ assumptions.

## **2.4 Soft Systems Thinking**

Soft Systems thinkers still look for ‘whole’ systems, but the meaning is quite different. Instead of seeing systems as real world entities, they acknowledge the central role of the observer, with his or her unique perspective, so they say that *we see the world in terms of systems*, and they remain agnostic about whether systems actually have a physical existence. Indeed, for Checkland (1981), one of the most well-known pioneers of soft systems thinking, a ‘system’ comes to be an interconnected set of human activities that are purposeful from a given perspective.

The transition between ‘hard systems’ (objective, systems engineering orientation) to ‘soft systems’ (a more subjective and inter-subjective, mental construction orientation) began in a small way in the 1960s and 1970s (e.g., Churchman, 1968, 1970, 1979; Ackoff, 1974), but reached maturity and became strongly influential in the 1980s.



During the 1970s, 1980s and 1990s, Checkland and colleagues (e.g., Checkland, 1981; Checkland and Scholes, 1990; Checkland and Poulter, 2006) developed Soft Systems Methodology (SSM), which took to heart the idea that systems are seen differently from the perspectives of different participants. So soft systems thinking developed new “notions of ‘system’ [with] different uses and meanings” (Jackson, 1991b, p.6) and brought about a new ‘wave’ of research methodologies.

There are criticisms by ‘soft wave’ authors of ‘hard wave’ thinking. Midgley observes that, “in this new [i.e., second, soft] wave, ‘systems’ were no longer seen as real world entities, but as constructs to aid understanding” (2000, p.193), and it is the difference of this philosophy that many criticisms are founded upon, such as the following. First, Churchman (1970, p.B-44) critiques earlier approaches for failing to introduce different stakeholder perspectives into consideration. I should note here that stakeholder engagement is a crucial facet of my own understanding of what is needed in the context of disasters. Second, hard systems ideas were criticised by soft systems thinkers for focusing primarily on observable facts and ignoring the relevance and importance of subjective and inter-subjective perspectives: Ackoff (1981) writes of the importance of terms like “desirability” and “satisfaction”, which are subjectively and/or inter-subjectively understood. Third, the first wave assumption “that the goal of the person or organisation commissioning a systems project is unproblematic” (Midgley, 2000, p.192) is also disputed by second wave authors, and it is recognised that there may be a multiplicity of goals and viewpoints contributing to complexities not foreseen by decision makers (Checkland, 1981).

Across soft systems thinking there are a variety of methodologies, and I note just two here as representative examples. Strategic Assumption Surface and Testing (SAST)

was developed by Mason and Mitroff, which “has been found helpful in uncovering the critical assumptions that underlie policies, plans, and strategies” (1981, p.35). The core idea in SAST is exploring stakeholder perspectives on the importance and certainty of these assumptions in order to find new, synergistic solutions to strategic problems. But below, I will focus mostly on Soft Systems Methodology (SSM) as an exemplar, given that it is arguably the most widely used in systems practice.

Checkland asks whether “... systems ideas could help us to tackle the messy problems of ‘management’, broadly defined” (Checkland, 2000, p.S11). A team of researcher academics, at the University of Lancaster in the 1960s, began looking at systems and ‘their problems’ as *organisational* rather than *technical*. They set out to look at complex situations, “having to develop some new systems concepts ... [addressing] the complexity of everyday problem situations” (p.S11ff). Churchman, in a *Management Science* Guest Editorial, used the phrase “wicked problem” (1967, p.B-141) to describe a complex situation – he cites Professor Horst Rittel using this phrase in a seminar. It is my understanding that the term ‘wicked problem’ aptly describes the social science problems that Checkland and colleagues worked on as they developed Soft Systems Methodology (SSM). Participation becomes key and involves “managing debate between people so that learning may be facilitated” (Midgley, 2000, p.224).

SSM began with a seven-stage set of methods (Checkland, 1981) and was evolved in later work, with the supposedly “definitive” account being Checkland and Poulter (2006). SSM “yields a richer understanding of both the whole and its context [...] both whole and parts [are] continually honed and refined in cycles of action” (Checkland, 2000, p.S13). The theme is of “a sense-making approach, which [...] allows exploration of how people in a specific situation create [...] the meaning of their world

and so act intentionally” upon it (*ibid*, p.S12). This idea of ‘sense-making’ holds resonances for this project, concerning how multiple agencies and/or communities use the psychological attribute of ‘sense’ to achieve comprehension of their boundary reflections; a number of articles refer to this (see, for example, Weick, 1988; Weick, 1993; Weber and Glynn, 2006). SSM, therefore, offers a schema to support learning and understanding, and endeavours (in one sense) ‘to offer some user clarity’ through the tools used – such as *rich pictures*, which are “a pictorial representation (usually hand-drawn) of the key elements in a problem situation” (Ramage and Shipp, 2009, p.151). Sense making is seen in the context of action, and it “assumes the possibility of multiple realities” (Gilbert, 1992, p.509): “Checkland was one of the first thinkers to put an interpretivist approach to systems thinking into practice” (*ibid*, p.152). This ‘interpretivist approach’ allows practitioners and researchers in many disciplines to use SSM: a survey [Table 6] by Mingers and Taylor (1992, p.325) offers “organizational” studies, “Information Systems”, and “Education” as three different fields where SSM has been used extensively. The authors’ principle conclusion is that “SSM is a practical and successful general purpose methodology” (*ibid*, p.331) for researchers.

It is clear that the transition of “getting away from ‘hard’ science ideas to ‘soft’ systems work”, as Dando and Bennett observe (1981, p.100), was about a divergence of thinking within the extant systems thinking environment. But Dando and Bennett’s paper describes the migration in terms of a ‘war’ between paradigms – boundaries, dividing the systems community into two identifiably new camps. I shall discuss the third wave (critical systems thinking) further below, which sought to end this paradigm war.

First, however, I will explain boundary analysis, which I see as a vital construct, which is frequently referred to across this thesis; and then the Viable System Model, as this

has concerns about boundaries within it. These two sections are more substantial; researching them has greatly assisted in the development of my thinking. Then, following these sections, I move onto third ‘wave’ methodologies, including ‘critical systems thinking’, which sought to both go beyond but to reintegrate those ‘warring factions’ of the systems thinking movement.

## **2.5 Boundary Analysis, a discussion**

There are two principle reasons for looking at boundaries in relation to this project. First is to define and reflect on what is included in it (e.g., multi-agency co-ordination and community engagement, addressed through the VSM), what is excluded (e.g., implementation in a real disaster situation), and what the limitations are (e.g., as will be explained, I set up an Advisory Group to give constructive feedback on my VSM design, but almost all the members had to abandon the Group when they got called out to work on actual disasters, such as in Nepal). The second reason for looking at boundaries concerns what is limiting the understanding and hence the performance of various actors in natural disaster events.

‘Boundary critique’ is the term used by systems thinkers to describe the theory of boundaries, how setting boundaries is guided by values, how boundary/value judgements made by different stakeholders can come into conflict, and how individuals and communities can become marginalised as organisations employ narrow understandings of what matters in a problematic situation (Midgley *et al.*, 1998), like a disaster in a developing country. Different boundary judgements made by different stakeholders may, if people are willing to talk with others in a genuine manner, be bridged “...through negotiation between the relevant groups ...” (Ulrich, 2000b, p.247).

Boundary critique also concerns normative or ethical decision-making, and approaches like Critical Systems Heuristics (CSH) (Ulrich, 1983), which support boundary critique, can make the ethical consequences of adopting different boundaries more transparent to stakeholders. Of this normative decision-making process, Cote and Nightingale write about unpacking “...normative questions such as ‘resilience of what?’ and ‘for whom?’ when applied to the social realm” (2012, p.479). These are vital questions for disaster-hit communities. People make judgements based on what they value and know, against what they do not value, or know little or nothing about. These are bounded judgements, and one of the assumptions in boundary critique is that it is impossible for anyone to have a fully comprehensive understanding: all understandings are inevitably *partial*, in the sense of being both limited and informed by values, but we do better when we explore different possible boundary judgements than when we act unreflectively on taken-as-given boundaries (Midgley, 2000, p.135ff).

Ulrich provides the “Basic categories for describing the normative content of systems maps and designs ...” (1983, *Table 4/4*, p.258), of which he writes “... summarises our twelve categories of pragmatic mapping” (*ibid*, p.257); in the earlier sixteen pages he fully discusses how this Table is constructed. A key critical question arises for this project as to how boundaries are identified and critiqued, and by whom and why; I address this point a bit later, on pages 48 and 52. I take the pragmatic approach here to write that the unique natural disaster event, each time, is framed by Ulrich’s ‘mapping’ as scheduled through his Table. The essence I give – focussing solely on the ‘social role’ indicator in each part of the Table – is as follows:

1. *Client* equals the multi-agencies in my project
4. *Decision Maker* equals the HQs of the NGOs and of similar bodies
7. *Planner* equals the people who enter the disaster zone to assist

10. *Witness* equals the people who are affected and require assistance

The premise that the project stands upon is the urgency of the response needed, and through aiding the *recovery* and the *resilience* stages; however, in the early days of the disaster it is the *initial relief* stage that manifestly gains the principle media highlight. Collectively, the four defined ‘social role’ indicators above are a bounded environment and both, as Ulrich defines these, are “the bounded judgements, or whole systems judgements” (1983, *Table 4/4*, p.258). It is my understanding that *perforce* the actors involved take on their ‘assigned’ indicator – even unknowingly – and begin to fulfil their allotted characterisations appropriately.

Which brings into this questioning point, about how my own *Systemic Boundary Analysis* tool which I discuss later [see section 4.4ff] addresses Ulrich’s CSH *Table 4/4* definitions. Ulrich has ‘set out’ the framework; I have used this framework to indicate a *per se* amendment because this research looks at how to ‘widen’ boundaries, to incorporate other perspectives, other stakeholders, and/or other expertise to enhance intervention. Of course my own *Systemic Boundary Analysis* tool may appear, at first sight, contrary to this statement: it prejudges the most important boundaries needing ‘immediate’ enquiry. This is because a literature review for a previous project (Munday, 2011) demonstrated that many researchers and agencies in disaster contexts narrow-down prematurely on either infrastructure, organisational, community, or environmental concerns. The purpose of my boundary tool is to give mental prompts so that all four boundaries are considered. In this sense, although it provides some prejudged boundaries, they are used to widen consideration beyond what the literature suggests are common limiting assumptions about what matters most. [See also, further commentary on p.48 below.]

While I have emphasised the widening of boundaries above, “Ulrich ... [makes] the important point that a narrow focus can sometimes be better, for instance in a situation where there is no time to work through disagreements” (Midgley, 2014), and especially so in the heat of the disaster crisis. A moral perspective that derives out of taking that ‘narrow focus’ might be of promises reneged upon when a task or action or intervention cannot be undertaken. However, the fundamental concept of endeavouring to provide the ‘best response’ possible *under the circumstances* might be the only way out of an *impasse*. Boundaries, and leadership decision-making, are oftentimes that which is best possible at the time and particularly so when in the heat of challenging situations. Nevertheless, Ulrich (1983) also says that the set of people affected by an intervention “is potentially very large” and “their ‘contribution’ may consist in suffering unwanted side-effects and risks” (p.251); such people need to be “[emancipated] ... from being treated merely as means for the purposes of others” (p.257). Two essential points flow from this. First, in the context of disasters in developing countries, those affected are often in such desperate need, and it can be easy to regard them as a homogenous mass of ‘victims’, so there is a moral imperative to remember that each individual is a unique person. Second, agencies may have a tendency to provide ‘one-size-fits-all’ solutions, which may not address either individual or community-defined needs. This is why community engagement is so essential.

Ulrich further comments:

“The witnesses [*this project’s community leaders*], for instance, can question the normative validity of maps or designs by pointing to the arbitrariness of built-in boundary judgements (systems idea), to the moral inadequacy of value premises and consequences (moral idea), or to the likelihood of implementation failure because of resistance on the part of the affected (guarantor idea)” (1983, p.263).

The ‘maps or designs’ for this project are the solutions proffered by the multiple agencies, which are *de facto* bounded by their assumptions about what it is appropriate to provide. It is therefore that ‘boundedness’ which is in-need-of critique in the context of the greater good and community benefit – for the longer-term, i.e. drawing towards resiliency, providing the best source of community stability and safety into the future.

Ulrich (1983) is primarily writing of ‘social planning’ in a non-disaster situation; I am concerned with a natural disaster in a developing country. These are two quite different scenarios and environments: one is relatively ‘quiet’ (for the most part) and there is no great rush to achieve results; the other is decidedly ‘noisy’, where great urgency is usually the only speed for reaction. Ulrich notes that ‘the planner’ “has his own world-views and values” (1983, p.301) and is under the scrutiny of interest groups; I note that ‘the multiple agencies’ are equally placed into this position by the community itself and more widely by ‘the reporting media’: both are framed by bounded views that need to be questioned, managed and negotiated. “We need therefore to rely on the witnesses, as the representatives of the affected, for making certain that the normative content of the planner’s maps and designs is brought to light”, says Ulrich (*ibid*).

A final observation of Ulrich on this particular issue holds resonance for this project. First, there “are basically only two alternatives: institutional arrangements can be elitist (an elite decides on behalf of all others) or they can be democratic (all the affected vote according to democratic majority rule, regardless of ‘expertise’ and ‘competence’)” (1983, p.313). In other words, the multiple agencies provide only what they deem necessary and appropriate, or the majority in the community determine what is provided, regardless of long-term outcome. This is a deeper moral and philosophical conundrum than can be resolved in this project, but suffice it to say that we are *not*



actually forced, as the quotation above suggests, into a choice between autocracy and democracy. A different approach can be found in the work of Ulrich (1983) himself: dialogue between agencies and communities is possible, so action can be agreed that takes account of both community needs and preferences as well as the constraints that multiple agencies are under. Of course, the scope for dialogue is limited in an emergency situation; a degree of consultation is possible, but mostly the agencies have to act quickly to save lives. This is why the VSM provides a useful approach because, using it as a framework for organisational design, boundary issues concerning the provision of appropriate resources on a regional basis can be discussed ‘between disasters’, so when a natural disaster actually happens, the responding agencies already know something about what has been agreed to be appropriate.

Next I provide a briefing on boundary critique, which is based on Ulrich’s (1983) work and is taken further by Midgley (2000).

### **2.5.1 Boundary Critique**

The *Oxford English Dictionary* defines a ‘boundary’ as “a line marking the limits of an area” (2006, p.164). This is a useful definition as it does not prejudge whether boundaries are conceptual or physical; they might be either or both, although the theory of boundary critique focuses on the conceptual, and how all human understandings are inevitably limited. In the context of my research, the ‘boundary’ indicates the limits to individual, community and agency understandings of the disaster situation. Any such understanding or knowledge may be different from another’s perspective, as noted above. And ‘critique’ may be taken as concerning the thorough study and evaluation of the boundary under scrutiny, and later I will discuss the fact that ‘boundary critique’ is a

principle used in Critical Systems Thinking (CST). A core idea in boundary critique is that the researcher and others make *distinctions*, and may value their own distinctions over those made by others, which can lead to the breakdown of mutual understanding and even conflict. Cabrera gives a clarification that boundary critique and distinction-making ‘... are identical ...’ “as both processes ... demarcate between what is in and what is out of a particular construct” (2006, p.10).

And further, that “a distinction is a boundary. A distinction is not [...] the object itself but is instead a boundary between the object and what it is not” (*ibid*, p.12, original underscore). Additionally, Cabrera says “systems thinking, then, is looking systemically at how these distinctions are made ...” (*ibid*, p.10). This is interesting, as while the community members and the multi-agency members, jointly and severally, will be making judgements and distinctions about what is to be done, the researcher is likewise making such boundary judgements, based upon his or her own distinctions.

Becoming involved within this research process, I bring a partial perspective; I am bounded by what I already know, though this is insufficient. However, I recognise my shortcomings and, in framing this project, my MRes dissertation (Munday, 2011) formed the initial focus. This focus was then further developed through Exploratory Interviews and Advisory Group questionnaire responses [see sections 3.3ff & 4.2ff], which allowed me to sweep-in other, better informed perspectives. Churchman wrote that the “... decision maker is always a complicated structure of partially conflicting values and attitudes ...”, and that “... decision making is a result of many influences ...” (1970, p.B-44), which has been true for the decisions in my PhD research. Midgley states of boundary critique “that boundary judgements and values are intimately connected” (2000, p.136). There is a value-filled, moral perspective for the intervener,

and other people. But, as well, the process of boundary critique includes “... pushing out the boundaries of an analysis ... pushing the boundaries of who may be considered a decision maker” (Kagan *et al.*, 2005, p.7). An inevitably *partial perspective* – mine or of any other intervention decision-maker or implementer – is necessarily to be challenged for the purpose of *widening* understanding, although it is possible to conclude that a narrow boundary is most appropriate (Ulrich, 1983). Interventionist action needs to be *justified* because of its partiality (a good CST principle), and I have sought to expose the framing of the issues in my research to critique based on the framings of other participants (this was the explicit role of my Advisory Group – see section 4.0.5). In this project, the *legitimacy* of my research rests on the realisation of the need to *justify* boundary judgements.

There are many moral, ethical, even philosophical, discussion points to be drawn from the two words ‘*legitimacy*’ and ‘*justify*’ in that last sentence. Boundary judgement is often fraught with decision-making, when someone decides a course of action or the supply of a good or not. In the disaster zone – such as has been highlighted for the recent UN food supply interventions into Syria (see for example, BBC News, 2016) the decision-maker is often placed in the unenviable position where either or both of *power* or a *capricious* stance is taken. In Syria, reports indicated that food supplies needed also to be distributed along the route towards the intended destination, through checkpoints held by opposition parties; it is likely that those people were equally as hungry and needy of the supplies being conveyed.

The basic moral question presented is, “*Quis custodiet ipsos custodes?*”, literally translated as “Who will guard the guards themselves?” (Juvenal, c.81-96 AD). In other words, this becomes here a ‘boundary critique’ question about who frames the decision-

making process, as viewed through which person's purview or lens: thus, how the decision-maker is assessed for validity.

Ulrich develops this theme through his "concept of a critical handling of boundary judgements – of *systematic boundary critique*" (2000b, p.254, original italics). What Ulrich concludes is that "systematic boundary critique is possible through individual reflection, through dialogical search for mutual understanding, and through controversial debate on boundary judgements" (*ibid*, p.255). The researcher can widen the boundaries with Ulrich's open questions: "What ...?", "Can we agree ...?", and "Don't you claim ...?" (*ibid*). However, Ulrich (1983) is very clear that questioning cannot be infinite, and pragmatic time and resource constraints will limit boundary exploration. However, when issues of 'limiting' happen, the researcher or decision maker has an ethical obligation to be transparent about it.

It is this last point which hints at a contribution from my project: the basis of my own analytical tool (Munday, 2011) is to provide some pre-set boundaries defining technical, organisational, community and environmental concerns. This simple tool can be deployed by a VSM-inspired organisation to ensure that all four dimensions are considered when deciding what is appropriate in potential disaster regions.

In relation to his own analytical tool, Ulrich talks of "... what facts (observations) and norms (valuation standards) are to be considered relevant ..." (Ulrich, 2002, p.41-42); [see also above, pages 46 & 47 for supporting commentary]. Both tools are based on the concept of 'boundary judgements', but are for slightly different desired purposes. Ulrich's questions can be used to expose different possible boundary judgements without prejudging boundaries, which is particularly useful when there is inadequate

knowledge of what boundaries others might embrace and what might be most useful. My ‘pre-judged boundaries’ criteria is based on the knowledge that very often a limited technical, managerial, community development or ecological focus precludes adequate consideration of the other aspects (Munday, 2011). In the disaster field, it would be the intervenor or agent who makes judgements, hence the ‘framing’ through which my *Systemic Boundary Analysis* tool functions. While Ulrich provides the ‘twelve universal boundary conditions’ – *apropos* his CSH “Table 4/4: Basic categories ...” (1983, p.258) – it is his own ‘*Systemic Boundary Critique*’ (SBC) tool that my own ‘*Systemic Boundary Analysis*’ (SBA) tool is more the comparable tool. Ulrich defines his SBC as, “... that systemic thinking can contribute to reflective practice consists in the concept of systemic boundary critique, that is, a process of systematic critical revision of the boundary judgements ...” (2003a, p.339). In my view this holds a stronger theory basis; my own SBA as being highly practical, in that it targets the intervention process with the most needy of disaster conditions which are more likely to be those where life and health are imperative. The philosophy of both tools is vital in the construction of comprehending boundary critique, applied at – I suggest – different stages of enquiry and praxis.

I now look at the notions of ‘values’ and ‘widening’ in Boundary Analysis, which help to strengthen how I see Boundary Critique in this project.

### **2.5.2 Boundaries and Values**

Values are about what to “consider to be important or beneficial” (OED, 2006, p.1597); they support a ‘judgement about what is important’ (Oxford Dictionary, 2005). In any natural disaster aftermath, the community members will hold and subscribe to a value

set; the multiple agencies' staff all work in a value-derived environment; and there can be value conflicts between people emphasising the importance of different things. Exploring such values is linked with "the boundaries of accepted knowledge" (Midgley, 1992, p.9). By this I mean that different values will inform different boundary judgements about what is important, and the existing knowledge base will support the emergence of some values more than others. The issue is to gain better mutual understanding of both boundaries and values. Where inflexible stances are held, and these are perceived by others as damaging in some way, they need to be challenged (Ulrich, 1983), to derive the greater benefit for the community's recovery. So "defining what is part of the system of consideration" (Yolles, 2001, p.35) becomes an important question involving both value and boundary judgements (Ulrich, 1983).

The researcher, practitioner or intervener, needs to find *adequacy* for the situation, which is itself a judgement call, usually based on the actual or potential consequences perceived by the person making the judgement. The word 'adequacy' is important and is contrasted with 'comprehensiveness': Ulrich (1983) and Midgley & Ochoa-Arias (2004) both explain that comprehensiveness is impossible to achieve due to the limitations of human understanding, but the paradox is that "dealing with its inevitable absence, and by making this explicit in the form of boundary judgements that can be explored and critiqued, we are likely to be *more* comprehensive than if we simply take our boundary judgements for granted" (Midgley and Ochoa-Arias, 2004, p.11). What counts as 'adequate' is informed by the researcher's values, as discussed by Midgley (2000, see Chapter 7) and can be informed by dialogue with other stakeholders. So this becomes a deeply reflective exercise (for the researcher), while endeavouring to address or to consider the myriad issues that may be presented for urgent action. Boundary Analysis begins to bring focus, allowing the timely dealing of most essential issues.

A further comment reflects this theme as, “Values and boundaries can be explored, and *relevant* perspectives can be identified (not as once-and-for-all judgements, but taking the form of temporary commitments that [allow] actions to be pursued)” (Córdoba and Midgley, 2006, p.1069, original italics). Thus, judgements on values may change over time as they are explored within and adjacent to the boundary; and sweeping in additional perspectives contributes to and potentially enhances the quality of any proposed intervention.

### **2.5.3 Boundary ‘Widening’**

Elsewhere, I have observed that all disaster event actors will initially see – perhaps inevitably – ‘just their own needs’ as paramount. My sense here is that NGOs and other agencies will understand their mission is to aid and support the humanitarian effort; however, this will be based on *their own perceptions* of the needs of those they seek to help. When values are brought into the picture, a ‘boundary judgement’ is concerned with “what *should* be included in or excluded from analysis” (Midgley, 2011a). For stakeholders discussing ‘the boundary’ in a decision-making context, this is (often) a highly normative, divisive, frequently politicised, and perspective-driven issue. The parties concerned with a disaster include community individuals, agency members, other outside bodies, and – in making an intervention through research or practice – the researcher, moderator or facilitator (for example, see: Gregory and Midgley, 2000). As noted by Checkland (1981) and many subsequent systems thinkers, the researcher becomes part of the problem situation as soon as he or she begins to intervene.

The ‘stakeholders’, the ‘parties concerned’, together comprise multi-agencies, multi-professionals and multi-stakeholders; the ‘researcher’ is part – by their participation – of

this whole situation. All are ‘intervenor’s in the pure sense of that word’s meaning, and what they do is to ‘intervene’. As will be later read here [see Chapter 5.2ff], it may be partially assumed that ‘researcher’ here equals ‘agent’ later: there is a cross-over consideration in this author’s mind that rides between the theoretical discussions here and of the practical application models and interventions that are proposed later. There is no real contradiction, other than to suggest both ‘researcher’ and ‘agent’ ostensibly is one and the same individual. Boundary critique and decision-making, or perhaps of the appointment of an individual as ‘researcher’ or ‘agent’, and the processes that create the role and of their activities, is necessarily based on judgement. Again, in the heat of a natural disaster event, decision-making capacity is paramount as this is based upon the conditions *of that moment*; an individual may need to make life-changing decisions on behalf of either their organisation HQ – often in another country – or of the disaster-hit community – that will be close-at-hand – and will usually be based on judgements.

If there are multiple possible boundary judgements that can be made, then we can get a better understanding of the situation by assessing the likely consequences that would flow from adopting those different possible boundaries. But I am concerned that the community, their situation, and the various boundaries are *collectively* considered, especially by the multiple agencies in dialogue with community representatives through their application of interventions. Midgley and Pinzón (2011, p.1543) write about “how situations [...] can result in entrenched conflict ...”. Reframing (widening) understanding can provide “... different perspectives on [individual and community members’] boundaries of concern” (*ibid*), as in the sense of encompassing or encapsulating relevant interests. It is only after a widening of understanding has been achieved that it becomes easier for participants to accept a narrowing of boundaries out of practical necessity (and Ulrich (1983) is insistent that narrow boundary judgements



can be justifiable due to pragmatic constraints). It is this critical perspective that I require in establishing the theoretical basis of my research. Yolles saliently notes that when we “alter a given boundary ... the nature of an analysis will change” (2001, p.35), which is a strategy highlighted in my MRes dissertation and operationalised in the analytical tool that I developed (Munday, 2011).

In a disaster, the prime concern is about the disaster’s effects across the community, the infrastructure supporting it and its wider environment. This concern usually leads to initial action through the provision of food, water, shelter, etc., but thereafter other longer term needs – recovery, resiliency, etc. – need to be addressed. In local contexts, both recovery and resilience are fraught with boundary judgements. Boundary critique may begin to help make sense of what should be done, by helping people consider, in a more comprehensive manner than they might otherwise have done, “how improvement is defined and problems are managed” (Baker *et al.*, 2004, p.4). This should enable systemic interventions to be agreed.

I clarify my position for this project, given the previous paragraph, particularly as one of the tools used is Stafford Beer’s Viable System Model (VSM) (*cf.*, 1985). For many researchers and practitioners, the VSM is for practical implementation, in the sense that there is an organisational problem to solve and by ‘fitting’ known issues with the model, the VSM assists in guiding the intervener towards new solutions. My own approach with the VSM is to look to design *an ideal organisation*, where, between disasters, it will be possible for multiple agencies to better prepare for *future* disaster events. I am able to plan in ‘ideal’ mode because the kind of co-ordinating agency that I and my participants believe is necessary does not currently exist. If my design is implemented, then community engagement in the development of locally relevant policies, plans and

practices will be central to it. Boundary critique in this context should ultimately lead to better choices of boundaries in the sense that they will be *justifiable* to other stakeholders (Ulrich, 1983, my italics). My use of the word ‘justifiable’ is critical, as it indicates a need for accountability in the disaster context. As Ulrich notes, participants in dialogue can “formulate the boundary problems both in the descriptive (‘is’) and in the normative (‘ought’) mode” (2000b, p.257).

I try now to illustrate this theoretical thinking about boundaries with some form of practical example, and use the tsunami of 26 December 2004 on the island of Sumatra to help illustrate my point. The tsunami poured water across the land, and destroyed virtually all property: “The housing damage and losses add up to [*given in local currency*) Rupiah 13.4 trillion and this constitutes 32% of all damage and losses brought on by the disaster” (BAPPENAS, 2005, p.24). In this disaster, the initial ‘relief’ would include shelter of some form such as sheeting and timber or tents to create simple protection. Into the ‘recovery’ phase, more permanent ‘temporary’ housing would be considered, such as the IKEA-style ‘flat-pack’ one-room house or the International Organization for Migration (IOM)’s ‘Transitional Shelter’ [also known as a ‘t-shelter’] (Smith, 2013; International Organization for Migration (IOM), 2012) as the next step towards permanent housing. For the disaster-hit community, which has lost ‘everything’, the need to rebuild its community’s housing becomes paramount.

In many developing countries, rural communities build their homes using locally-available resources; i.e. timber from locally-hewn trees, stone gathered from the landscape, mud to make adobe bricks, etc.: “The type of houses varies quite a lot within and between regions and certainly correlates with wealth” (BAPPENAS, 2005, p.24). There is also, anecdotally, a timeless quality of such constructions, which for other

peoples' eyes is 'local', 'quaint' or 'native'. Housing should meet local needs. But the question may be posed as to whether such communities wish to transit towards houses built using 'architectural design and construction' that should withstand future disaster events. Rural communities have their requirements. Urban communities have different housing needs: many properties in towns and cities are of brick, concrete blocks or other more highly processed materials. This is part of the intervention's 'conversation', part of the boundary consideration, that should take place outside the context of an emergency, so communities and agencies all know what is both appropriate and possible in the circumstances when the worst happens.

For the multiple agencies, particularly those concerned with building communities, there appears to be a 'we-know-best' approach; this concept is strongly implied, for example, by Miliband and Gurumurthy (2015, no pagination). For reasons of economy, or scalability, or logistics, a 'one-size-fits-all' approach may be taken. Likewise, there might be a 'Western-centric' philosophy applied, such as houses being designed with certain social attributes that are alien to local cultures. There are images on the internet of houses, built in the aftermath of (natural) disasters, that are either 'westernised, regimented' modern design or adobe blocks with aluminium sheeting roofs that are not occupied because local people chose to be homeless rather than accept culturally inappropriate provision (*cf.*, Blackwell and Associated Press, 2011; Photo: C. Venkatachalapathy, 2012). The question raised is why this happens? What were the multiple agencies' 'boundaries', and did they engage with communities at all? The following quotation comes from the 2004 Aceh natural disaster, illustrating that communities ask questions that are of pivotal importance:

*"Can we stay here? This is the question that those of us who survived are asking just now. Many do not want to stay; they do not want to be near the sea again.*

*Our hopes are that we will be able to choose a new area to live. Maybe we should be in the mountains* [A man from Alu Naga village, Sumatra]" (BAPPENAS, 2005, p.77).

It is not just that "Repairing and constructing homes will be less costly when carried out at the community level and will also generate income at the local level which is very important at this stage for resuscitating livelihoods in the region" (BAPPENAS, 2005, p.75). It is also a question of identifying and addressing relevant boundaries; to know what the local community seeks in its own rebuilding: the type and form of housing they may wish for; and how the local environment should be developed. A multi-agency 'one-size-fits-all' solution is not appropriate, and may contribute to much longer-term community disruption or dispersal, once the various agencies have departed for another disaster elsewhere.

This housing theme threads through the narratives of most natural disaster events, and it is always a complex and complicated aspect of any disaster. The reality here is that consultation with the community is vital: thus, boundary recognition needs to be acted upon. A point that I reflect upon here concerns the 'short-termism' of multi-agency (post-disaster) interventions versus the long-termism for a community of years into the future living with the outcomes of such interventions. Time boundaries are important (Midgley and Shen, 2007). It is therefore useful, and it even should be a requirement, to understand the situation both descriptively and normatively, so the normative content of accountability processes (i.e., what values should decision-making be judged against?) is explicitly reflected upon. Let me illustrate, concerning 'norms' and 'values'.

The norms and values of society, by most principles of social acceptability, reflect a humanitarian attitude. Responding to the cry of an injured person, say a child, produces the reaction of seeking to help, to alleviate the pain wherever possible. This philosophy is reflected in all cultures, to varying degrees; I exclude from this discussion those people who make deliberate events of hurt, pain, or death, acknowledging such people live within all societies. The values of a cohesive society would encompass care for the vulnerable, for children, the sick, the elderly, and for the dying; such action has an almost primeval instinctiveness inbuilt within peoples' psyche. The same attitude arises when a natural disaster event is broadcast via the media.

The difficulty arises, particularly within responses to any natural disaster, when a further but specific value is brought into the discussion, that of the – sometimes – marked disparity of economic position. By illustration, a severe-weather-related flooding in Cumbria UK versus flooding in, say, Mozambique East Africa (*cf.*, Mano *et al.*, 2003) remains a state of flooding; however, the type and form of response is adjusted for each location. It is still, though, people who suffer and it is this basic sense of society's norms and values that initiates the appropriate response. The norms are those of society *in general*, based upon that age-old social acceptability that dictates 'be helpful' to those who suffer and who are in immediate need or danger.

In the long-running disaster of Somalia in the Horn of Africa, where various exacerbating weather-related conditions deepen the civil conflict, tens of thousands of people have been displaced (Loewenberg, 2011). Their home villages have suffered years of drought, loss of vegetation for their pastoral lifestyle, damaged infrastructure, and the people have endured various conflicts (Pantuliano and Pavanello, 2009, pp.1-2). Somalia has been (until fairly recently) without significant national government

leadership (UNHCR, 2011, p.78). Factions in both tribal and sectarian conflicts have weakened the capacity of people to live safely and healthily (UNICEF, 2006, p.2). People have walked to huge migration camps, some in Kenya (UN News Service, 2011). The first issue was to address immediate needs – the provision of initial relief. However, to address the political and governance matters in the longer term will (ultimately) involve the people in decision-making for their own future. The longer-term project, which some aid development monies are already being invested in, sees the situation more systemically: community consultation surfaces different concerns and interventions are designed in partnership with the displaced people.

Including multiple, bounded viewpoints in an intervention, and encouraging reflection on these, allows discernment of acceptable actions by all participants, as long as they are able and willing to engage in discussion. Creating the environment that allows all participants to have their say – the conditions that would allow this to happen – necessarily depend upon then-present circumstances. Whoever takes the role of leadership needs to assess the situation and make appropriate judgements. However, Midgley (2000, Chapter 7) adds that not all situations are characterised by free and equal dialogue: some participants and/or the issues that concern them may be *marginalised*. It is important to address this in a systemic intervention otherwise boundary critique can become quite limited: boundaries and values relating to marginalised stakeholders and issues may not be seriously considered by those with decision-making authority.

Midgley (2000) also discusses how, following boundary critique, agents can draw upon a plurality of theories and methods to guide intervention. He talks in particular about ‘methodological pluralism’. I discuss this concept next.

#### 2.5.4 Methodological Pluralism

The role of the researcher, mediator or facilitator, when specifically deploying *Systemic Intervention* as the methodological approach of choice, will look broadly at the single or mixed variety of methods that could be employed. Theoretical and methodological pluralism, in Midgley (2003a, p.90), is the way for “agents to make choices between theories and methods to guide action”. Boundaries and pluralism are linked by the notion of “drawing upon more than one theoretical ‘lens’ to inform practice” (Midgley, 2011c, p.1), and different theoretical lenses carry different boundary judgements with them. This is not choice of theories and methods ‘simply for the heck of it’, but the need to ensure the resulting intervention(s) are appropriate, so as to meet the needs of the parties concerned. The researcher seeks to identify as many relevant bounded viewpoints as is practically possible (e.g., in the context of a disaster situation, the disparate viewpoints of the community and of the agencies) and by using appropriate, different (multiple) methods, work towards an improvement in the researched matter.

One philosophical explanation of this overall ‘methodological pluralist’ position is:

“The underlying concept of critique is one of emancipatory self-reflection with respect to the conditioned nature of our knowledge and understanding. The built-in emancipatory utopia of a community of free, communicatively competent and self-responsible citizens does not preclude a critically handled methodological pluralism, but it is supposed to preclude mere methodological eclecticism and ethical relativism. It gives a systematic place to moral judgement, as well as to the practice of democracy” (Ivanov, 1991, p.45).

Ivanov made this comment in the context of a *shift of attention* from critical thinking about boundaries to methodological pluralism (e.g., in Flood and Jackson (1991)). He

wanted to move the focus back again, so only reluctantly acknowledged the value of methodological pluralism, and contextualised it in relation to the work of Ulrich (1983). One potential flaw in his argument is shown up in the context of my research matter, natural disasters.

For instance, imagine this simplified disaster situation: there is the sudden and disruptive impact of an earthquake high in the mountains of the Himalayas, where the houses are built with wooden supports, sun-dried mud bricks and tin roofs. The sheer panic, confusion, and lack of understanding, plus the sense of emergency and appeals for help, among the community, would be palpable. There won't be any sense of calm or calculated discussion about needs by those people. Those who may be able to assist may not know those 'high mountain' needs, or be in a position to immediately assist. But it falls to those who can take action to do so, and methodological pluralism is useful to inform this action. A number of research projects around the world have begun to create an environment whereby methodological pluralistic practices may develop and evolve 'pre-action plans' (see for example: Seck, 2007; Queensland Floods Commission of Inquiry, 2011; Andrade *et al.*, 2012); the need is for cohesive research and then for intervention.

Whether or not community engagement with boundary critique, however, will have happened will depend on whether agencies had the foresight to do this work in advance. Ideally they will have done, but this is rarely the case in the current circumstances (which is what my VSM design seeks to address). This example demonstrates that, *ideally*, boundary critique and methodological pluralism go together, but *pragmatically* (and contrary to Ivanov (1991)) they can be separated and thus a plurality of methods used in the absence of boundary critique if absolutely necessary. Pragmatism within



this project, surely, is about finding that “... balance of [the] ‘smart bits’, ‘helpful bits’ and ‘things that (might) matter’, with the emphasis shifting in this order as the focus moves from complexity via diversity to selectivity” (Ulrich, 2012b, p.1320).

Taket & White (1998, p.165) say: “It appears clear to us that usually no one particular method can handle complex situations by itself. Parts of different methods can be used to aid the intervention at different times”. In my view, this is a reasonable stance to hold. Midgley corroborates this, “... respecting the fact that others may have useful insights that we [researcher; intervener] may learn from in constructing our own methodological ideas” (2000, p.215, my bracketed insert). Indeed, this is what lies behind Midgley’s (2000) *Systemic Intervention* approach, which I have adopted for my own project here. I will end this discussion of methodological pluralism with a fairly positive thought: “Combining methods is very successful, at least as judged by the practitioners” (Munro and Mingers, 2002, p.378), which perhaps means that it is the researcher or the intervener who ‘wins-out’, through generally managing to provide the best pluralistic but pragmatically-selected methods to devise the intervention.

The disaster-hit community members need the intervention, but they don’t necessarily need to know or understand the theoretical journey of the intervener, as long as their representatives (ideally) are involved in decision-making when it matters (usually when a disaster is not in full swing).

Soon, I will introduce Critical Systems Thinking (CST) (Flood and Jackson, 1991; Flood and Romm, 1996), which spans research on both boundary critique and methodological pluralism. After that, I will discuss the methodology of Systemic Intervention (Midgley, 2000), which grew out of CST and arguably is the first approach

to fully integrate boundary critique and theoretical/methodological pluralism. First, though, I will introduce the Viable System Model (VSM) (Beer, 1985), which is the other major component of my methodology, alongside boundary analysis.

## **2.6 Viable System Model (Stafford Beer's VSM), in passing**

This section introduces the VSM by giving some history and discussing its theoretical attributes. Below, I outline the genesis of the VSM from work in cybernetics. Later, in section 4.3, I give a full account of the practical application of the VSM as an aid to organisational design for disaster preparedness.

### **2.6.1 Stafford Beer's Viable System Model (VSM)**

Determining how viable a process or system might be depends upon a great variety of nuances – many of which could be subjective in context. The world of economics, for instance, will create measures in the form of ratios or ‘pass points’ that are – under relevant circumstances – then considered to be judged successful, or viable, or not. In procurement or contract management, when reviewing for example the success of a product’s life-cycle, a series of ‘key performance indicators’ (KPIs) or other ‘kite-marks’ may be incorporated into the enquiry process and be used to judge quality or batch values for pass or fail standards. There are numerous other versions and styles of such ‘viability’ standards.

The processes, the viability of action, that each of the above illustrations requires speaks of “communication and automatic control systems (in both machines and living things)” (OED, 2006): this describes ‘cybernetics’. In other words, there is an interaction between various elements to ensure compliance with the ultimate task required, for task

fulfilment. It was Norbert Wiener who gave the initial definition; Wiener was one of the early advocates of cybernetics in the 1940s and 1950s (e.g., Weiner, 1948). Beer uses this definition: “Cybernetics is the science of effective organization” (1985, p.ix), and the term refers to the “fundamental principles of control which apply to all large systems” (Beer, 1972, p.17). The VSM itself is a cybernetic model of a viable organisation, showing how its parts need to “interface” (*ibid*, p.179) in order to maintain its identity and fulfil its function in relation to its environment. I use it later to map how multiple agencies might be co-ordinated in order that they may collectively meet the needs of disaster-hit communities.

Stafford Beer developed his VSM through the 1970s, out of his own earlier 1950s and 1960s work in cybernetics. This earlier interest was formed through awareness of operational research practices, obtained in various deployments during- and post-WWII. A call to assist the Chilean Government allowed Beer to bring his cybernetic theories into the practical field of management. He developed the Cybersyn Project, designed to use computers and a telex-based communication network, allowing the Chilean Government to maximise production while preserving the autonomy of workers and lower management; but this was never completed as the Government was overthrown in a coup d'état. Beer wrote a number of books; three particularly develop, detail and explain the VSM (*cf.*, Beer, 1972, 1979, 1985). For an outline of how *Cybersyn Project* evolved, see Espejo (2009) which gives a bit of its history.

### **2.6.2 What is the VSM?**

This following clear explanation puts the VSM into theoretical context:

“VSM is an OR [Operational Research] modelling technique traditionally used to aid organisational diagnosis and design (Beer, 1972, 1979, 1985) that breaks away from looking at organisations in terms of their hierarchical management structures (Espejo *et al.*, 1999, p.662ff). This is pertinent to disaster research as, in disasters, traditional hierarchical organisations are ineffective, leaving members hindered by a lack of information and an inability to meet new demands quickly (Comfort, 1999). However, VSM has never been used in a disasters context... [...] A key strength of the VSM is that it provides the capability to model information flows, making it a useful tool to develop systematic approaches to information processing. [...] We find that systematically modelling disaster response using VSM provides a rich understanding of how complex information processing can be conducted” (Preece *et al.*, 2013, p.209-210).

For this project, a key requirement has been to bring under my own research ‘umbrella’ of Systemic Intervention – this being my prime methodological approach – the models, methods and approaches which aid my analysis and understanding of the natural disaster management recovery problem(s) that I am researching. My pluralistic methodological approach uses the VSM to clarify the complexities that natural disasters involve (as well as to design a responsive form of organisation). Such complexities are the multi-level, globalised and localised, distinct multiple agencies required to intervene with the community in disaster need: the VSM begins to visualise the context and the situation.

### 2.6.3 What of 'system' and of 'viable'?

Judgement is, usually, at the best of times, both objective and subjective. It is based upon something that is concretely-known. To give an example outside the context of disasters, the shape of some sea birds' eggs is particularly ovoid to prevent them rolling-away from the crude nest site, off the narrow-shelf sheer cliff-edge, to thus smash upon rocks below. It is unlikely that the objectivity of this statement would be contested. At the same time, however, judgements are made from the point of view of an observer in context: when braving the elements to look at those sea birds' eggs, one individual might experience the weather as cold but acceptable, while another might be forced to return home. There are a number of systems within these above few lines, such as the ecosystem and the animal life that lives within it, or of human beings deciding that the climatic conditions are either acceptable or not, etc.

What Stafford Beer fundamentally questioned was how a system could be explained to effectively demonstrate its viability: "the quest became to know how systems are viable; that is, how they are 'capable of independent existence' – as the dictionary has it" (Beer, 1984, p.7). The essence of VSM is that

“[There] are five necessary and sufficient subsystems interactively involved in any organism or organisation that is capable of maintaining its identity independently of other such organisms within a shared environment. This 'set of rules' will therefore apply to an organism such as a human being, or to an organisation consisting of human beings such as the State” (*ibid*, p.14).

This quotation is important in relation to my project, as I later seek to identify the potential for designing the five “necessary and sufficient subsystems” into a United Nations co-ordinating agency.

One further comment which Beer writes in that same paper equally holds relevance to this project: “the recognition that the boundaries of any viable system are arbitrary” (*ibid*, p.16). It is also *my* argument that agency boundaries are ‘arbitrary’; multiple agency boundaries are parochially- and organisationally-fixed, causing problems of co-ordination, so this requires reflection and adjustment in relation to engagement with communities.

Beer’s VSM design shows

“A viable system maintains its identity independently, so the system is distinguishable from other systems within a complex environment containing multiple actors, competitors, etc. – thus the viable system must be able to survive. However, whilst organisational survival seems relevant to some environments, disaster response focuses less on organisational survival and more on operational effectiveness” (Preece *et al.*, 2013, p.211).

This quotation expresses key elements of what this project is researching but finds illusive. It is important to have a disaster response system that is viable (*i.e., that is connected across the necessary multiple agencies; that offers the genesis of resiliency for the community*), and yet within this people must focus on ‘operational effectiveness’ to achieve mission goals set in partnership with the community hit by disaster. This sense of ‘operational effectiveness’ is also required for the community itself, ordinarily and particularly during and post a disaster. This speaks of community resilience, being both a philosophy and a process.

#### 2.6.4 Community Resilience

Researchers from different disciplines, to meet their own purposes, will define their own notions of ‘community resilience’. Consequently such definitions become nuanced and especially-focussed to particular disciplinary requirements. “There is no universally agreed definition of ‘community resilience’” (Wilding, 2011, p.4). Nevertheless, in a definition text box, Wilding offers this clarification:

“‘Resilience’ is a relative term that can look wildly different in different contexts and according to different developmental stages of community life. Likewise, ‘community’ is a contested idea that makes different kinds of sense according to the values, location and perspective of the reader” (*ibid*).

Wilding discusses natural disaster events (flooding in Cumbria, UK – 2009; and Hurricane Katrina, USA – 2005), but these are disasters located in *developed* countries that have the capacity to repair significant damage by using their own resources. However, I shall draw from Wilding’s research to explore further.

Community resilience contains various elements, including the notions of ‘social capital’, ‘intentional action’, ‘the ability of individuals to recover from adversity’, ‘the development and engagement of community resources’, ‘a communal objective’, ‘people’, ‘organisations’, ‘community processes’, and so on (*cf.*, Rowcliffe and Lewis, 2000; Wilding, 2011; Berkes and Ross, 2013). None of this could be brought into existence at the point of a natural disaster; there is the need for forethought and (*from a manager’s perspective, of course*) discussion and planning. A sense of pre-empting the disaster scenario, as the above noted authors broadly articulate, is required. Philosophically, community resilience seems to encompass notions of working together, of using the resources we (the community) presently have, and in acquiring additional resources to ‘plug gaps’ we identify as necessary. This is about taking the ownership of

‘our’ community situation, perhaps on the understanding of some of the fragilities that ‘we’ know about today. Perfect knowledge is a wonderful idea, but can never exist (Ulrich, 1983; Midgley and Ochoa-Arias, 2004); so analysing and making adjustments – as a community – appears to work.

Building an adequate conceptual understanding of community resilience would be a PhD research project in its own right, and is outside the remit of this one. For me, community resilience is about “future disaster-proofing” (Munday, 2013). Recovery can be a *new beginning point* where resiliency might start to be built-in. But there is a link between ‘resiliency’ and ‘sustainability’ – the former in the sense of ensuring the community may continue to ‘be’, and the latter in the sense of ensuring that the community may ‘operate’ in the context of its wider environment; both relate to the notion of community resilience as ‘existence’.

Here is where process is required: “The design of decision-making mechanisms for the sustainability of the society (‘community’) importantly determines its adaptation and therefore resilience” (Espinosa and Walker, 2011, p.91). I consider this is what Wilding (2011) and others (*e.g.*, Clarke and Griffen, 2012; Rowcliffe and Lewis, 2000) are concerned with: the strengthening of fundamental community structure giving rise to future resilience.

Taking these thoughts about philosophy and process in community resilience, and now making a closer connection with the *developing* countries aspect of this project, the VSM here begins to take its part in resiliency measures. So a précis of what the VSM is, in more detail, follows next.



### 2.6.5 Conceptual model of Viable System Model, a brief description

Beer's VSM (*cf.*, 1985, & Figure 2 below) consists of three elements, which are labelled here as (A) 'environment', (B) 'meta-system', and (C) 'operations'. Relating these to my project, they are: (A) the natural disaster event – the Community, plus notional 'future events', within the wider Gaia; (B) the headquarters of (international) non-governmental organisations, governments, and the United Nations – the multiple agencies, where management resides; and (C) representing the disaster-fronting teams of NGO people, and others, endeavouring to respond to victims with appropriate initial relief and support, followed by recovery and resiliency measures. The various arrows represent connections or links or controls.

Within (B) and (C) are further elements, which Beer labels as 'systems': these are the various 'numbered' shapes. As I more fully describe each 'system' of disaster management in a later chapter, here I will simply note now each 'system's' activity:

The 'system 1s' consist of autonomous agents that are viable in and of themselves: a team of NGO workers, who together undertake a task that is satisfactorily completed, could be a System 1.

'System 2' represents a managerial level that ensures all units at the 'System 1' level are achieving the wider mission-task, in the sense of 'co-ordination' (Beer refers to the 'regulatory centre' (Beer, 1985, p.39 *ff*)): this might be a country-based office managing communicative services between NGO workers and their HQ (often based in another – *developed* – country). 'System 3' acts as a form of 'check and balance' for 'System 1', intervening where necessary to promote or retard some task component it senses is not properly functioning.

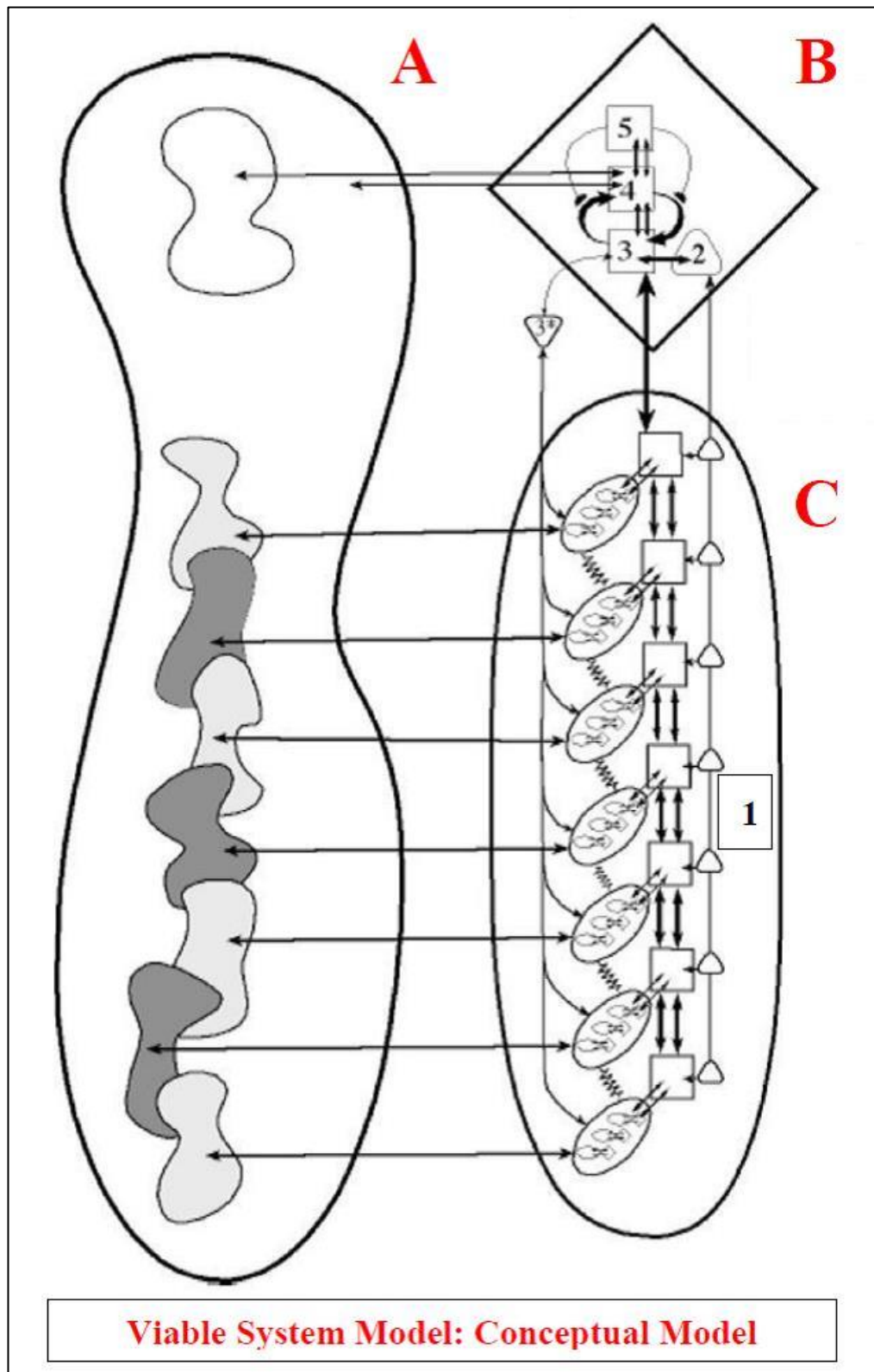


Figure 2 Viable System Model: Concept Model

(Espinosa and Walker, 2013, p.123; de-labelled)

The observation that the System 1s are going ‘off track’ might, for example, prompt System 3 to ask System 2 to redeploy people from one team to another. Or it could be that System 3 intervenes in the System 1s to recall goods or require new services to be delivered. A further, related aspect of ‘System 3’ is ‘3\*’, and this performs an audit of activities undertaken by the ‘System 1s’ and reports into ‘System 3’, and thence upwards.

‘System 4’ acts as an enquirer, looking out to the environment to see what is happening; and also inward to learn how the whole system is positioned to respond to environmental challenges and opportunities. Finally, ‘System 5’ is ‘the top table’ of the viable system, concerned with strategy and the identity of the organisation, though in large organisations it may not know very much about the details of the activities of Systems 1-4. In an NGO, System 5 might be its Board, which devises its organisation’s “ethos” and takes “the ultimate authority”. Essentially, it thinks about the purposes which the ‘System 1s’ will actually fulfil (Beer, 1985, pp.125;128).

### **2.6.6 The ‘Recursive Organisation’**

In *The Heart of Enterprise*, Beer (1979) writes extensively of what ‘recursion’ is and of how a viable system (an organisation for instance) holds within itself viability and is itself recursive.

Recursion is “a next level that contains all the levels below it” (Beer, 1985, p.17). So, Beer is saying, while each part is autonomous and is a valid system itself, the parts are all connected into the next (wider, higher) level up. Beer uses the illustration of ‘Russian Dolls’ (1979, p.308): a set of wooden and painted but hollow doll-shapes

which vary in size so each one is contained by the next larger one, forming an integrated set: the homogenous whole, where there is a real and viable connection between each part – each works separately but to the benefit of the greater whole.

### **2.6.7 My research use of the VSM**

I have become interested in the VSM because of its capacity to address co-ordination issues in (and potentially between) organisations: one recent paper observes that the “... VSM has never been used in a disasters context ...” (Preece *et al.*, 2013, p.209-210), and these authors then proceed to quote various citations relevant to their argument. Preece *et al.* themselves apply it to disaster management *information systems*, rather than wider organisational systems. I have found few published articles in peer-reviewed academic journals even discussing the VSM in the context of natural disasters, let alone actually applying it.

However, one exception of note is Reissberg (2011). Reissberg had earlier undertaken a geographical study in Hawaii, USA, with a particular focus on hurricane impacts on one island (*cf.*, Reissberg, 2010). She then used the VSM to reflect on the adequacy of the disaster response system (Reissberg, 2011). My caveat, however, is that Hawaii comprises one State of the United States of America, and it is therefore a *developed* country, with all the resources the USA can deliver. My own use of the VSM in a *developing* country context is therefore different, as there are large numbers of aid agencies to co-ordinate.

So what could the VSM do in my project? Jackson offers one answer:

“Obviously the VSM itself is a model and not a methodology, but it is based on such firm cybernetic principles that it is not difficult to extrapolate from those

principles, and the model itself, exactly how to proceed in uncovering the faults of organizations” (1993, p.570).

Note the focus on the faults of organisations in the above quotation, *not* individuals, and I share the view of many systems thinkers (e.g., Fortune and Peters, 1995) that problems are often systemic and cannot often be traced back to an individual act of negligence, although ignorance of how systems work may be a factor. The VSM is a tool to bring a constructive re-ordering to the analysis process, and to assist with uncovering relevant possible interventions to correct problems. The focus at the system (rather than the individual) level is one reason why I have additionally explored the concept of groupthink; collective complicity in uncritical thinking in order to preserve harmonious relationships (Janis, 1982) [see also: *Appendix A06*]. Groupthink is a property of teams and organisational systems. It also implies *uncritically accepted* boundaries. Potentially, both the VSM and boundary analysis could be antidotes to groupthink.

### **2.6.8 How does VSM help my research?**

One of my key points of enquiry concerns the links and flows of communications within and across multiple agencies in the disaster field and within the (remote) headquarters of each organisation. I contend that such complex structures, for example the United Nations with its multiple ‘divisions’ that would be concerned with a natural disaster, require a model that begins to ease the understanding of such complexity. Preece *et al.* say of the VSM that,

“VSM offers a prescriptive way to model/diagnose faults in a complex system and then correct them in alignment with an ideal model which describes the core activities that an organisation must perform to remain viable. This helps to develop appropriate processes and communication structures” (2013, p.211).

Their commentary clearly outlines the ‘how’ of the VSM and, additionally, confirms the need for a multi-agency approach – with multi-agencies needing to form a viable organisation. This is the vital perspective I seek.

### **2.6.9 What are the significant criticisms of VSM and its implementation?**

There are various criticisms of Beer’s VSM in the literature (e.g., Jackson, 1991b; Ulrich, 1981). There are practitioners who strongly favour the VSM as ‘a tool of enquiry’, while others leave it alone altogether. Here, I want to focus on issues of some concern to me in applying the VSM in this project.

My first issue follows from a further defining explanation, that the

“VSM can be used for both diagnostic purposes, enabling the search for dysfunctions, and [for] design purposes, defining functional specifications for the design of, for instance, viable organizations... [However,] the VSM lists what viable organizations should do in order to be viable, but it leaves open what kind of infrastructures can be used to accomplish this” (Achterbergh and Vriens, 2011, p.437).

As my project aims at a higher level of governance-reporting, i.e. that of the UN, Regional Governments, and NGOs’ HQs, it is possible that my organisational designs may be perceived as too abstract by future agencies interested in implementing them, as they will not specify the precise resources to be deployed. It seems to me that my use of Beer’s VSM is the beginning, not the end, of the enquiry, and I should simply acknowledge this. It would be inappropriate to over-specify the design of international co-ordinating agencies, as this would violate the principle of stakeholder engagement.

When it comes to implementation, such engagement will be very important, and implementation will be a much larger project than producing my own high-level design.

Related to the above criticism, Gregory observes that “Beer’s VSM is clearly grounded in cybernetic principles but, perhaps, appears too theoretical and lacks the common sense appeal that pragmatic managers value” (2007, p.1510). For a student wishing to make an immediate impact, other approaches and tools may be advantageous. However, I actually do find ‘common sense’ within the VSM, as it helps me to reflect on and to comprehend the magnitude and complexity of disaster response systems in developing countries. When Gregory (2007, p.1510) talks about “common sense appeal” I suspect she mean ‘relatively simple, fitting with management thought that is already well-known and intuitively grasped’. If disaster response systems in developing countries could be made sufficiently effective through simple, well-known methods, we wouldn’t continue to see problems with disaster response initiatives (see, for instance: Disaster Resilience Leadership Academy, 2012; Bornstein *et al.*, 2013; Chou and Chen, 2013).

In Gregory’s criticism, there is the suggestion that the VSM *alone* is not sufficient to aid comprehension of the situation in question. Reissberg uses it with another approach, Syntegration (Beer, 1994): the “structural diagnosis through the cybernetic tool ‘the Viable System Model’ came ... with the suggestion of using the Advanced Syntegration to remove inefficient and ineffective patterns” (Reissberg, 2011, p.458). Syntegration<sup>1</sup> brings people together to discuss issues, following a process of exploration to achieve an end-goal. This suggests the utility of a *pluralistic* approach, integrating Beer’s VSM

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<sup>1</sup> *Advanced Syntegration*<sup>TM</sup> (method): “a revolutionary highly innovative tool based on [a] 30-year research tradition in cybernetic management. Its power [derived] from simultaneity, interconnectiveness, participation, and speed. [Three] parts: an innovative cybernetic communication process; holistic management systems; simultaneously implemented cybernetic instruments: a holistic character” (Reissberg, 2011).

with other methodological ‘tools’, which is the approach taken in my own project under the umbrella of Systemic Intervention (Midgley, 2000).

One further criticism I discuss here concerns the ease-of-use of VSM by practitioners. Preece *et al.* write that the

“VSM is often regarded as powerful, but difficult to use due to the many subtleties/complexities in VSM theory (Espejo *et al.*, 1999, p.661). This puts the approach at a disadvantage for time-constrained practitioners when compared to more interpretive approaches e.g. Soft Systems Methodology” (Preece *et al.*, 2013, p.211).

This observation is relevant to my project too. The observation I have been given about Beer’s VSM is that it takes many years to become technically competent in its use; I am still the ‘neophyte’, at the beginning of my understanding. Also, I know that natural disasters occur without any, or much, pre-warning, and developing countries are less likely than developed nations to have highly-sophisticated technical monitoring equipment. Consequently there is no time to study and work through – on the ground, at the disaster front – the minutiae of a VSM analysis. It is for this reason that my own organisational designs are all about disaster preparedness: looking at how the UN could develop organisations to co-ordinate disaster responses when the need arises.

#### **2.6.10 Summary of the theoretical VSM**

The VSM is “... useful for asking penetrating questions about how...” (Preece *et al.*, 2013, p.216) systems work. However, I will require additional tools for analysis. I have therefore adopted a Systemic Intervention (Midgley, 2000) approach, with the VSM being just one significant part of what I will use; a fuller account is at section 4.3.



## 2.7 Critical Systems Thinking

Earlier I wrote about Hard Systems Thinking (section 2.2) and Soft Systems Thinking (section 2.3). I interrupted the flow to discuss Boundary Analysis and the Viable System Model, immediately above. Now I go on to discuss Critical Systems Thinking (CST), which is the paradigm from which Systemic Intervention and my own research emerged.

### 2.7.1 Critical Systems Thinking (CST)

I address CST as being the third wave of methodologies ('Hard' being the first wave and 'Soft' the second), though my discussion will cover two threads that have been in tension in the literature: Critical Systems Heuristics (CSH) and Total Systems Intervention (TSI).

Jackson (1994) provides an historical reflection: the fragmentation of "systems thinking ... was now the main barrier to further progress ... [so CST offered] itself to the systems movement as a way of moving beyond" (p.223ff) the isolated strands.

Ramage & Shipp write of "four stages" in the development of CST:

"[1] critique of existing systems ... [2] call for developing systems methodologies ... [3] tool to classify the [systems] areas ... [and 4] development of a meta-methodology for CST" (2009, p.170).

The essence is that Jackson had criticisms of both hard and soft systems thinking, but discussed the latter more (*cf.*, Jackson, 1982), and, as Ramage & Shipp then further comment,

“... Jackson understood an approach grounded upon critical theory ... post-Marxist social theory, [and] ... the work of Jürgen Habermas ... [and thought it could become the clarion-call] for a form of Systems based on critical theory [and with an] emancipatory focus” (Ramage and Shipp, 2009, pp.170-171).

Jackson argues that CST should work through “five ‘commitments’ [being] critical awareness, social awareness, complementarism at the methodological level, complementarism at the theoretical level, and a dedication to human emancipation” (Jackson, 1991a, p.132).

The argument Jackson offers is essentially that hard systems thinking “is guided by functionalist assumptions” (inquiry should aim for objectivity and be concerned with explaining real world systems), and that soft systems thinking “is based upon interpretive assumptions” (inquiry should aim for inter-subjective understanding and be concerned with explaining multiple human perspectives unfolding in the context of action) (*cf.*, Jackson, 1991a, p.133). Both of these are limited, according to him. Jackson shares the concern of the interpretivists that hard systems thinking ignores multiple perspectives, but also criticises interpretivism for ignoring the importance of power relationships that have their origins in objective, structural systems in society. Jackson (*c.f.*, 1991b) argues that hard and soft methodologies can be used in a complementary manner, and indeed each can address the weaknesses of the other.

Midgley (1992, 2000), drawing on some of the ideas of Ulrich (1983), offers a different perspective and says that it is the critique of boundaries that is “one of the main defining features of critical systems thinking” (Midgley, 1992, p.8), where excluding the possibility of exploring different possible boundary judgements “seriously impoverishes choice” (*ibid*). The importance of this concept is explained by Midgley as follows:

“where exactly boundaries are constructed, and what the values are that guide the construction, will determine how issues are seen and what actions will be taken” (Midgley, 2000, p.36). This is because boundaries define the nature of the situation that people think they are dealing with, and if there is a failure to explore different possible boundary judgements, then a superficial understanding may be taken for granted, possibly even leading to a choice of methods that could make the situation worse.

Already, in the two views of CST by Jackson and Midgley, above, we see a schism in the third wave of systems thinking. I will explain this in more detail, focusing on two different social-theoretical and methodological contributions: Critical Systems Heuristics (CSH) (Ulrich, 1983) and Total Systems Intervention (TSI) (Flood and Jackson, 1991). Ultimately, Midgley (2000) sought to reconcile these competing views of CST, and his work will be explored later.

### **2.7.2 CST as Critical Systems Heuristics (CSH; Ulrich, 1983)**

Ulrich understands boundaries in particular ways: for example, that “boundaries ... are presumed and are tacitly equated with the boundaries of the participants’ discursive chances ...” (2003a, p.330); as “the *boundaries of concern* that we presuppose whenever we conceive of some problem situation ...” (2012a, p.1236; original italics); and that the conceiving “of systems without assuming some kind of systems boundaries” (2003b, p.12) makes little sense, given that all perspectives are inherently limited (bounded) and we can’t have a God’s eye view.

Ulrich takes this philosophical perspective and uses it to formulate his ‘Systemic Boundary Critique’ (*cf.*, 2003a), introduced earlier, which is defined as “a process of

systematic critical revision of the boundary judgements that constitute the reference systems of practical propositions” (2003a, p.339). He says that Systemic Boundary Critique is “the methodological core concept of Critical Systems Heuristics (CSH)” (*cf.*, 2003a), and Ulrich describes CSH as a “discursive framework for promoting critical (reflective & emancipatory) practice” (*ibid*, p.327). The description comes ‘full-circle’ (so to speak), claiming that “Critical heuristics therefore seeks to provide a conceptual framework for identifying and debating boundary judgements systematically” (*ibid*, p.333).

Ulrich’s CSH is “a practical working-through of some of the major ideas of [C] West Churchman ... [taking] an explicitly emancipatory approach” (Ramage and Shipp, 2009, p.159). According to Midgley *et al.* (1998), Churchman (1970) was the first author in the systems thinking tradition to view boundaries as the limits to knowledge accepted as pertinent in an analysis, as opposed to the earlier use of the term ‘boundary’ to refer to the edge of a real world system. However, Churchman (1970) emphasised *pushing out* the boundaries of analysis, while Ulrich (1983) stressed *exploring* different boundaries and *choosing* among them.

Ulrich also expressed a strong “interest in the work of Jürgen Habermas ... [but his understanding of the term ‘critical’ is] less explicitly political ... than Habermas’s understanding of critical theory ...” (Ramage and Shipp, 2009, pp.159, 160). Ulrich (*c.f.*, 1983) criticises Habermas (*c.f.*, 1976) for believing that participative debate is a sufficient corrective for the negative influence of power relations in society, saying that Habermas has an idealistic notion of debate as if it is possible to involve every member of society – past, present and future. Boundaries to participation are inevitable, according to Ulrich. Likewise, he criticises Churchman (1970) for emphasising the

expansion of boundaries: sometimes there is a practical necessity for a narrow boundary to facilitate timely decision making. The “discursive approaches of Churchman and Habermas ... become impractical” (Ulrich, 2000a, p.3) due to requiring ‘complete or full’ knowledge in order to operate. Thus the suggestion for the disaster zone and for the front-line worker – Midgley’s ‘agent’ for ‘improvement’ (2003a, p.91) – is that action based on even *flawed* or *incomplete* information is better than no action at all. Ulrich says, “... the agent’s horizon of expectation is inevitably value-loaded [and that] action proper would have to reflect on this aspect of the horizon of expectations ...” (1983, p.28ff).

The complexities of the natural disaster front-line bring community and multiple agencies’ *expectations* into a complex cauldron of values. Expectations are inevitably highly-charged for all parties, and agency and community perspectives on needs may differ. Objectivity is required. In *Critical Heuristics of Social Planning*, Ulrich writes this: “From a truly critical point of view, objectivity can be defined only as the complete transparency of all subjective presuppositions ...” (1983, p.49ff); thus, the seeking of clarity concerning different perspectives in the research situation, to the best possible extent by the researcher.

What Ulrich does with CSH is to move it

“from a concept of rationality that depends on positive justification of validity claims [Habermas (1976) says that all communications make implicit claims to truth, rightness and sincerity, and being critical involves justifying these claims in debate] towards concentrating on the task of *securing at least a critical solution* to the justification problem” (2000a, p.2, original italics).

By which he means replacing the requirement for positive justification (which can never be comprehensive) with a requirement for subjecting assumptions to critical analysis, which only needs to be justifiable as *adequate in the circumstances*, rather than comprehensive. Contrary to my viewpoint here, another standpoint (though I do take additionally the support of this too), would be in seeing that Habermas's key attribute concerns the *redeeming* of validity claims by those noting them to those with whom understanding is being reached. This is due to that justification involves noting a claim *to* someone; viz. there requires an action wherein the validity claim is made visible to (potentially) a person who is able to respond to the claim – with authority. Whether either or both viewpoints are taken, justification will always be coloured by the effects of boundary judgements – people are fallible, often making subjective judgements.

There is a balance required: we might desire total knowledge, but have to accept imperfect knowledge so the researcher can get on with the task at hand, otherwise action would be paralysed. This means that the researcher or facilitator – Midgley's 'agent' (*cf.*, 2000, 2003a) – should not try to (necessarily) base the work on total and complete knowledge but on what is realistically and practically available, plus some exploration of boundaries to reveal different possibilities for understanding the system of concern. Ulrich criticises Churchman and Habermas in asking for “more than can be achieved in real-world discourses” (Ulrich, 2000a, p.4), and suggests that CSH is better in this regard.

Ulrich claims that CSH “produced a practical framework for critical systems thinking [CST]” (2012a, p.1233); whereas Jackson writes of CSH that it “tries to provide the means to reflect upon the presuppositions that enter into any social system design and to work out whose interests the design serves” (1994, p.222). But it is more of a social

theory approach, and not a mature methodology, so is difficult to put into practice and has therefore not been widely applied (*cf.*, Flood and Jackson, 1991). They say that this could be corrected if only Ulrich would accept the need for methodological pluralism, as he could draw upon methods from other methodologies to support the implementation of CSH.

Jackson also critiques CSH by saying that it can only deal with very simple forms of coercion, where giving stakeholders the opportunity to mount a polemical argument is enough to open space for debate, but more complex forms of coercion, where there are entrenched inequalities built into the structure of society, remain unaddressed (e.g., Jackson, 1990, p.664, 1991a, p.135, 1994, p.222).

Midgley (1997a, p.46ff) goes further than this, arguing that CSH cannot actually deal with coercion at all, as coercion involves closure of debate. To actually resolve conflict, CSH requires either open debate between opposing factions or arbitration by an authority that the participants will have to accept as legitimate.

Finally, Ulrich makes the interesting observation that “the history of OR ... from ‘hard’ to ‘soft’ and ‘critical’ systems thinking is replaced by an integrated perspective of OR as applied systems thinking” (2012a, p.1233). This is a claim that Jackson could never accept, as he views CSH as just one amongst many systems approaches that are useful for different purposes (Flood and Jackson, 1991; Jackson, 1991a).

### 2.7.3 CST as Total Systems Intervention (TSI; Flood and Jackson, 1991)

Ulrich calls Total Systems Intervention “an overarching framework” (2012a, p.1233), and Ramage and Shipp describe it as a “‘meta-methodology’ (so called because it assists in the selection and use of other systems methodologies)” (2009, p.171). Flood writes: “TSI was conceived in the second half of the 1980s by Michael C Jackson and myself” (2001, p.245). With a variety of methods and methodologies available to practitioners, Flood and Jackson wondered, “could this diversity be amplified as part of managing the even greater diversity of organisational and societal affairs? The challenge was to invent the amplifier ...” (*ibid*), and Flood notes the Aristotelian idea that the whole (TSI) can be greater than the sum of its parts (the various systems methodologies it contextualises). Jackson says that “TSI represents a new approach to planning, designing, problem solving, and evaluation ... to encourage creative thinking about organizations and their problems” (1991b, p.271). In a Table [11.2 *The 3-Phase TSI Methodology*], Jackson gives the functional highlights of the TSI meta-methodology, “Creativity; Choice; [and] Implementation” (1991b, p.276), together with what should be expected of each.

Jackson explains each of these ‘phases’ thus:

‘Creativity’ uses “systems metaphors as organising structures to help managers and other stakeholders [to] think creatively ...” and to find “a ‘dominant’ metaphor that highlights the main interests and concerns” [of the stakeholders]; ‘Choice’ means choosing “an appropriate systems-based intervention methodology (or set of methodologies) to suit the particular characteristics of the ... situation”. “A dominant methodology” is likely to be chosen, but this will need to be “tempered in use” through reflections on the context and discussions with key stakeholders; and



‘Implementation’ is about employing “a particular systems methodology (or systems methodologies) to translate the dominant vision of the organisation [stakeholders] ... into specific proposals for change” (1991b, p.273ff), and to achieve the intervention desired. Jackson also notes that the “three-phase methodology of TSI is a systemic and iterative approach ... [pursuing] continual reference ... to likely conclusions of other phases” (*ibid*, p.276): by extraction, this suggests a *cyclical* or *iterative* process of examination and continual searching for (a) result(s).

TSI also imports into its set of ideas the System of Systems Methodologies, which relates different systems methodologies to what Jackson and Keys (1984) and Jackson (1987a) see as their most appropriate contexts for application. This framework can be used to aid ‘choice’ (as discussed above) alongside the results of the creative metaphor analysis. In their 1984 Paper, Jackson and Keys categorised problem contexts into ‘simple’ and ‘complex’ types, and in addition said that they could be ‘unitary’ (agreement on the nature of the problem and how to start to address it) versus ‘pluralist’ (multiple perspectives on the problem and potential solutions). They conclude that through “... the diversity of methodologies around can be found attempts to come to terms with each of the different types of problem context ...” (Jackson and Keys, 1984, p.485). The System of Systems Methodologies categorisation system was further developed by Jackson, who said that “participants can... [also be in] a coercive relationship to each other” (Jackson, 1987a, p.155). So Flood and Jackson (1991) claim that the System of Systems Methodologies is a key vehicle for choosing the right systems approach for the circumstances. They write that “the ‘system of systems methodologies’ is not a short cut to, but rather an enrichment of, Total Systems Intervention (TSI)” (1991, p.43). It should be noted that Flood and Jackson (1991)

confine the use of CSH (discussed earlier) to simple-coercive situations only: ‘simple’, because CSH assumes that there are clearly differentiated stakeholder positions to explore; and ‘coercive’ because it can support stakeholders on the receiving end of coercion in developing polemical arguments to embarrass those coercing them.

Now the schism between the CSH and TSI views of critical systems thinking can be fully revealed. Ulrich (2012a) says that CSH may replace the hard/soft/critical paradigms with a new, integrated understanding, because no previous ideas have fully understood the importance of exploring boundary judgements. In contrast, Flood and Jackson (1991) put CSH in a box in the System of Systems Methodologies, saying it is only useful in simple-coercive situations; their text ‘confines’ CSH into these *simple* and *coercive* categories, as outline above. This may have an effect of confusion about it: Jackson may have seen the situation as ‘understanding assumptions’. Jackson criticises Keys’ paper (1988). Keys proffers, “... by developing a method for methodological choice [...] a contingency theory of systems-based methodologies which may be used to improve problem-situations” (Keys, 1988, p.65); this is perhaps the early foundation towards the needed ‘whole view’ systemic approach for disaster relief management praxis. Jackson’s critical position of Keys’ proposal is offered that it represents “... two steps backward in the development of that thinking as the basis for a revitalized management science” (1990, p.660), and there are further criticisms across Jackson’s paper: valid or not, today Systems Thinking has progressed to developed methodologies beyond these arguments. However – and somewhat broadly, Ulrich (1993) disagrees with the tenets here, saying the exploration of boundaries is needed up front in all situations, otherwise it is unclear what kind of context you are really dealing with. These are implacably opposed positions. My position here is *theoretical*, as this present discussion provides the foundation towards developing greater systematic

provision for natural disaster management recovery and thus assisting to the building of preparatory work that my contribution (in the form of models, see later) seeks to give. The principle issue concerns how boundaries are used, through the gathering of information (data) and in challenging the boundaries (a human instinct perhaps) which evolve ordinarily. What is required is an approach that gives ‘good’ acceptance to such bounded views and ‘brings’ interventional action into being.

It is, however, Midgley’s (2000) Systemic Intervention approach which seeks to reconcile these differing viewpoints. Midgley tackles the matter of boundaries, saying that agents should “reflect critically upon, and make choices between, boundaries” (boundary critique); but should *also* address the research matter through methodological pluralism by making “choice between theories and methods to guide action”; and, through both boundary critique and methodological pluralism, attain “*action for improvement* (action for the better ...)” (2000, p.129-130; original italics). To explain further, I now discuss Systemic Intervention’s principle attributes.

## **2.8 Systemic Intervention**

This project’s research matter is wide-spread (*global in nature*), complex (*many contributing elements interacting and creating surprises*), complicated (*by diverse inputs and requirements*), and human (*with individual and community needs to be addressed*). Achieving the perfect solution will not be possible, but designing a ‘better’ solution than currently exists might be a reasonable expectation with a Systemic Intervention approach.

### 2.8.1 Systemic Intervention – *reconciles*

Here I shall discuss how Systemic Intervention (SI) differs from other CST approaches, and I will demonstrate that the needs of this project justify the choosing of Systemic Intervention. Then, following this, I discuss the various constituent ‘building-blocks’ of SI, to define it and how it works for my research project.

The innovation in Midgley’s Systemic Intervention approach (*cf.*, 2000, 2003a) is saying that boundary critique is needed up-front to explore situations before choosing or designing the approach, drawing on a pluralist set of methods to achieve the intended intervention. This addresses Flood and Jackson’s criticism of Ulrich’s unwillingness to embrace methodological pluralism; and it also addresses Ulrich’s (1993) criticism of Flood and Jackson’s confinement of CSH to one particular context in the System of Systems Methodologies, thereby neutering the utility of CSH for deeply exploring problematic situations. We can have the best of both worlds.

However, putting boundary critique up-front does change the perspective on methodological pluralism from Jackson’s (1991b) original proposal: Midgley (2000) talks about *mixing theories and methods* that have been drawn from other methodologies (not choosing between or mixing methodologies), and he says that researchers can develop their own continually evolving Systemic Intervention methodology (used to interpret theories and methods) through reflections on the methodologies of others. Therefore, Systemic Intervention does not pretend to be ‘meta-paradigmatic’ (a claim made for critical systems thinking by Flood (1990)), but is at the same level as other methodologies because it makes different assumptions to them (about the need for boundary critique, amongst other things).

The importance of the Systemic Intervention approach for this project is in addressing the context of any natural disaster in a developing country by looking closely at *boundaries, methods, and potential 'improvements'*, whereby the disaster-hit community can gain, through its engagement with multiple agencies, the requisite recovery it seeks. Such disasters produce vast complexities, significant and formidable logistical requirements, plus the real need to attend to the focus of the situation – the community itself, which can easily be marginalised in the struggle by multiple agencies to deal with the complexity of the logistics.

I argue that up-front boundary critique could be really useful in the context of disasters, for two reasons: first, to open taken-for-granted assumptions about the situation to examination, thereby making the research more sensitive to complexity; and second, because Midgley (1992, 2000) explicitly addresses the marginalisation of communities in his work on boundaries.

Also, complexity brings with it multiple challenges, ranging from simply understanding the sheer number of interconnected issues facing a community to dealing with conflicts between agencies delivering services with different goals and policy agendas in mind. In my Masters' project I observed, "what a community 'requires and needs', rather than what an NGO or consultant says they 'should have'" (Munday, 2011, p.47) are different things, which give rise to conflict when they clash – and every disaster-hit resident will hold an opinion concerning what counts as satisfaction. Given the range of problems that might need to be addressed, the focus of Systemic Intervention on methodological pluralism is useful. As I have already argued, neither CSH or TSI (or indeed any other methodological approach in the literature, as far as I am aware) offers both up-front boundary critique and methodological pluralism.

Midgley's (2000, 2003a) Systemic Intervention methodology forms a core element of my research approach. Its application should help me "to ask new and different questions about what forms of intervention" (Midgley, 2003a, p.93) to consider within the framework of a multi-method approach for disaster recovery agencies. As such, this should permit fuller reflection on, and inclusion of, multiple points of view – especially of disaster-hit communities. It should also resist a 'fixated' perspective, through encouraging "value and boundary judgements on an *on-going* basis" (*ibid*, p.93; original emphasis).

Now I proceed to look at the various components of Systemic Intervention.

### **2.8.2 Systemic Intervention building-blocks**

I have referred to Systemic Intervention (in earlier sections) as being the 'umbrella' of my research methodology in this project, under which I bring the necessary contributions to make what I do work. An alternative image may be drawn of a three-legged milking stool from the era of rustic, rural farming: the 'seat' is the 'methodology' and 'the three legs' are what I term here the three constituent elements of Systemic Intervention: 1) The need to understand and critique boundaries, 2) The capacity to choose from various methods and theories, and 3) The ability to achieve improvement (Midgley, 2000, pp.129-130). The point is that, to make the methodology function, the 'seat' is that which holds it all together. I will now define how these points are relevant to this project by explaining each element in turn.

### 2.8.3 Boundaries

I have fully discussed boundary analysis earlier [section 2.4], but I use this moment to provide the contextual position of boundaries in this project, with respect to Systemic Intervention. A boundary is a distinction of what is inside or outside a system or a set of elements of relevance to an issue: it is not necessarily physical, like the skin of the human body; it may be a thought of an individual or shared point-of-view that leads to the setting of a boundary, given that comprehensive understanding is not possible. It is often a conceptual marker which demarcates particular (community) interests (*c.f.*, Midgley, 2000). Different interests imply the use of different conceptual boundaries. The disaster-hit community seek a response to their situation; the multiple agencies have a response, though this may or may not meet the communities' needs; and other participants, say the media in reporting events, view people's needs and interactions from a further viewpoint: these are all bounded perspectives. It is also potentially possible to identify a vast number of bounded interests, which may conflict. However, in a natural disaster situation, being able to address each and every bounded interest is likely to be impossible, and it is usually *decidedly* impossible to *satisfy* every bounded interest – accommodation is required.

I have used the word 'interest', above, in the sense of 'significance' or 'importance' to the person or group concerned. However, it might be thought that the term 'interest' implies that it is fixed and unchanging, so the existence of interests implies competition and the inevitability of winners and losers. This, though, is not the intention. I see 'interests' as open to change through dialogue and learning, especially in light of pragmatic acceptance of the need for accommodations. To avoid the connotation of 'interests' as fixed, Romm (2010) uses the word 'value(s)' instead, and this implies a starting position that is open to evolution, revision or transformation. She says that one

important value that impacts on the consideration of all other values is “being *sensitive to a range of considerations springing from engagement with alternative perspectives and values*” (2010, p.23; original italics): thus, this brings the humanity and emotional connection into the situation, enabling people to recognise the pain and distress of themselves and others, but endeavouring meanwhile to achieve the best possible outcome for all parties. I use the term ‘interests’ in the same sense that Romm uses ‘values’: they are mutable in the context of empathy (see also: Maturana, 1988; Bilson, 1997; Córdoba and Midgley, 2006). So ‘interests’ or ‘values’ evolve through any dialogue, and empathy with the community may be invoked when they are central to that dialogue. Midgley stresses, “a core idea in the theory of boundary critique is that boundary judgements and values are intimately connected” (2000, p.136), which is where Midgley’s ‘agent’ holds the expert but facilitating role between the interested parties.

The point is that boundaries do exist in and across society in all of its activities, and no one party is legitimately able ‘to claim total and fully complete’ knowledge: as Ulrich puts it, “we may seek to be comprehensively rational ... [but] never do attain such comprehensiveness” (2000a, p.4). Nevertheless, boundaries are not just an inevitable hindrance: they are useful in many ways because they enable and facilitate as much as they constrain and deny – they help get things done. Yet boundaries may also be problematic, resistant to change, or perhaps they are needed for one purpose and this frustrates another. So a boundary can be rigid or flexible, but has to be addressed to achieve a possibly greater strategic purpose; ‘the wider community benefit’ perhaps. The disaster relief management practitioner needs to go further than their own preconceptions and their own observations to gather the multiple viewpoints of other people – a data-gathering exercise, but difficult in the midst of a natural disaster. Such a



practitioner would begin to learn theoretical approaches ‘outside’ a disaster; ‘in-field’ activities will be unique and complex, needing experience and adroitness based on earlier learning and praxis. Exploring multiple perspectives, implying different boundaries, is one way to subject one’s own taken-for-granted boundaries to critique (*q.v.*, Ulrich, 1983).

Increased information, as long as it is within the capacity of the practitioner to comprehend the variety, allows for deeper consideration and so greatly enhanced capacity to provide a better ‘change’. Ulrich (*q.v.*, 1983) says that *the right information* as required *by the right individual* may mean better work is achievable; and, vital to understand for my project, that even action based on *flawed* or *incomplete* information may help to save disaster-hit communities; the moral imperative being the saving of lives. This is where the concept of boundaries, of *bounded* interests, becomes of great concern; here is where the ‘agent’, as facilitator of the intervention, begins to make decisions, influenced by the events and circumstances at hand. There are some questions that begin to assist such decision-making. When should analysis stop and action begin? What triggers the point in the management teams’ activities when they say ‘enough: now implement’ (an intervention, etc.)?

Again, from Ulrich: “...objectivity can be defined only as the complete transparency of all subjective presuppositions ...” (1983, p.50), which implies that break-offs in analysis by the multi-agencies need to be clear to other stakeholders intimately involved in the crisis situation. Use of the term ‘crisis situation’ here applies equally to whether people are within or between (natural) disasters, as people can be in crisis many years after the initial event. Instances of this position are: Haiti, where “...humanitarian aid was still needed in Haiti long after its earthquake ...” in January 2010 (Munday, 2011,

p.81), and Somalia, with over twenty years' of natural disasters and civil conflict, being blighted as "...the centre of two significant disasters: one is the Somali Civil War, the second is drought" (*ibid*, p.69). It is the finding of the right boundary points (where to make such 'break-points') which matters. This is what *Systemic Intervention* (SI) and my own *Systemic Boundary Analysis* tool set out to achieve. This is why a key attribute of this project is involving the community in decision-making: boundaries are a key understanding of SI, and 'justification break-offs' (Ulrich, 1983) need to be transparent to the community. This leads now to the 'critique' aspect; understanding conflicting boundaries.

#### **2.8.4 Boundary Critique**

The philosophy of boundary critique stems back to Churchman (1970), although the term was not coined until later: then the focus was what to include in or exclude from research in terms of the verifiable nature of data (for example, 1970, p.B-41); this was about 'bounding' the research materials. Churchman says, "... in a real problem there is no obvious authorization of data, and the critical issue is to decide which systemic assumptions can legitimately be made" (1970, p.B-42). Since Churchman, the nature and thinking behind boundary critique in systems thinking has developed: among the authors are Barros-Castro *et al.* (2014), Córdoba and Midgley (2006), Foote *et al.* (2007), Midgley (2003a), and Ulrich (1983). I principally draw from these authors to clarify my understanding.

I view boundary critique as exploring "inter-connections and impacts", with the need to "mirror as adequately as possible the different settings and situations" (Barros-Castro *et al.*, 2014, pp.266, 274), and to do this – as the researcher – holding a *broad-view*

perspective. Foote *et al.* (2007, p.645) explain boundary critique as providing “a set of ideas that can support people in undertaking [research, and which can be] pivotal in building stakeholders’ understandings of the problematic situation and guiding...” how the “agent” (Midgley, 2003a, p.79) begins to understand the situation. Midgley (*ibid*) explains that the ‘agent’ undertakes “purposeful action to create change” – the intervention itself – with recourse to reflections upon boundaries.

What boundary critique is doing is “using a systems approach focused on the boundaries that a participant uses to delimit his or her concerns, and [so] boundaries can be shifted in response” (Midgley and Pinzón, 2013, p.608) to attain the accommodations which I discussed earlier. With each individual, each community, each other potential participant, and with a variety of different bounded views, there will be some agreement and some disagreement about what matters most. However, such bounded views will probably divide into a few different ‘classes’ of perspective: there could be a temporary conflict, for example, with people choosing sides, and the task is to resolve it by ‘sweeping-in’ understandings which can be worked upon to make a real difference for the community; other more entrenched views might need to be addressed too, but will take longer to resolve. From the disaster-front, these might include matters of housing, community centre location, of which individual or organisation will pay for goods and services, and much else that contributes to recovery across a disaster-hit community: there will be many voices, and divergence and contradiction. Hart and Paucar-Caceres (2013, p.200), citing Churchman (1971), talk about “a process of ‘sweeping in’ as many perspectives as possible, [noting, however, that] it is never possible to ‘sweep in’ all that is relevant”. Midgley *et al.* write that “wide-spread stakeholder involvement is required, sweeping in a variety of relevant perspectives” (1998, p.468). “This becomes a process of ‘estimation’ and judgement limited by existing knowledge”, conclude Hart

and Paucar-Caceres (2013, p.200). Thus, the relevance of Ulrich's Critical Systems Heuristics (CSH) that I noted above, and his Systemic Boundary Critique tool. It is Ulrich, with the significance and rigour of his contribution, who is a key author in boundary critique (see for example, 1983, 1998, 2000b, 2001b; a).

So, for this project, boundary critique should come into play when there is a need to understand the crises which communities and multiple agencies cope with in the aftermath of a disaster, so that these may be tackled and decision-making is properly justified – as facilitated by the 'agent'. Because failure to properly appreciate boundaries may give rise to missing a hidden feature of the disaster event that could affect implementation of the most suitable intervention (for example, by missing coercion, key interdependencies, marginalised stakeholders, and so on), it is Baker *et al.* who here explain the intention and purpose of boundary critique, as follows:

“... the exploration and setting of boundaries can be undertaken through dialogue between stakeholders, making boundary judgements more 'rational' and robust than if simply imposed by planners or external researchers in the absence of meaningful community participation” (2004, p.4, original apostrophes).

The term 'simply imposed' is also of particular interest in this project. Boundary critique is necessarily inclusive of as many parties as possible or necessary, and brings in the diversity of bounded issues each party holds. There should be no *carte blanche* authority for the multiple agencies to impose their own disaster solutions upon the community without engagement and modification. So, only following boundary critique should relevant methods and theories (a 'leg' of my milking stool analogy) be selected and be brought into use by the 'agent'.

But, and here is a crucial perspective as Córdoba and Midgley (2006) indicate, boundary critique needs to be on-going: “ideally, the process of boundary critique should be continuous: as new boundaries are identified over time, the understandings of participants should evolve ...” (p.1067). Therefore, as the initial application of theories and methods are explored, new issues may be thrown up to be understood and addressed through this evolving process. Ulrich puts it this way:

“Surfacing and questioning boundary judgments thus provides ordinary people with a means to counter unqualified rationality claims on the part of experts or decision makers – as well as other citizens – by demonstrating the way they may depend on debatable boundary judgments” (Ulrich, 1996, p.5-6).

And this point of Ulrich demands that the ‘agent’ (or facilitator) listen to all parties concerned, understand the bounded interests or values expressed, and anticipate when, during an intervention, it might be necessary to return to boundary critique.

The argument against that dogmatic stance would be if ‘people power’ sought to override ‘expert opinion’ but to their detriment. Should boundary critique (by people power) override the ‘obvious’ response (from expert-led expertise): this is a moot point. Boundary critique should be participative ... however, can any disaster-hit community be really expected to provide cogent argument in the heat of its trauma. The crisis requires decisive decision-making processes that are based upon rational expert-led action. Flood writes that “...participation of all stakeholders, that is, all people involved in taking action as well as people affected by those actions” (2010, p.277) is a necessary ‘part’ of the intervention process. However, this sense of participation must be bounded as some description or other, and Barton *et al.* indicate,

“By generating a partial and temporary point of view ... we are in effect identifying clients, the beneficiaries, as those who are in the spotlight ...

[because] critical system thinking recognises that we are choosing who is inside our boundaries of thinking and who will benefit, and who is outside and thus will not” (2004, p.13).

This is not to suggest that this project’s ‘intervenor’ or ‘agent’ is being selective to ensure any sense of compliance with their own or their organisational point of view. Rather, the point is that the balance is struck between the NGO’s capacity to achieve the widest-spread offering of humanitarian aid and support against often finite resources available at that moment. By sweeping-in (*q.v.*, Churchman, 1971) participative community members to gain their requests or needs the sense of boundary critique is actioned. It is hard to argue that the expert’s considered opinion should take precedence though this may necessarily be what needs to be pushed through. Images of very hungry people banging closed gates of United Nations’ food warehouses in a disaster area – shown worldwide in the media – moves the hardest-hearted reader or viewer. The gates, perhaps, are closed because of reasons like personnel safety, when those same hungry people earlier tried to storm the compound to get the food which was not being distributed quickly enough to them. Boundary critique is a participative action; valued judgements have to be taken and made *in the heat of often fraught environments and situations*. So the question is raised as to when is boundary critique acceptable and when is it not ... the normative position of boundary critique. It could be analytical which is viewed as a ‘criteria’, or be the practical application of real field judgement.

So the issue of participative *broadness* or *narrowness* in the boundary critique rests on the sense of the situation and the (perhaps pragmatic) judgement of the expert present at the moment.

“An important implication here is that the most ‘rational’ boundary is not necessarily the widest possible, but the one that is agreed to be most useful and

ethical by those involved in and affected by an intervention (the meaningful participation of the affected being crucial)” (Midgley and Pinzón, 2011, p.1546). This becomes the really vital perspective, as focused action is sometimes needed.

Now I continue by explaining how the use of a pluralistic methodological approach, drawing in multiple theories and methods, is part of the project’s Systemic Intervention.

### **2.8.5 Theories and Methods**

For some researchers the notion of using many methods in one research project may be an anathema. For example, Reed notes “a drastic limitation being imposed on the theoretical scope of sociological analysis from an ethno-methodological viewpoint” (1985, p.56). Then Reed goes on to discuss:

“... the pervasive, not to say malignant, influence which the dominant paradigm had exercised is seen to be reflected in the failure of successive challengers to break free from its philosophical conventions and the tendency to reproduce its theoretical limitations in a different conceptual design” (*ibid*, p.68).

These two Reed quotations suggest that, within the research discipline he writes of (Organizational Analysis), there was some reluctance to extend outside the conventional methodological frame (neo-positivism) to consider methods from other approaches. Instead, Reed (1985) advocates methodological pluralism, which is the key point for me here.

The first proper discussion of pluralism in the Systems/OR literature is in Jackson (1987b). In his discussion, Jackson outlines four “developmental strategies: ‘isolationist’, ‘imperialist’, pragmatist’ and ‘pluralist’” (1987b, p.460). He credits Reed

(1985) for these concepts and further develops them, saying “I am most interested in their viewpoint of ‘pluralist’” (Jackson, 1987b, p.462f). Jackson (*ibid*, p.462) calls for a pluralist “meta-theory ... [to] advise analysts, confronted with different problem-situations, which approach is most suitable”. He then says the System of Systems Methodologies (Jackson and Keys, 1984) could be this meta-theory. It was Jackson and Keys who first discussed the complementarity of different methodologies, but they had not yet named a broader ‘pluralist’ approach that could make sense of this. For Midgley (see, 2000, 2003a, 2011c) methodological pluralism – albeit being about the mixing of methods, not methodologies, offers a fundamental opportunity to allow this project to receive benefits from a number of theories and methods, where these are warranted. The benefits include the opportunity through “the value of learning from other methodologies” (Midgley, 2000, p.x), “the value of a plurality of methods” (*ibid*, p.213), with an impetus in ‘multimethodology’ [from Critical Systems Thinking], because “others may have useful insights that we [Systems Thinkers] may learn from in constructing our own methodological ideas” (*ibid*, p.215). The issue being that (a) learning may come from outside the/our systems paradigms, and (b) this is part of what Systemic Intervention (the philosophical approach) is designed to achieve.

I do not agree with the notion that a single theory or method is always right (what Jackson (1987b, p.455ff) calls ‘isolationism’), as some researchers argue, but I recognise that a method might be the best *under some circumstances*. In other words, it might be possible, following reflection on a suitably sized sample of case studies of intervention, to conclude that the strengths and weaknesses of particular methods make them more or less suitable in different contexts (Jackson and Keys, 1984). My stance is for multi-faceted comprehension within systems thinking praxis, producing high quality and more viable interventions for the client group, stakeholders and



communities. Critiquing boundaries and encompassing the breadth of methods offers a greater opportunity for better interventions: therefore, methodological pluralism within the Systemic Intervention approach will be adopted.

### **2.8.6 Methodological Pluralism**

Many researchers and writers have discussed and used methodological pluralism: see, for example, Jackson (1987b), Midgley (1990b); Gregory (1996); Taket and White (2000); and Midgley and Shen (2007). It is Jackson (1987b) who first introduced the idea to systems thinkers, as noted above. Jackson sums-up his paper with: “the pluralist position can be read as a plea for an increased interchange of ideas and experimental results, so that the full potential [of systems thinking and practice] can be realised” (*ibid*, p.465). I understand methodological pluralism to encompass the sense of being open to methodological opportunities – other than those coming from strictly ‘one’s own research specialism’, which can assist and progress the research project towards a beneficial conclusion. Midgley (2000, p.103-104; 171ff) offers this more precise reflection: “we can accept a plurality of theories flowing into methodology, [therefore] a wide variety of methods may be seen as legitimate”, thus offering the potential and viability of methodological pluralism. I take this philosophy into my research here.

For the purposes of this section, I shall comment upon some specific aspects of the theory of methodological pluralism and draw upon a number of other authors’ views to clarify them. These aspects concern multiple methods, addressing paradigm incommensurability, finding the most appropriate method(s), and the idea of pluralism itself. These aspects are, I believe, vital in constructing my own intervention and for conducting the most advantageous approach within Systemic Intervention – as I am

using it. These ‘aspects’, as I define them, are also discussed in some detail by Midgley and Shen (2007). Firstly, a broad but brief overview of methodological pluralism, to be followed then by a more detailed discussion of those above-named ‘aspects’.

Methodological pluralism (“or ‘complementarism’ as it is sometimes called” (Midgley, 1997b, p.305)) involves a distinction between ‘methodology’ and ‘method’. Midgley defines his use of these terms, referencing Checkland (1981) and Jackson (1991a) in the process:

“... a “method”, meaning a series of techniques applied to some end, and a “methodology”, meaning a theory of research practice that explains why a particular method(s) should or should not be considered valid or appropriate for given circumstances” (1997b, p.306).

He notes that the two words have often been used interchangeably in the Systems/OR community, and this is a mistake because distinguishing them is useful. The point is that we can have pluralism at two levels: at the level of methodology, we can learn from other people’s methodologies; and at the level of method, we can borrow methods from other paradigms and reinterpret them through our own methodology (Midgley, 2000). Also Midgley (2000) states that it is more useful to think in terms of the creative design of methods, “than simple choice between “off-the-shelf” methodologies” (1997b, p.306), and this suggests the researcher is extending the boundary of their own praxis for a more intuitive and reflexive approach.

Through their book, Mingers and Gill (1997) suggest “that using two or more management science methodologies in the same intervention is likely to produce a richer picture” and therefore lead to stronger outcomes; they refer to ‘multimethodology’, which I here take as synonymous with methodological pluralism,

even though the use of that term often tends to confuse method and methodology. To clarify why I say they are synonymous, Taket and White write about “the use of multimethodology, referred to at the time as ‘selecting from, adapting and mixing various methods’” (1998, p.154): that is, the use of methods which concur most appropriately with the task at hand. So to link this brief observation back into my project, because of the complexities of all natural disasters, especially in developing countries, the capacity accrued from “mixing methods to maximise flexibility and responsiveness during interventions” (Midgley, 1997c, p.249) affords the facilitator opportunities to achieve the best findings possible in the circumstances. Thus, this means seeking the best design of methods for the intervention.

### **2.8.7 Multiple methods**

Munro and Mingers’ (2002) survey of practitioners concluded that “combining different methods within an intervention... is very successful” (p.378) from the perspectives of researchers; that “which methods to use [is] affected by the ... nature of the problem” under enquiry; and that some researchers “consider themselves to be multidisciplinary (i.e. through using multiple methods)” (*ibid*). Holling writes of “integrative modes of inquiry and multiple sources of evidence” (1998, no pagination), offering the sense of a lot of data – i.e. a variety of data from diverse sources, (potentially) needing exploration with more than one method of enquiry. Elsewhere, via a chain of ‘to and fro’ articles between Mingers and Ormerod, it is Mingers who writes of “... multimethodology – that is, combining together several methods in an intervention” (2003, p.559 (Abstract)), and it is Ormerod who suggests “... it is relatively easy to consider how the outputs from one method can become inputs to another ...” (Ormerod, 2005, p.464). This sense of multi-methodological practice or approach does not mean that any of the practitioners

therefore wholeheartedly agree with the dogma of that implemented methodological choice's designer; practitioners remain within their own framework or paradigm but sometimes draw from other disciplines to aid their own research and work. However, I do see validity in designing and using *multiple* methods.

So pluralism at the level of methods does have credibility. Brocklesby says,

“It is not difficult to see how multimethodology can enhance the efficacy, efficiency, and applicability of [Operational Research] ... [and being] literate across a number of paradigms allows an agent to deal with a broad range of issues ... with fewer preconceived ideas ...” (1997, p.190).

However, further on, Brocklesby recognises that there are issues with the implementation of multiple methods in a research project, used by a single researcher. The implications are (a) the need to recognise the limitations that the lone researcher has in their acquisition of knowledge, suggesting the utility of collaboration, and (b) the usefulness of training to use a variety of demanding skills from other paradigms. Brocklesby observes various practitioners who have successfully transitioned; “able to work in two or more paradigms” (*ibid*, p.190).

However, this raises questions about ‘paradigm incommensurability’, discussed further below. One of the points made by Midgley (1989, 1990a) and Mingers and Brocklesby (1996) is that pluralists do not actually work in two or more paradigms, but recognise that a pluralist methodology is *in a different paradigm of its own* (see, for example, p.111ff), acting to interpret the use of multiple methods. Therefore this is about acknowledging “a new position which encourages learning about ideas from other paradigms, but reinterpreted in our own terms” (Midgley, 2000, p.248). This is how the Systemic Intervention approach functions (e.g., Midgley, 1989, 2000).

The point above is leading towards my explanation and understanding of why and how *Systemic Intervention* uses mixed methods, sometimes taken from different paradigms, to achieve an intervention. The Systemic Intervention approach challenges the notion held by many systems thinkers that paradigm incommensurability is not as inviolable as once perceived.

### **2.8.8 Paradigm Incommensurability**

For two things to have *commensurability* they need to be measurable by the same standard; conversely, if there is *incommensurability*, there is no common standard: so the two things in question are different (in philosophical, theoretical or practical ways). Mingers and Brocklesby discuss the “feasibility of multimethodology” and write about “the inherent problems” of “links across different paradigms” posing a philosophical challenge (1996, p.111ff).

Referencing a breadth of other researchers’ publications, Mingers and Brocklesby say that due to “the paradigm incommensurability thesis ... researchers must choose the rules under which they do research from among the alternatives on offer” (1996, p.112). At least this is the conventional view. From such a position, they say, the researcher has to stay within one paradigm, though “sequential movement over time is permissible” (*ibid*). What Systemic Intervention says is that the researcher may develop a methodology in the context of a new, pluralist paradigm, and that methodology can be used to reinterpret methods from other paradigms (see: Midgley, 1990a, 2000). Mingers and Brocklesby (1996, p.114-115) therefore argue that “cross-paradigm multimethodology is philosophically feasible” using this understanding.

From my own Systemic Intervention perspective, access to attributes of many paradigms may be sought and drawn into a *new* paradigm (a pluralist one) in order to gain a stronger, more beneficial, outcome. However, the fact of paradigm incommensurability remains an acknowledged presence in my systems thinking, for continuing praxis reflection, as there is no ‘meta-paradigmatic’ position from which to reconcile pluralist and non-pluralist paradigms (Midgley, 2000) – one just has to choose the former because of the greater variety it affords. There is, however, an argument against pluralism.

Jackson and Carter (1991, pp.111; 123) attack Reed’s (1985) pluralism and take a strong stance on paradigm incommensurability (insisting that people choose between paradigms and not borrow from across them) because they say pluralism leads, “apparently inexorably, towards epistemological authoritarianism”. By which I understand that power relations in academic communities may result in the pluralist paradigm subsuming all others; by keeping a strong sense of incommensurability, and refusing pluralism, researchers will be allowed to retain a greater variety of understandings. In answer to this, Zhu pragmatically says that “Paradigm-based theorising is not working. It fails to make a practical difference” (2011, p.795). As I see it, however, both Jackson and Carter (1991) and Zhu (2011) are missing something important that the Systemic Intervention position offers. Midgley (2000) does not deny paradigm incommensurability and says that a new pluralist paradigm is possible. This is anti-authoritarian: there is no attempt to unify and reduce the field to a *single* pluralist perspective, and indeed Midgley (2000) explicitly argues that many pluralist approaches are possible in addition to non-pluralist ones. However, abandoning the language of paradigms, as Zhu (2011) would have us do, is precisely the way to fall into the authoritarianism that Jackson and Carter (1991) warn about: there is a danger of a drive

for pragmatism sweeping aside nuanced theoretical arguments, thereby reducing the variety in our field. A pluralist approach makes assumptions about mixing methods and interpretations of underlying theories; here is why there continues to be a paradigmatic position held.

In Systemic Intervention it is the methods, not the methodologies, that are mixed (although learning from other methodologies to evolve one's own is still possible); and a *new paradigm* is established which is argued to be better, being more inclusive and flexible with regard to methods. What Systemic Intervention defends is the idea that researchers should not “confine themselves to the pursuit of one ‘pure’ ... method” because the “creative design of methods” allows the necessary freedoms to pursue the best possible intervention process (Midgley, 1997b, pp.317-318).

#### **2.8.9 On finding the most fitting method(s)**

The concern of this project is to see that appropriate and timely action is achieved, by which the people of any natural disaster-hit community find they gain the best possible outcome from an intervention. The intervention for my research project is particularly concerned with the recovery (medium-term) and resiliency (longer-term) elements of my ‘three-phase approach’ [see more in Chapter 3, the Case Study and ‘the three Rs’ antidote to a disaster; also see here, page 120]. The perspective of Midgley & Shen (2007) is to “identify the most appropriate methodologies to tackle the issues already revealed” (p.198), which is clearly logical and right, although Midgley's (2000) sole-authored work uses the word “method”, which is more consistent with the idea of having an evolving methodology and using this to interpret the mixing of methods. The fundamental aspect is the ‘plurality’, the array of methods available; it is about the

breadth of methods that could be used (acknowledging, of course, that this implies the need for learning about different methods over time, as Midgley (2000) advocates). Mingers and Brocklesby (1997) contend, “to make the most effective contribution in dealing with the richness of the real world ... using ... several methodologies ... [is arguable on both] theoretical/ philosophical grounds ...” (p.489-490). I agree with a further point from their conclusion: “Although multimethodology does ask the user to consider the social and political context of any intervention it does not presuppose a particular stance on it” (*ibid*, p.507). This reflects the much wider context of a natural disaster and of the pragmatic approach required. Hence, the importance of identifying “the most appropriate methodologies [rather, perhaps, ‘methods’ is the more apposite term] to avoid a waste of resources and any prolonging of the problem being tackled” (Midgley and Shen, 2007, p.197). While working towards addressing natural disaster contexts between disasters (because this is when organisational change is most possible), it is clear that people’s focus is often more pronounced during an actual disaster event; the ‘agent’ needs to be aware of many appropriate methods – to learn about them prior to the disaster event, then to implement them in the reality of the event itself.

### **2.8.10 Pluralism**

The sense of pluralism within Systemic Intervention concerns the opportunity to consider different theories and methods by “reinterpreting them as necessary to address particular purposes of intervention” (Midgley and Shen, 2007, p.199), but to do this in a way that allows for experiential and opportunistic development to occur.



Researchers and academics select theories and methods ‘from other places’ and then reinterpret these from a particular methodological perspective. It is known that many researcher-academics develop and adapt their own ‘creative designs’; for all practitioners, learning is always an on-going feature of praxis. Midgley observes: “... different theories inform different methodologies and methods, [so] methodological pluralism ... [is] justifiable alongside theoretical pluralism” (2011c, p.8). Ulrich (2000a, p.1), along similar lines, suggests that research enquiry should not be “restricted to a subclass of problem situations and corresponding methodologies”, and this restriction is implied by saying that only one approach is valid. And, as if to emphasise a conundrum for researchers, there could be difficulties for the broad use of systems thinking if “a standardization and unification along with the trend of globalization is supported at the peril of leaving pluralism aside” (Noaparast and Khosravi, 2011, Abstract). All of which seems very reasonable.

Gregory (1992, p.481) writes, “Clearly, the process of critical appreciation is based on methodological pluralism in which approaches are used to challenge and support each other”. This view is later developed as follows:

“... Methodological pluralism is important because of the tendency of some practitioners in the OR and systems communities to specialise in the use of a very limited set of methods which are then applied in every project. Critical systems thinkers have argued for some time that this restricts the flexibility and responsiveness of practitioners involved in interventions” (Gregory and Midgley, 2000, p.280).

Ivanov (1991) suggests that being able to choose (i.e., free agency; autonomy) has greater value than the converse, and “... emancipatory self-reflection with respect to the conditioned nature of our knowledge and understanding ... does not preclude a

critically handled methodological pluralism” (p.45). This highlights for me that the right methodological choice or choices are founded upon how we view the research situation, and that putting the community’s interests *first* in a disaster recovery situation is consistent with a critical systems perspective.

Returning back to Systemic Intervention (Midgley, 2000), my methodological choice; this is founded in critical systems thinking, giving it a place in an evolving narrative about systems thinking (reconciling CSH and TSI). It is also a suitable contemporary standpoint for me to take in this current project, particularly considering the complexities involved in disaster recovery, making both boundary critique and methodological pluralism useful. This takes me onto ‘Action for Improvement’ which is Midgley’s (2000) third element in the methodological approach adopted in my project.

#### **2.8.11 “Action for Improvement” (Midgley, 2003a, p.91)**

Briefly I quote from two very different intervention ideas, one of which is particularly pertinent. The first example I draw from directly alludes to both the work of the researcher/mediator/facilitator *and* to the use of plural methods. A tool of such a researcher should envelop “... the practice of ‘critical facilitation’ as a way of developing processes of learning in group contexts” (Gregory and Romm, 2001, p.453). This brings together the sensitivities of the researcher (or other NGO personnel dealing with disaster-traumatised community members) with the need to gain information and the community’s support for redevelopment into its future. The second example draws from the 2004 Aceh tsunami and earthquake [Indian Ocean, 26 December], where one intervention by the World Bank used microfinance initiatives:

“One of the main obstacles to economic development for the poor [here, my disaster-hit community] is the lack of access to traditional credit markets ... microfinance tries to circumvent problems [loss of infrastructure, housing, businesses, etc., but develops] ... a mix of solutions” (Becchetti and Castriota, 2011, p.898).

These are therefore ‘interventions’ to meet and to address need. The intervention requires an ‘action for improvement’, which is/has a desired outcome and/or result.

Midgley says “an *improvement* has been made when a desired consequence has been realized through intervention” (2003a, p.91, original emphasis), and it is this that matters to me in my research. However, he also says that the “concept of *sustainable improvement* [is] particularly important ... to long-term stability” (*ibid*, p.91, original emphasis). One of the issues arising from the 2010 Haiti earthquake and subsequent reporting has been that those in need are unable ‘to be gainfully employed’ (i.e. work for money), becoming dependent instead upon international aid, and unable to rebuild their communities to meet their needs. Materially, international aid efforts focus on the initial relief needs – water, shelter, food, health, and so on, as in Haiti 2010. But there is a point when the media’s international focus turns elsewhere (perhaps to address another, more current, natural disaster) and the spotlight vanishes.

But the needs in relation to natural (and other) disasters often continue for many years:

“Aid workers have already baptised the earthquake in Haiti a ‘historical disaster’ ... [one year post-earthquake]. More than one million people are marking the anniversary of the quake still living in refugee camps. How can that be when Haiti has attracted billions of dollars in donations and aid pledges?” (Stourton, 2011).

Some three years later, Stourton was again reporting on international aid efforts, this time from the crisis in Syria, which “... poses a profound challenge to aid agencies operating in the region, [as] humanitarian principles such as transparency, impartiality and accountability are being put to the test” (Stourton, 2013). While Syria is a ‘man-made’ disaster, in my terminology, the fundamental concerns remain: people losing their homes, businesses, schools, community centres, and the opportunities to live life as they wish, over which the international community, whilst trying hard, has struggled. The issue of *sustainable* improvement is therefore important.

Seeing disaster zones repeatedly hit and ‘only’ temporary actions provided seems to be nonsensical: finding better, stronger, and viable outcomes that are (perhaps) driven directly by the community, through their engagement and ownership, appears to be a more reasonable long-term approach. There is “a greater need for local mobilisation and organisation, increased coordination and capacity building among the local community, and decisions about long-term planning” (Kusumasari and Alam, 2012, p.365). And “recent disasters around the world have raised thorny and difficult issues regarding recovery and reconstruction – what will be re-built, how will it be done, and how (and by whom) will decisions be made and implemented?” (Labadie, 2008, p.576). These two extracts speak clearly about ‘action for improvement’, which can be framed through the Systemic Intervention approach. Tucker *et al.* make this useful contribution as well, speaking to the wider trauma that a community experiences:

“Guidelines are particularly useful in the chaotic and complex social and economic environments that can be expected to follow a large-scale disaster. The response to disasters can involve hundreds of aid agencies and [NGOs], and there is a potential for a lack of coordination” (2014, p.164).

Tucker *et al.* also observe, “An integrated and holistic approach can be rigorous, yet flexible, and responsive to local conditions and individual skills, interpretations and perceptions of the relevant issues” (*ibid*, p,178). They are providing confirmation that a (natural) disaster, particularly affecting vast parts of a developing country, is highly complex, and require the affected community (or communities) to be engaged in the recovery and resilience stages of post-disaster work in order to affect the sense of improvement.

However, there is a dilemma to be explored concerning the notion of ‘improvement’. Imagine that a community has been seriously affected through a natural disaster. Initial relief has been delivered, sufficient that the community may take stock of its situation and its environment. The thrust of this project is to help such a community get back on its feet once more, with ‘more haste’ than was demonstrated in post-earthquake Port-au-Prince in Haiti (January 2010). Therefore, this project’s theme concerns the multi-agencies *co-ordinating* with each other and *engaging* with the community in terms of the community’s recovery and later development of resiliency measures. This will involve ascertaining what ‘improvement’ may mean for the community’s position (whatever this may be determined to be).

Systemic Intervention talks about ‘improvement’, though from whose perspective should such ‘improvement’ be defined? This is a dilemma originally identified in the systems thinking literature by Churchman (1970). Multiple agencies wield power in different ways, and the nature of the ‘improvement’ may already be built into their *pre-determined* disaster response; and this is especially problematic given that the community is highly vulnerable immediately post-disaster.

The nature of improvement is perhaps *subjective or inter-subjective*: points of view on any given ‘improvement’ may range from ‘high praise’ to ‘outright hostility’ (see: Churchman, 1970, p.B-46ff). What is more, if negative side-effects of intervention are not anticipated, an ‘improvement’ may actually make a situation worse from every point of view! For instance,

“The assumption of fairly stable, long-term [interventions or improvements] might lead one into a vulnerable position. It therefore becomes necessary to explore various kinds of extreme situations to see where the system could break down. These areas of vulnerability may be considered so unlikely that they can be neglected. On the other hand, if the system reaction to large scale changes in [intervention] is serious, further design changes may be necessary to ensure proper handling of the extreme possibilities” (Forrester, 1961, p.300).

Plus, from his preface, Forrester writes of formulating “...a model that shows the interrelationships of the significant factors” (*ibid*, p.vii). These two quotations together strongly suggest the need, by the ‘agent’ (Midgley, 2000), for a process of intervention that ‘covers many bases’ and holds ‘a significant awareness’ of the whole situation (the natural disaster) under review. I am using Beer’s Viable System Model (VSM) (*q.v.*, 1985) as part of this project. However, because Midgley discusses action for improvement in the context of boundary critique, Systemic Intervention provides theoretical ideas and tools for exploring *multiple perspectives* on improvement, and the consideration of potential impacts outside the taken-for-granted boundary of any one stakeholder.

And this is what my project is concerned with: not the initial relief that the international community is relatively good at providing in the short-term; rather, it is about what

Labadie (2008) and Kusumasari & Alam (2012) similarly express concern with – recovery and resiliency across the medium- and longer-term [see back to page 112 for further comment]. There may appear some slight difference in my wording; however, the intent is that I say the project focusses upon the Community in its ‘recovery’ phase and in the constructing of the viewpoint that the intervention is evolutionary to its long-term resiliency needs. The purpose of my research is how the latter may be better achieved. But for the moment I continue to examine how the Systemic Intervention approach is useful for my research objective.

## **2.9 My Chosen Methodological Approach – Systemic Intervention**

This section discusses why the Systemic Intervention approach is appropriate for this project, explains why other methodological approaches have not been used, and shows how Systemic Intervention provides ‘the good platform’ required in the context of my interest in disasters in developing countries. A concluding paragraph summarises my reflections on systems thinking so far, leading into chapter three with a case study and some early data-gathering analysis, forming a boundary critique, to shape up the project’s approach.

### **2.9.1 Valuing the Systemic Intervention Approach**

There are perhaps two different philosophical approaches to a natural disaster. One is to address the event itself: the survival needs of the people, the reconstruction of the community, and the reconnection of services. This approach addresses the event’s aftermath, putting communities back together again, but it does little to reflect on what could be done to lessen, or restrict, the damaging effects of future events – and natural disasters will continue to occur. The other approach (as discussed more fully in my

Case Study in Chapter 3) I have termed as “‘the three Rs’ *antidote* to a disaster”. This addresses three stages: the initial Relief: immediate rescue of people and tending to their needs, but then following this, working on two additional sequential ‘Rs’. The first is Recovery: rebuilding communities. The second is Resilience: future disaster-proofing. This project is specifically concerned with the Recovery stage.

Systemic Intervention provides three co-ordinated opportunities for my research. First, to focus on boundary critique: to enable exploration of the situation, rather than take a single perspective for granted, and to account for issues of marginalisation (for example, Midgley, 1992). Second, methodological pluralism: providing a more flexible and responsive approach than single methods alone would give (for example, Midgley, 2000, pp.171ff). Third, forming or devising an intervention: crafting a solution or framework addressing the highlighted issues, that can be acted upon by agents (for example, Midgley, 2003a).

My use of the Viable System Model (VSM) as part of my solution-finding raises some issues: part of my research is to understand if the VSM could realistically be deployed in relation to this Recovery stage or not. However, it is likely not practically possible to implement *during* the recovery phase of a specific disaster, because the agencies will be consumed with action and will have little time for reorganisation. The thrust of how I will propose its use is *between* disasters, to ensure future recovery efforts are improved. The VSM might be used as a training or management tool, and this matter is further discussed elsewhere in this thesis. Conceptually, my use of Systemic Intervention and the VSM is founded on historical learning about past natural disasters, to determine what intervention(s) could be applied, and to offer potential solutions for appraisal.



## 2.9.2 Alternative Approaches

A number of alternative methodologies could be considered appropriate to this research project. These include, among many others: Critical Cause Analysis; Strategic Assumption Surfacing and Testing (SAST); or the Supply Chain Operations Reference (SCOR<sup>®</sup>), which I discuss below. Here, I do not go into detail about any of these, due to space restrictions, but offer a broad image of each to show applicability, and I explain why these and others were not chosen.

### Critical Cause Analysis

“is a class of investigative methods that identifies the root causes of the disaster events and is premised on the belief that problems are best solved by attempting to correct or eliminate root causes, as opposed to merely addressing the immediately obvious symptoms” (Burton, 2010, p.37ff).

The process is analytical in nature, and the methodology assumes it is possible to objectively arrive at a diagnosis. In the process, the multiple viewpoints of stakeholders may be over-ridden, countered, or simply ignored: this runs counter to the spirit of community engagement, which I believe is important if a variety of perspectives on ‘improvement’ (including those held by community members themselves) are to be considered. Another issue with this approach is that, in many disaster situations, the ‘root cause’ is an earthquake, tsunami or some other natural event that is impossible to prevent. Therefore, analysis appears pointless, unless it is re-focused on the diagnosis of failed responses, which is not my purpose in this research.

Strategic Assumption Surfacing and Testing (SAST) is a procedure “which reveals the underlying assumptions of a policy or plan and helps create a map for exploring them”

(Mason and Mitroff, 1981, p.37), which could (potentially anyway) be useful. There are usually many stakeholders (i.e. the multiple NGOs, various community members) each holding their own strategic ‘intentions’ (‘aspirations’) for intervention. But SAST assumes two or more clear, opposing strategies to be tested against each other: SAST is “designed as an approach suitable for ill-structured problem contexts where *differences of opinion* over which strategy to pursue prevent decisive action being taken” (Flood and Jackson, 1991, pp.119-120). SAST would arguably over-simplify the issues, which can be very messy in a disaster recovery situation (usually impossible to portray as a simple clash of a couple of perspectives). If SAST was imposed, it could arguably marginalise some perspectives, particularly within a developing country where natural disasters often compound already challenging economic and social circumstances. Thus SAST could be constrictive of my research, and so be not appropriate to use, except perhaps held as one method amongst many to draw upon in pluralist practice.

Supply Chain Operations Reference (SCOR®) would be another option.

“The SCOR model provides a unique framework that links business process, metrics, best practices and technology features into a unified structure to support communication among supply chain partners and to improve the effectiveness of supply chain management and related supply chain improvement activities” (Supply Chain Council, 2011).

I stretch my point about methods here by suggesting SCOR, but it is the principle of its application that interests me, given that resources are provided through supply chains during disaster recovery. However, the model is designed as a ‘fault-finder’ much more than a ‘solution-provider’ in my opinion, as is Critical Cause Analysis. Another issue is that it says little about community engagement: as donor agencies are often the purchasers of resources, this could make the needs of local communities invisible.

The systemic approach, as in Midgley's Systemic Intervention (2000), holds the ability to achieve the potential of addressing *the longer-term* community recovery needs, as defined by community members themselves: i.e. not as the multi-agencies' think is right, or for which they already hold knowledge and/or solutions. This suggests the development of ideas and frameworks that aim towards stronger community resilience against future natural disasters. This is the vital perspective that I seek through this project, although taking a pluralistic approach means that other approaches could be drawn upon if issues demanding them arise. There is already trauma across the community in losing its sense of stability; it needs to be listened to – by the multiple agencies particularly – in order to locate its own, not others', sense of community.

I assume that, even though the community might seek to return to its previous *status quo*, this may not always be possible *or desirable*. Certainly the *status quo* could be dreadful and perceived to be unsuitable or inappropriate for habitation. Of course this then becomes a bounded judgement made by someone, potentially a government official with the authority to deny the return to a community's pre-disaster location. Then there is the subjective definition of what 'community' means; it may be that this is being reified by community leadership to defend their desire to return to the now destroyed setting and have this reconstructed. A community, in general parlance, is made of groups and of individuals – alone, in pairs, or within groups. A disaster-hit community will seek to have resiliency measures constructed, to protect their environment and continued lifestyle. Community viewpoints will be expressed; some of these may conflict with the resilience measures, against views of the community and of their needs. This brings a challenge for the intervention about timescale to do the recovery phase: action is required; cognisance of the community needs to be sought.

Systemic Intervention holds the capacity, by facilitating dialogue with pertinent parties, to support them in *developing* their own understanding of the necessary change, rather than have it imposed upon them unilaterally (and often ineffectively, given that imposition generally creates resistance) (Midgley, 2000). Thus the pluralistic nature of Systemic Intervention, its use of Boundary Critique, and the opportunity to generate ideas for action, provides a good ‘platform’ to pursue my project.

A systemic intervention approach allows for *effecting change*, for promoting benefit, and may – ultimately – support developments that reduce future disaster recurrence impacts. With this project’s focus on developing countries, realism must be the keyword: the resources of these nations are limited, and many rely upon the work of international projects and NGOs to fund activities. If a disaster-localised systemic approach with community engagement can be linked with disaster impact reduction in the longer term, this may have wider national and regional benefits. This project will pursue an established, orderly process (organisational design using VSM) that addresses future disaster needs as well as the pressing concerns of a given recovery situation.

Midgley’s (2000, 2003a) Systemic Intervention approach should help me “to ask new and different questions about what forms of intervention” (Midgley, 2003a, p.93) to be considered within the framework of a multi-method approach for disaster response agencies. As such, this should permit fuller reflection on, and inclusion of, multiple points of view – especially from disaster-hit communities. It should also resist a ‘fixated’ perspective, through encouraging “value and boundary judgements on an *on-going* basis” (*ibid*, p.93; original emphasis).

## 2.10 Chapter Summary

Using the breadth of Systems and other thinkers' contributions, this chapter has detailed 'who says what' about the systems thinking field. I have discussed the attributes that ground how and why Systemic Intervention (Midgley, 2000) delivers the most appropriate methodological approach for addressing my research question. The components of Systemic Intervention have been explained, and have been linked into my project. The Viable System Model (Beer, 1985) has had its history outlined, with details of why it could be useful as a tool that can address multi-agency co-ordination and the engagement of those agencies with communities. A brief psychological perspective has been added, concerning Groupthink [see Appendix A06 for a fuller account], which is important for disaster recovery management. Boundary critique built into a VSM approach may be able to address this amongst the agencies.

Chapter 3 now brings the human cost of disasters to the fore, and introduces my initial exploratory work (boundary critique) with professionals involved in natural disaster events. I introduce and discuss some of the primary data-gathering resources and their impacts upon the thesis' direction and discussion.

### **Chapter 3: Building the Discussion's Argument, a Case Study**

This whole chapter begins to 'flesh-out' the skeletal framework that is the Exploratory Proposition, the Research Objective and my Research Question. Having above (in Chapter 2) used published materials (literature), now I explain how the methodological approach used a case study and 'real voices' in a boundary critique to give substance to my project.

In this chapter I present a case study entitled 'Harrowing Haiti' that uses extant published materials to describe the 12 January 2010 earthquake. This natural disaster caused massive destruction of property, significant damage to civil society, and the deaths and (severe) injuries to many thousands of Haitians. A lot of reportage was provided, much via the internet and social media sites, about that event, but also about the (I paraphrase here) 'failures' that occurred. Billions of US Dollars' worth of money, goods, services and expertise were poured into Haiti and its economy; but still the country (even today, 2015) is enduring significant recovery and resiliency concerns.

The project was able to draw from the wealth of published literature in order to initiate the research; empirical content, however, was viewed as essential to producing the fullest content analysis and to bring in perspectives of disaster-fronting and office-based viewpoints that might not otherwise be clear. To start exploring all these specific concerns, but also much broader questions, I undertook exploratory interviews (drawing on the case study to give the interviews some context) with a small cohort of high-level practitioners, all of whom had extensive experience on the ground and in management positions relating to a range of natural disasters. Interviewing is a useful tool as part of boundary critique (Midgley *et al.*, 1998), as respondents are able to talk in a confidential personal capacity and can therefore raise issues that their agencies might not be

comfortable with them discussing in their official roles. The principle purpose was to build up a picture of peoples' views, and then to progress the project with evidence to establish some boundaries. Below I discuss the resultant interview data, and then form a commentary based upon my analysis. The interviewing confirmed the importance of 'co-ordination' and 'community engagement' as themes, and allowed me to define them better as the basis of this project. The chapter is then concluded with a summary.

### **3.1 Intervention in the domain of knowledge – an exploratory case study**

This chapter starts with a presentation of the case study of the Haiti Earthquake disaster of January 2010, which I used as a context in which to ground my exploratory interviews (I will explain why there was a need for this later). My use of the word 'exploratory' is important, as this case study was solely used to ground my boundary critique. My eventual VSM designs are not based in the case study area, but have the potential for adoption world-wide.

#### **3.1.1 Why a Case Study?**

With the exploratory interviews, to be described shortly, I wanted to do two things: first, to hear, unprompted, what the respondents thought were the main issues I should be attempting to address in my research; and second, to hear their thoughts on what goes wrong in disaster response situations. Some of the latter would no doubt be discussed in the first unprompted phase of each interview, but I was a little concerned that I might come out solely with generalisations, or over-generalisations or unjustified claims, if I used a purely unstructured interview technique. I therefore picked a real disaster response situation that is widely regarded as 'iconic' with regard to the depths of the

problems encountered (and I called my narrative about it *Harrowing Haiti*, see Section 3.2 ahead), so the interviewees could not only surface issues for my research to address, but could also make comments about how these issues were experienced in a particular case, and what should have been done differently. It is also worth noting that the response to the Haiti earthquake continues (in 2015) to be on-going, so I anticipated that it would be contemporary and meaningful for my interviewees.

Before presenting *Harrowing Haiti*, I first want to explain in general terms what a case study is, and say more about its place in this research project.

### **3.1.2 What is the case study in the context of my project?**

It is important to note that this project is not using a ‘case study methodology’ in the usual sense of grounding all the research in one deeply-explored example, with theory developed inductively from it (as described by Collis and Hussey, 2009; Yin, 2009, and others), but rather I offered a narrative ‘case study’ as a reflective tool for the boundary critique alone. I anticipated that it would stimulate responses from the interviewees that otherwise might not have occurred to them unprompted.

### **3.1.3 Critique of Case Studies**

There are inherent strengths and weaknesses connected with the use of a case study within this project. Saunders *et al.* (1997, p.146) comment about the gaining of “a rich understanding of the context ... and processes being enacted”; of offering “considerable ability to generate answers to ‘why’, ‘what’ and ‘how’ questions”. Whereas Yin, offering a critique, says a case study’s weakness is that it narrates a “contemporary set of events, over which the investigator has little or no control” (Yin, 2009, p.14ff). Here



there is a clear interest in intervention, which resonates with my project. Nevertheless, Yin recognises that a case study is (usually) reflective of a situation that has actually been experienced by people; thus it can be viewed as a tool to support learning. This is how I made use of my case study; to ground my questions in something that is emotionally compelling (Maturana and Varela, 1987), discuss how the emotions direct attention and activate rational thinking that the individual might not otherwise have engaged in) and stimulate responses that would aid my own learning as a researcher.

A point I raised in my Formal Assessment Report (Munday, 2012) answers a further criticism of Yin's: that some researchers "distain the strategy", saying it has a "lack of rigor" and provides "little basis for scientific generalisation" (Yin, 2009, p.14ff). I made the comment then that I am not researching either inductively (developing general theory from a case) or deductively (scientifically testing a proposition); rather, I am being *exploratory* with this use of the case study and *abductive* [see Appendix A05 for a further discussion of this]. Therefore, the weakness is less concerning.

Through earlier sections herein I have referred to my philosophical research approach being *abductive*. There is no further capacity in this text to develop and comment upon abduction reasoning and its approach: the Appendix A05 explains further. There are also, so far as this project's methodology is concerned, side issues to abduction that hold good use for potential later research which could develop this text for other publications. Some of these points relate to Bhaskar's *critical realism* (see for instance, 1986, 1997) and Tilley & Pawson's *realistic evaluation* (see for instance, 2004) but are not discussed here. My perspective and methodological approach, using the abductive context, proves a useful approach given the researched subject of this project. Much is 'already' known about; abduction assists the process of uncovering interventions.

### 3.2 The Case Study follows...

# *Harrowing Haiti*

The Republic of Haiti is situated at the western third of the island of Hispaniola in the Caribbean; Dominican Republic takes the eastern portion. Hispaniola was colonised by the Spanish from the late Fifteenth Century, although French adventurers had established farming claims at the western end; the settlement of national hostilities (Treaty of Ryswick, 1697) divided Hispaniola into the now-modern-day Haiti and Dominican Republic. Geographically, Haiti is part of the Greater Antilles archipelago. This is the chain of islands arcing northwards and westerly from the northern coast of South America (Venezuela), past the Florida Keys (USA), before dipping westwards towards the Yucatan Peninsula of Mexico.

The area is known for tropical storms and hurricanes; likewise, and in Haiti particularly, for earthquakes – the Caribbean tectonic plate slides against the North American plate along the Enriquillo-Plantain Garden fault system across which Haiti is situated. The earthquake of Tuesday 12 January 2010, the subject of this case study and its aftermath, was the worst Haitian natural disaster event for two hundred years. Haiti is a poor developing nation, has relatively few natural resources to exploit, and ordinarily international monies and NGOs support much of its community and civil life.

### 3.2.1 The Nation

Haiti has a land surface area of 27,750 square kilometres and a population of 10,124,000, giving the population density at 365 persons per square kilometre; the Gross Domestic Product (GDP) per capita is US\$665.00 [i.e. US\$1.82 per day]; the Consumer Price Index (CPI; consumer prices inflation rate) is 406% [2000=100] (UN Statistics Division, 2013, *figures for 2011*). As one of the poorest nations on Earth, with a high population density having little income and high inflation, people live at the margins of life and within poverty. Population numbers stated ‘below the poverty line’ is given at 80% [as estimated at 2003] (US Central Intelligence Agency, 2014) .

Politically, Haiti has struggled to maintain good governance. With independence from France in 1804, a succession of political parties and people – including the infamous Duvalier men (father – “Papa Doc”, and son – “Baby Doc”), plus the anti-Duvalierist, former Roman Catholic priest Jean-Bertrand Aristide, chaotically governed the Nation. With various brutal coups and an occupation by the US Marines, so Haiti has endured a severe lack of political direction with unsound fiscal policy. Ordinary people lost their lives through repression and dire economic controls (US Library of Congress, 2006).

The Nation’s economic background is fraught with challenges. Of natural resources, wood (trees) and water (rivers) now offer limited usefulness. Trees have been cut for fuel but saplings not planted and changeable weather patterns (‘wet’ and ‘dry’ seasons) reduce river levels for generating hydropower electricity. Available land for agricultural use is compromised by the country’s geographic contouring, and that land is prioritised for housing – production yields are low versus a rising population count [at about 2.3 percent per annum]. With low educational standards and literacy, high levels of HIV/AIDS and poor nutrition (giving rise to malnutrition), health is compromised,

which leads to an inability of the population to work economically (compared with other countries) and therefore raise the Nation out of its poverty. The political instability, a lack of infrastructure, and the severe deforestation, with soil erosion, add up to a nation on the brink of failure. Tourism is one economic tool the Haitian Government has worked on, though the tourist infrastructure (hotels, restaurants, roads, etc.) remains poor (US Library of Congress, 2006). The 2010 earthquake devastated the nation as a whole, destroyed much of the extant infrastructure, and decimated any immediate hope to develop Haiti any further.

### **3.2.2 The Earthquake**

The magnitude 7.0-7.3 earthquake struck Haiti in January 2010 with the epicentre some 25km west of the capital, Port-au-Prince. Estimates are that over 300,000 people were killed and some 1.5 million left homeless. The earthquake inflicted US\$7.8 billion in damage to the country. It was assessed as the worst in the Caribbean Region over the last 200 years (US Central Intelligence Agency, 2014).

In the following 6 weeks a series of aftershocks (59 greater than 4.5M<sub>w</sub>) were recorded. A number of tsunamis were reported in the region. According to official estimates, 300,000 more people were injured, 1.3 million displaced, 97,294 houses destroyed and 188,383 damaged in the Port-au-Prince area and in much of southern Haiti. Other estimates suggest substantially lower numbers of casualties, perhaps as low as 100,000 (USGS, 2010a). These were the reports made at the time. A later-dated report alerted particular concern:

[A] “Red alert for shaking-related fatalities and economic losses. High casualties and extensive damage are probable and the disaster is likely

widespread. Past red alerts have required a national or international response.

Estimated economic losses are 20-100% GDP of Haiti” (USGS, 2010b).

Here, while the ‘alert’ is dated retrospectively, it notes international response and economic losses as matters pertinent for this project.

One forecast of “a looming earthquake”, of its potential strength, and conceivable aftermath, was given by Phoenix Delacroix on 25 September 2008 in *La Matin*, a Haitian newspaper. Geologist, Patrick Charles of Havana’s Geological Institute (Cuba), noted that conditions were ripe for major seismic activity in Port-au-Prince. Charles said the local population needed to prepare for an event that was inevitable, and was going to be a real danger. Noting earlier tremors (pre-2008) in the area, he said a larger earthquake usually follows. Nonetheless, no precautions were taken, leaving Haitians vulnerable to apparent disaster (Lendman, 2010). Some 18 months later, that ‘larger’, devastating earthquake happened and without necessary preparations much damage and many deaths resulted. There are often signals and alerts raised by science, journalism, intuition, etc., over periods of time that could assist with raising the level of awareness of an impending natural disaster.

### **3.2.3 Impact at Year 0 [2010]**

From the moment of the seismic event, and through the first 12 months, Haiti and her people needed to deal with the following issues. In the days following ‘day zero’, sheltering people from weather and giving a sense of location became a priority: with the rainy season approaching, moving “thousands of people left homeless by January’s earthquake to more secure locations as the rainy season nears” (BBC News, 2010b) became the task of multiple agencies. Identifying “safer sites ... [for people] considered

at highest risk from mudslides and floods” (*ibid*) was essential: on-the-ground, NGOs criticised the Haitian Government for tardiness in this task.

Six months later, “5,535 transitional shelters (t-shelters), [and] shelter solutions to approximately 47,500 earthquake-affected households” had been provided (USAID/OFDA, 2010). However, that same USAID statement noted “Displaced Individuals in Settlements [add up to] 1.2 million” (*ibid*) Haitian people, and an EU Report four years later stated “1.7 million homeless” (EU - European Commission, 2014). Whatever the true figure, the homelessness crisis was considerable, and many more were trapped in poor quality and damaged housing. Using a crudely-based calculation, 1.7 million people and 47,500 ‘shelter solutions’ suggests some 36 individuals to each shelter: clearly inadequate. One report indicates “250,000 homes had been destroyed” (Renois, 2010). Again, whatever the real numbers, a significant disaster of this nature produces a massive response need: a matter to be addressed.

For health, immediate first aid and emergency care was offered to those who could get to medical centres: the estimated count of “about 300,000 injured” (BBC News, 2010c) placed tremendous pressure upon medical staff. Many buildings collapsed, including a “hospital collapsed near the epicentre, [with] cries of people within the structure [being] reported by witnesses” (Telegraph, 2010); other medical facilities across the country either collapsed or became inundated with patients. With an already poorly-serviced health provision, Haiti then lost hospital facilities in the Capital and further afield: “a lot of damage to infrastructure, particularly to hospitals” (UN News Service, 2010).

Of the many civil and social concerns, law and order was highly disrupted. A US newspaper report discussed one unofficial blockade, established by “young men who set

up the roadblock [who] were part of the ‘local brigade’, which protects the neighbourhood in the absence of any meaningful law enforcement presence” (Mozingo, 2010). The issue of concern was of corpses being ‘repositioned’ from central Port-au-Prince to suburbs: the roadblock was to stop such activities. However, the roadblock became a source of money-generation, without searching “cars or trucks, but [the men] did take cash. Those who paid got through” (*ibid*). Effective and full law enforcement was observed to falter and then to fail.

### **3.2.4 Impact at Year 1 [2011]**

Even at the first anniversary, “Aid workers [had] already baptised the earthquake in Haiti a ‘historical disaster’” (Stourton, 2011). More damning, at this juncture is Stourton’s observation that, “foreign aid groups were out of control”, due he noted, to a lack of co-ordination making NGOs ineffective; plus, the relief and response was so patchy that some disaster-hit communities were inundated with help and aid while other communities received little or nothing (*ibid*). Stourton’s investigation was about whether aid organisations had lost focus on humanitarian activities, and were becoming “compromised by business imperatives and increasing political ties” (*ibid*). The beginning of Stourton’s radio broadcast talked of one million people at the first anniversary still living in tents in refugee camps, and he questioned why this was the case, given all the money, pledges, gifts, and goods supposedly sent to these same people (*ibid*).

Indirectly this is what this project is researching about, seeking the systemic response for; it is tied-in with *The Times*’ Leader quoted on page one above, and is about how a community is assisted with the resources supplied from donors and NGOs etc.

Another commentator wrote of Haitians' anger at the lack of progress at this point in the disaster, with "the death toll ... more than 316,000 ... One million people ... homeless, and about 800,000 of them still live in makeshift tent cities" (CBC, 2011). One Haitian, living still in a tent, complained: "I lose my wife with two children. And God give me my life. I lose three house (*sic*). I don't worry about that. I worry that my wife and my kids are lost" (*ibid*). A further comment was, "little renovation has taken place and a recent cholera outbreak in the areas surrounding the capital has killed an additional 3,000 people" (*ibid*): squalid conditions themselves kill people.

### **3.2.5 Impact at Year 4 [2014]**

The stark reality about why I am undertaking this project comes through in a Brookings Institute research study undertaken for the fourth anniversary of the Haiti earthquake. Bradley (2014) writes: "at the end of 2013, 146,573 IDPs [internally displaced persons] were still living in 271 camps". He conducted a survey of 2,500 households, and concluded that "74% of the surveyed families that were uprooted four years ago continue to consider themselves displaced, even though they do not live in camps"; "even outside camps, families who were displaced are more likely than those who weren't uprooted to now have poorer access to water, latrines and health care"; and "it is clear that neither governments nor international agencies and NGOs "provide" a solution to displacement in the aftermath of a natural disaster" (Bradley, 2014).

One of Stourton's comments about Haiti at 'one-year-on' was about all the billions of dollars given or committed or pledged to post-earthquake Haiti (*q.v.* Stourton, 2011), with people then still living in tented camps needing help. A declaration by the European Commission that they had "committed €570 million for financing projects in



a number of priority areas” following 2010 (EU - European Commission, 2014) – for example, to Haiti’s State Budget, infrastructure projects and food security schemes - raises questions about the use of disaster monies. This is not to question that the money was made available, but does raise concerns about how multiple agencies made use of it for disaster-hit communities’ relief, given the situation was still appalling four years on.

None of this denies that a lot of active interventions are being made towards helping Haitians to recover and to build future resilience. OXFAM reported that “major challenges remain for Haiti to continue on the road to recovery. According to the United Nations 817,000 Haitians still need humanitarian assistance, due to poor living conditions and heightened risks of forced evictions from the remaining 306 camps” (OXFAM (International), 2014). They add concerns about food, malnutrition, and health (cholera particularly – Haiti has half the world’s suspected cholera cases). OXFAM observes “Haitians are working towards a new future ... [and] longer-term development, promoting sustainable change” (*ibid*).

Thomson Reuters issued an analysis of the Haitian situation, noting particularly:

“Slow reconstruction is compounded by donor fatigue, growing political instability and anti-government protests [by the disaster-hit Haitians] over high food prices and corruption ... [The] aid response was hampered from the start by the scale of the devastation ... Those best placed to organise a response – the government, United Nations and aid agencies based in Haiti – had lost staff, offices and computers in the quake ... [and] the aid operation was also strongly criticised for a lack of coordination” (Thomson Reuters Foundation, 2014).

I have been selective in my extracts, but a broad-brush observation is that many reports, in many different forms and prepared by many different organisations, have been written, but most have been left to languish without further action being undertaken.

Multi-agencies have continued to be proactive in keeping Haiti in focus; this is not denied. The criticism is not especially directed to any one agency, but is rather to the systemic processes (or lack of them) they are part of. The world has, since 2010, faced and needed to address significant natural disasters in Haiti and right across developing world nations. But these have apparently been viewed as isolated incidents to be dealt with reactively rather than be proactively prepared for.

### **3.2.6 Issues to Address**

A number of issues are highlighted by the literature on the Haiti disaster; three will be briefly noted here. The first concerns pre-existing conditions; the second looks at development aid monies and how they were used; and the third reflects a blame-game within humanitarian action organisations.

Pre-existing Conditions: Haiti's most enduring (economic) condition is of poverty, where a lack of economic capacity meant the nation's stability was already jeopardised.

A UN Development Programme (UNDP) case study of Haiti notes liabilities:

“decades of political turmoil and high levels of violence ... [sources of local tensions over] land tenure, fishing and water rights ... chronic mismanagement of the economy and environmental resources ... that even relatively small-scale or short-lived disasters have had significant economic and social impacts ... [*ad infinitum*]” (UNDP, 2011).

These conditions can arguably be tackled with development aid monies.

Development Aid Monies: most developed nations have a department responsible for, and a budget established, to support both aspirational long-term goals in poor nations and to assist with immediate emergency needs. Much of the activity and funding is directed through NGOs. A World Bank report states that “the impact of natural disasters on economic well-being and human suffering has increased alarmingly” (2006, p.xix). Further, they comment that “... other agencies cannot always fill the immediate needs of the affected people and regions following a large disaster” (*ibid*, p.68); here, the World Bank says it often is able to assist with immediate funding. And later it notes, “actions taken during the first weeks and months after a disaster have a major impact on the recovery process that is to follow, and [these actions] need to be planned and implemented accordingly” (*ibid*, p.71). This therefore suggests that a more proactive approach to development aid and disaster relief would help.

The blame-game: there appear to be two ‘blame-games’ going on: (1) by the multiple agencies, with each generally working to its own mission statement, and blaming others for not co-operating; and (2) by community members asking ‘why are you taking so long?’. Images on 24-hour TV news-loops show hundreds of people surging against the gates of a UN World Food Programme (WFP) food station, and guards using sticks to beat people back because order must be maintained or identity checks should be completed. Michaëlle Jean, a special UN Envoy to Haiti, wrote “As time passes, what began as a natural disaster is becoming a disgraceful reflection on the international community” (CBC, 2011).

Dealing with any disaster is complex, and this goes without saying. It is the *implementation* of interventions, the *process* of activity, and *co-ordination* and *engagement*, which seem to be in question.

### **3.2.7 Section Summary**

This case study has given a quick overview of some significant issues derived from studies of international aid interventions after Haiti's 2010 earthquake disaster. Numbers, conditions, circumstances, people's words, are used to build a short but rich picture of a situation most people never experience. The case study conclusion is that the work of the international agencies could be improved. The question is how can my research contribute?

## **3.3 The Exploratory Interviews**

Obtaining primary data, this empirical content, was important for this project at such an early stage, when the boundaries for my work were not yet fixed. It was especially important that such data was specifically gained from individuals who had first-hand experiences of (natural) disasters. As the international aid organisations were most likely going to be the ones who would take up any recommendations I made, it made sense for my interviewees to be drawn from them. While Ulrich (1983) and Midgley (2000) emphasise the value of involving the affected (in this case, victims of natural disasters), other studies had already surveyed the affected, and it was particularly important to receive guidance from the perspectives of the agencies. If otherwise, it would be easy to make recommendations based on faulty assumptions that could not be implemented. I needed viewpoints from the 'inside' of the disaster response system.

Additionally, these Exploratory Interviewees' input was to later inform the subsequent Advisory Group [section 4.2 below]; that data-collection was constructed from this data, forming questions to be put to the Advisory Group participants.

### **3.3.1 Sampling Frame and Cohort**

Six (6) individuals formed this cohort. This is a small number, but it was quality and depth, not quantity, that was required. Collis and Hussey (2009) indicate that large samples are necessary when the purpose is to find out what proportion of a population answer a question one way rather than another; for exploratory interviews where it is not yet certain what is being looked for, smaller samples with the issues discussed in more depth are adequate. I determined, with guidance from my supervisor, that six interviews would offer sufficient insight for this first, probing stage of the research.

Deciding who to interview was challenging, but I wanted to gain varied understandings from as broad a spectrum of Government, NGO, and 'high-level' practitioners as possible. My interviewing involved "talking to people who are especially knowledgeable" (Gillham, 2005, p.54); i.e., I looked for experts. I used what Gilbert describes as 'purposive sampling': this is where "participants are selected for inclusion on the basis of ... [an] identifiable variable" (1992, p.511). My 'identifiable variable' included the need to be at the top of, or cognisant of, high-level organisational knowledge. In addition, I needed my interviewees to have the capacity to respond to targeted questions, and to be located in the United Kingdom.

I searched for individuals, who had written papers, worked within appropriate organisations, had been recommended through discussions with my supervisor or had

been mentioned prominently in my research reading. A number of potential interviewees were listed, contact details obtained, and an initial enquiry email was sent out. An anonymised list of Exploratory Interviews' respondents, their current or applicable work environments, and area of work interest, is given at Appendix A02. All invited interviewees were informed about my ethical code of practice and my research ethics committee consent to interview human participants, confirming anonymity across all publishing relating to this project.

### **3.3.2 The Interviews**

In the end, it was only possible to obtain consent to interview four (4) individuals face-to-face, and I recorded these sessions. However, I was able to obtain written responses from two (2) individuals: I sent the same interview questions, but as a semi-structured email questionnaire. This completed the data set of six (6) interviews.

The 'recorded interviews' allowed me to meet the people concerned, to gain a broader and deeper sense of who each person was, and to understand why they agreed to be interviewed. This was a helpful feature for me in this part of the data-gathering. The email 'interviews' went to similarly-screened individuals, so obtaining the diversity of data sufficient for my purposes. Next, I give a summary of a typical recorded interview process, followed by an account of the email Q&A input.

### **3.3.3 Recorded Interviews (count: 4)**

Following a positive response to my initial enquiry, I followed up with an acknowledgement and asked for available diary times when I would attend their office to conduct the interview. Appropriate arrangements would then be agreed.

I arrived at the due time and typically was offered light refreshments or a glass of water, and then shown into the room for the interview. I set up my digital recorder, checked I had my paperwork to hand, and both the interviewee and I got seated. We spent a few minutes getting to know each other, explaining jobs and roles, etc. I introduced my project and verbally confirmed their consent to be interviewed and that the interview was to be recorded.

The interviews lasted from forty (40) to fifty-six (56) minutes. After the recorder was switched on, I spoke a scripted statement of 'introduction' and asked if the interviewee was happy to proceed. 'Questions 1 to 9' were then asked in sequence, allowing time for appropriate sub-questions where I followed up an interesting point the interviewee had just made. To conclude interviews, I spoke my 'postscript' and switched-off the recorder. A further section of the script allowed for the stop and re-start of the interview in the event that the interviewee wanted to switch off the recorder and say something off the record, but this did not actually occur. Typically, the interviewee and I had a further discussion for a few minutes after the formal interview was finished; mostly chatting about where I hoped my project might take me. Interviewees often indicated continuing interest in the project and offered later contact if I thought they could help. I appreciated this support.

Recorded interviews were then copied from the recorder to my laptop, with a further backup copy made onto a portable hard drive. The MP3 recordings were transcribed from audio into text using proprietary software – Dragon NaturallySpeaking 11.0 (Nuance Communications, © 2010, version 11.00.200.430). A backup copy of each transcript was similarly saved onto the portable hard drive. Scripts were then imported into a proprietary coding software package – NVIVO™ 10 (QSR International Pty

Limited, © 2013, version 10.0.303.0 (32-bit)). Backup copies were made along the way to ensure some security in the event of technological failures or data corruption.

The need to obtain two (2) further data sources, to complete the exploratory interview set, became important when I realised I was only going to have four face-to-face interviews. I reviewed my original list of participants and then made additional enquiries to four (4) other individuals. Of this selection, two (2) responded positively, and I proceeded to meet their logistical needs by communicating by email. This is discussed in the following section.

#### **3.3.4 Q&A Email Interviews (count: 2)**

Around the time of arranging for these email interviews, a significant natural disaster occurred in South Asia: a typhoon caused massive flooding, particularly in the Philippines. Both my interviewees became directly involved in the disaster aftermath, at the front line, which caused some delays to my data collection process. I felt some concern about this, but I also thought that their recent direct experiences would prove advantageous to my study, so I accepted the delay (three months) and did not seek replacement participants.

The same paperwork was deployed; the consent form to secure agreement to participate, and then I sent the interview questions as a Q&A Word document attached to an email. The data from these two Q&A questionnaires was then added into the NVIVO™ software package and a process of coding was undertaken.



### 3.3.5 NVIVO™ Coding

NVIVO™ is in the suite of tools known as ‘Computer Assisted/Aided Qualitative Data Analysis’ (CAQDAS). NVIVO™ helps the researcher organise and code various data sources, while bringing data “alive” (Bazeley and Richards, 2000, *Preface*). My own use of it was rather limited. My principle interest was to keep the scripts of interviewees electronically in one place, and have the capacity to scrutinise these scripts to obtain ‘corralled’ (i.e. coded) areas of interest. This corralling would help the construction of my later questions to my Advisory Group, and also produce high-level themes for writing up. I recognise my personal use of NVIVO™ in this project has not utilised the full capacity of the software package, but I do not believe this limitation detracts from the contributions of my interviewees, as only the basic functions were needed to draw them out.

My main use of NVIVO™ was in ‘grouping’ qualitative statements (e.g. interviewees’ phrases or sentences) into a number of ‘coding nodes’. By way of examples, I used: ‘Country’; ‘NGOs’; ‘Disaster Type’; ‘Governance’; and, ‘Research project (outcome suggestions)’ – nine (9) ‘*adult*’ nodes. Within each ‘*adult*’ node, a variable number of ‘*child*’ nodes were deployed; examples are: ‘Save the Children’; ‘shelter’; ‘buildings’; ‘Road (networks; routes)’; ‘United Nations (UN)’; and, ‘Engagement’. Text added into each named node was drawn from each script in turn, to build the bigger and wider ‘rich picture’ of all interviewee and questionnaire responses.

One particular node was labelled ‘Notable Comments’. This holds responses and observations which reflect the need for this project. They especially highlight the ‘gap in knowledge’, leading to a more refined research objective and question. However, this material was not only useful for my boundary critique (defining my project); it also

contributed to my first draft VSMs, as potential organisational solutions were mentioned by my participants as well as problems.

### **3.3.6 Why not another form of data gathering?**

I now look at why these interviews (and questionnaires), rather than some other form of data-gathering process, is most applicable.

My focus is natural disasters in developing countries, but I am based in the UK. It has not been possible to travel to another country at the time of a natural disaster to take first-hand observations and verbal contributions for my project, both for pragmatic reasons (e.g., financial) and also because the risk management policies of the University would not allow this in the context of PhD studies. In addition, my research would simply get in the way of the aid workers and others doing their jobs on the ground. Therefore, to speak with individuals away from such conditions is preferable, both logistically and to provide time for reflective and considered conversation by the interviewee, without the pressure of the disaster activity at hand. It is for this reason that ethnography (e.g., Collis and Hussey, 2009) was not pursued as an option, even though it might have enhanced my learning about disaster responses for the purposes of boundary critique more than interviews.

I used an *exploratory* (semi-structured) interviewing technique, rather than an *analytic* (structured) interviewing technique. This was because I did not have sufficient knowledge to fully predetermine the questions, and the purpose was to take cognizance of my interviewees' personal knowledge and expertise. Exploratory interviewing is best done in unstructured or semi-structured mode (Gillham, 2005, p.54).

Of course a problem with even semi-structured interviewing is asking the ‘wrong’ question; one that betrays ignorance or incorrect assumptions, undermining the interviewee’s confidence in the process and affecting the outcome. I addressed this point by getting feedback on my questions from my supervisor beforehand, and making it clear to interviewees that they were free to challenge anything I asked and answer in any way they saw fit. As Gillham (2005) observes, communicating with the interviewee and taking a courteous approach throughout the exercise counts for a lot.

### **3.3.7 A further note on my primary data set**

I should explain that the original plan was for these boundary critique interviews to guide my recruitment of an Advisory Group, and then a further boundary critique was to be conducted with them in greater detail. While I wrote to many people asking them to join the Advisory Group, due to other pressing commitments (a mixture of professional and personal matters, including work on the front lines of disaster zones) only three (3) volunteered. As a consequence, my supervisor and I agreed that I should consolidate the exploratory interviewees’ and Advisory Group respondents’ data sets for the purposes of undertaking a single boundary critique exercise, reported below.

The Advisory Group questionnaire featured questions derived from the Exploratory Interviewees’ commentaries based upon their nine (9) questions (see Appendix A02). Those nine questions were designed to draw explanation and broad comment about interviewees’ experiences dealing with natural disaster situations, and thus provide a ‘rich picture’ of material. From analytical work upon that data a set of twenty one (21) questions were derived for the Advisory Group (Appendix A03). This work sought to draw direct experiential and evidential materials for the Exploratory Proposition.

The Advisory Group, as experienced front-line workers, was designed to take forward the earlier material, beginning to develop potential ideas towards intervention tools. An important thrust concerned how Advisory Group respondents considered ‘overall management’ of disasters was conducted and of what remedies might improve the process. Some questions explored how the sense of incorporating community views into disaster response was managed; of how well community members responded; and – more widely, in what sense humanitarian aid monies were spent towards furthering or impeding good disaster response activity. The Interviewees were unanimous about the need to have a ‘command & control’ body; the Advisory Group was questioned if they considered the premise was reasonable.

### **3.4 Obtaining information**

This section reflects how my respondents (interviewees and Advisory Group participants) replied to discussion questions, or wrote answers to questionnaires. This information is presented in ‘analysis blocks’, which are then expanded and discussed in the following Analysis Commentary section. My purpose here is to lay out the issues I have been interested in throughout this project, and particularly as defined in my ‘exploratory proposition’, about which other peoples’ opinions were sought.

The proposition is as follows:

*“The overall PhD research project holds the proposition that a timely and more sufficient disaster recovery process is secured by community engagement with co-ordinated multi-agencies, so providing enhanced resilient communities against future disaster events”.*

### 3.4.1 The participants

The Table below [Figure 3] gives basic details for each of the participants. Most participants were ‘high-level’ within their respective organisation; a requirement for the project. Assurances were given of total anonymity in this and all future publications. Thus, in keeping with ethical conduct, no respondent names, places of employment, or other identifying data is given in this thesis.

<b>Respondent reference</b>	<b>Employment style</b>	<b>Geographical location</b>
R01 – Academic	Nursing & Social Health	United Kingdom
R02 – NGO	Fund-raising & overseas work	United Kingdom
R03 – NGO	Humanitarian work	Australia
R04 – Civil Service	Disaster control and planning	United Kingdom
R05 – International	United Nations (retired)	United Kingdom
R06 – NGO	Aid Agency	United Kingdom
R07 – Civil Service	Disaster data collection	Ghana, West Africa
R08 – Commerce	Planning and Policy	The Philippines
R09 – Academic	Disaster policy	New Zealand

Figure 3 Interviewee and Advisory Group participants' data

The commentary here is drawn solely from the six (6) Exploratory Interviews [four (4) as face-to-face, and two (2) as Questionnaires using the same interview questions], plus the three (3) completed Advisory Group Questionnaires received back. While a very small cohort, the respondents’ opinions make a sufficient and robust contribution, answering my boundary critique questions about the purpose of this research project.

It is acknowledged that this data-set is very small; it comes from a much wider *potential* cohort sought from across the world, who mainly declined to participate. This matter was discussed in depth with my supervisor. The decision to proceed with this set of nine (9) responds – from both the exploratory interviews and from the Advisory Group questionnaire respondents, was based upon two points. First, in the interviews the responses and issues raised were very similar across all these interviewees, despite their

diversity, suggesting some robust findings despite the small sample. Second, that this was only the initial boundary critique, and the time it took was considerable: many months of writing to many potential respondents and getting only a couple of positive responses each time. The consolidation of the two data-sets became the sensible option, given that my time was strictly limited. The data was utilised to inform the Design Team questionnaire (see later for details of the Design Team, whose role was to provide feedback on my VSM recommendations).

### **3.4.2 Respondents' Overview**

I determined that my respondents had to be 'as high up as possible' in multiple agencies because the ultimate thrust of this project is to produce an intervention that could ultimately stimulate *a change* for disaster-hit communities. Similarly with the Advisory Group, I ideally wanted 'real voices' of people working at or near disaster fronts, who know what community engagement looks like. More detailed discussions of these matters are provided in section 3.5 below. My analysis began by coding using NVIVO™ and taking all nine datasets as the entirety of my primary data. These were coded out into various nodes, bringing together aspects of respondents' commentary, statements, and views.

From the dataset responses, the following nodes were established:

'Country' – identifying all relevant Nations;

'Disaster Type' – identifying the forms of natural disaster plus relevant associated disasters;

'Governance' – meaning multi-agency or governance 'barriers' to progress on the ground;

‘NGOs’ – meaning Non-governmental Organisations identified by their official names [but not identified herein];

‘Notable Comments’ – highlighting respondents’ specific statements that provide useful clarification for my research purpose;

‘People’ – a number of high-profile individuals were named in discussions, relevant to the project [but here, named only as the Chair of reports, etc.];

‘Plant & Equipment’ – referring to physical infrastructure, pertinent to a nation and its capacity to function when subject to a natural disaster;

‘Publications’ – documents were drawn to my attention that have provided resources to this project; and

‘Research project outcome suggestions’ – these being respondents’ views on what they might find appropriate and helpful from my PhD project.

Taking an overview of the above, four ‘data arenas’ became clear:

- 1) The countries, disasters and organisations identified;
- 2) Various issues and constraints affecting how disaster response is offered and provided;
- 3) The reportage – people, reports and media stories that have influenced or guided respondents (usually reports from earlier disaster responses that influenced later ones); and
- 4) People’s frustrations, felt either as a lack of the right intervention at the time of need, or conflict between personal values and organisational or media responses.

I will address these broad points in the following sections.

### 3.4.3 Data Arena 01: “countries, disasters, and organisations”

In collecting data, it was vital to know which countries (e.g. the developing countries of interest in this project) respondents either had worked in or had good experience of; and I placed questions about this at the beginning to help each respondent to get started on talking about something factual and non-controversial – i.e., to ‘warm them up’. Figure 4 lists these countries. The span of countries is across the developing world; principally regions straddling or below the Equator [*my own researcher bias speaks from the Western European-centric setting*]. Other Nations mentioned are: China (Peoples’ Republic of); Italy; Japan; New Zealand; South Africa, and Yugoslavia (the former).

<b>Africa</b>	<b>Asia</b>	<b>Pacific Rim</b>	<b>Latin America</b>
Burkina Faso	Afghanistan	Papua New Guinea	Haiti
Ghana	Bangladesh	Tonga	Honduras
Mozambique	India	-	Nicaragua
Sierra Leone	Pakistan	-	-
Somalia	The Philippines	-	-
Tanzania	Vietnam	-	-

Figure 4 Countries noted in participants' commentaries

Two points initially come from looking at the above table. First, most of the nations mentioned are, in economic terms, ‘poor countries’; they struggle to maintain an adequate standard of living for the majority of their citizens under non-disaster circumstances, and by-and-large are reliant upon significant financial and other aid support through the calendar year. The potential within natural disaster events for infrastructure and civil society failures are therefore much greater than, say, for a European or North American nation. Second, each of these nations has been, in its past history, subject to colonialism by the nations that are today understood to be ‘first world’, developed countries. No political point is being made here, other than to point out (in very loose terms) that I personally believe there is a moral imperative for developed nations to ‘do more’ than they presently do.



Drought	Hurricane
Earthquake	Other: Collapse of buildings
Economic: Climate-affecting issues	Other: Landslide
Economic: Poverty – endemic	Other: Storms
Economic: Health impacts	Other: Typhoon
Flood, particularly from Monsoons	Other: Wild Fires
Health: Air-borne	Tsunami
Health: HIV-AIDS	-
Health: Malaria	-
Health: Water-borne	-

Figure 5 Natural disaster types noted in data

The type or nature of the disasters mentioned by respondents became an interesting discussion point. Those spoken about, including some man-made disasters, are listed in Figure 5 above. The ‘contradiction’ that some readers may perceive is the reporting of specifically natural disasters alongside what I call ‘cross-over’ disasters. These are of natural origin with human input, such as a wild fire exploited in a fraudulent action to destroy property to claim insurance monies (and many possible combinations of the natural and human-induced exist). Including ‘economic’ or ‘health’ disasters in the table might also raise eyebrows. However, for many developing countries, it may be argued that the so-called ‘under-development’ of an economy, and its capacity to provide indigenous resources and community support, could be heavily influenced by poverty and health conditions. These forms of disaster have been included in the table, partly because they were discussed as disasters by my respondents, but mainly because they *disable* communities, so when earthquakes, floods and other natural disasters hit, the human toll is so much worse than it would have been had the populations been largely well fed and healthy.

As an aside, a philosophical issue is raised concerning, a) ‘affected communities’ (see page 7), b) ‘community viability’ (see page 29), and c) ‘*disable* community’ (see above paragraph). Does the natural disaster event give a community a further sense, being ‘enabled’; in other words, that in place of the *status quo* and returning to a potentially

continuingly disaster-prone location other options become possible for community recovery and later resilience? With this perspective too comes the notion about viability and whether any or all of the lettered ‘community states’ is understood to be a loss for which the community becomes unviable into the future. These are bounded questions that require consideration by the affected community but are complex as they cannot be answered quickly. Community cohesion is a contextual situation that is accrued over very long periods of time; the disaster causes an instant of disruption which may not be possible to overcome in the recovery period that this project is surveying.

Having reported the facts of country and of disaster, one further question concerned who respondents viewed as being ‘the multiple agencies’. I coded responses to two nodes, ‘Governance’ and ‘NGO’, but report these here in one table (Figure 6, below) for convenience. The principle interest was about which organisations respondents either worked for or worked with, and others with which they had had collaboration or field contact. This data is of great interest, in terms of my research question, as I needed to know what types of organisation might need to be co-ordinated, if indeed my respondents saw this as a major issue to which my research might contribute.

Army	NGO – Faith-groups
Boundaries [ <i>subjective comments</i> ]	NGO – Fund-raising
Co-ordination [ <i>the nature of</i> ]	NGO – Rescue Services
Engagement [ <i>actions</i> ]	NGO – Healthcare
Government – Comments [ <i>subjective</i> ]	NGO – People ( <i>target groups</i> )
Government – Departmental	NGO – Housing
Other [ <i>Institutional</i> ]	NGO – Water and Sanitation
United Nations (UN)	-
World Bank	-
World Health Organization (WHO)	-

Figure 6 Perceptions of, and Organisations worked in or with by participants

A side note here: aid projects (monies, gifts, knowledge and expertise) are one aspect of this project’s deeper story-line: these were cited by my respondents as both positive and

negative influences on the course of natural disasters. I shall add further commentary on this shortly.

It would appear that there are the already-in-field NGOs from in country, plus of the use of resources from ‘responding’ governments, including the United Nations. Then there are multiple international statutory and non-governmental agencies, with headquarters in various parts of the world as well as branches in different regions. There are also the various media organisations, which are influential in decisions on when to react. These points will be expanded upon later.

#### **3.4.4 Data Arena 02: “issues and constraints”**

My respondents expressed many opinions on issues and constraints. I have tried to categorise these opinions into broad collectives, and then to draw some fruitful interpretations. The following Table, Figure 7, succinctly shows the headline *issue* and a note of some specific points of concern that respondents voiced.

<i>Analytical nodes (Issue)</i>	<i>Specific points of concern</i>
Accountability	Lack of accountability No quality system Standards (for multi-agencies’ activities) Reporting systems and published reports Effects of <i>inbound</i> goods, services, advice, and support Visibility
Cluster System (UN)	Viewed as a ‘good’ concept Command structure requires (systematic) management Improved efficiency required Organisations (multi-agencies) are focussed

	<p>Multiple agencies hold different philosophies</p> <p>Are ‘top-down’ and are not ‘agile’</p> <p>Insufficient ‘local NGO’ input and communication</p>
Community (people)	<p>Co-ordinated communications</p> <p>‘Local knowledge’ matters</p> <p>Disaster ‘stress’</p> <p>Knowledge and feedback loops</p> <p>Multiple agencies working together</p> <p>Multiple, adaptable solutions (not ‘one-size-fits-all’)</p> <p>Need for ‘trust-building’</p>
Engagement	<p>Multi-agencies (especially UN) with local environment</p> <p>Concern that risk-mitigation and resilience-building are considered as equally recovery</p> <p>One global organisation should ‘co-ordinate’ disaster recovery</p> <p>The ‘local economy’</p> <p>Agreed (co-ordinated) multi-agencies’ leadership</p> <p>‘Humanitarian architecture’, i.e. present NGO structure</p> <p>Wider non-disaster-times discussion; community-led</p>
Media (communications)	<p>Engage Communities with non-disaster-time discussion</p> <p>Disaster-experience knowledge-sharing, practice</p> <p>Use ‘instantaneous’ media coverage to alert Communities</p> <p>Need to ‘adjust the viewed lens’ of a disaster’s complexity – from the public’s perspective</p> <p>Complicated NGO internal and public profiles needing defence of ‘multiple agencies’ disaster responses</p> <p>A ‘communication and command system’ is needed, brought in ‘by the military’ to be the control centre</p> <p>Need to ‘adjust the viewed lens’: complexity; instant</p> <p>Profiles, and defending multi-agencies’ responses</p> <p>Communication and Command System (needed)</p>
Multi-agencies (activities)	<p>All Nations’ collaboration should be ‘optimum concern’</p> <p>Needs to be part of ‘United Nations Organization’</p>

	<p>Multiplicity of multi-agencies; own agendas</p> <p>Assessment of situation; schedule work-plan to recovery</p> <p>They are ‘competitive’ with each other</p> <p>Work seen as ‘theirs’</p> <p>Overly ‘top-down’</p> <p>Too ‘inflexible’</p>
NGOs	<p>Holding too closely to their own mandates</p> <p>‘Many’ local NGOs lack sufficient resources</p> <p>Politicised; delivering ‘aid with baggage’</p> <p>Can be ‘patronising’ of the communities assisted</p> <p>International NGOs should work with national NGOs and local NGOs</p>
Not applying elsewhere	<p>UN Divisions considered to ‘compete’ with one another</p> <p>Development Partners need to ‘better co-operate’</p> <p>‘Standardisation’ doesn’t work into unique communities</p> <p>‘Preventions’ funding: a reaction rather than a pro-action, i.e. humanitarian and government funding is reactive</p> <p>NGOs ‘are businesses’ wanting ‘to keep market share’</p>
Projects	<p>Role for UN for deeper ‘risk reduction programmes’</p> <p>Water and other ecosystem projects (disaster mitigation)</p>

Figure 7 Issues and Concerns derived from interviews and questionnaires

The column ‘Issues (node label)’ with its row titles is entirely a pragmatic choice of word or phrase to aid the process of textual analysis, within the analysis package. As such, the ‘issue’ is a gathering-together of like statements or concerns that interviewees expressed in their interview and becomes a point-of-reference. Other labels might have been selected, to meet other analysis or discussion thread. The summary numerated below represents consideration of the whole interview set, distilled into a manageable but coherent statement. One point about how NGOs approach their work, might be that they seek such as ‘theirs’ alone, that they are being selective and wanting to avoid saturation whereby prestige or ability-to-perform become impaired. The intent of the

intervention described in section 5.2, about the VSM construct, is intended to address this fundamental point. In Haiti there were many *uncontrolled* NGOs and agents.

The essence may be summed up as follows:

1. That some form of formal, organisational body (one which holds authority and command-capability) is deemed appropriate;
2. That actions undertaken are visible and reported upon (though this suggests some form of legal structure will be required);
3. That some form of high-level ‘disaster-type / components-needed’ action plan would facilitate smoother operational working;
4. Stronger communications with the community, with media, with ‘outside disaster’ agencies to raise the profile of disasters, would help;
5. That ‘competition’ amongst multi-agencies undermines ‘good co-ordination’ and ‘best-value’ responses; and
6. That stronger links between the development programmes run by governments and disaster recovery work could bring stronger community resiliency.

Perhaps the first summary point above is the most emphatic. However, drawing from knowledge of the whole interview experience, this statement now most appropriately represents the views expressed: that an organisation with authority is required to bring what the interviewees perceive as otherwise to be a failing process that could be made much better. So it seems clear to me in this boundary critique that my initial focus on multi-agency co-ordination and community engagement was correct, and it is the themes above that were a particular influence on my decision to construct a *Multi-Agency VSM*, which will be discussed in a later Chapter (at section 5.2). Next, within this data arena, I collate respondents’ observations about constraints concerning *Plant &*

*Equipment* [Figure 8], as these are relevant to the above, and I look at how multi-agencies begin to tackle initial disaster relief.

<i>Issue (node label)</i>	<i>Specific points of concern</i>
Airport	Collapsed buildings / control tower Fly-in ‘a mobile control tower’ Unusable for about 10 days
Air Transportation Modes	Helicopters
Buildings	[No direct comments offered]
Housing	Transitional (‘t’)-Shelters / ShelterBox® Too much ‘potential’ temporary shelter varieties ‘Take-in’ versus ‘site-built’
Road (networks; routes)	Infrastructure is (often) destroyed Logistics and transportation problems
Sanitation	Priority to alleviate health pandemics
Seaport	[No direct comments offered]
Water (services)	NGOs ‘provide water services’ Water tanks (issues)

Figure 8 Particular disaster recovery constraints

It is clear that these issues apply to any major disaster in a developing country. Identifying these points, however, begins to focus attention towards the critical infrastructure that is often in an already poor state. This aspect of the research topic begins to ‘stray’ into the general one of development aid, however, though it is relevant insofar as infrastructure that is built with quality and robustness in mind has a greater propensity to remain intact during a disaster event. At this point in my reflections, I made the decision *not* to widen the boundary to development aid, partly because this has already been the subject of a large amount of research, but most importantly because of

the interviewees' confirmation that multi-agency co-ordination and community engagement were vitally important to effective disaster response. Widening the boundaries could have compromised focusing on the organisational issues, as I was well aware that I only had a limited amount of time available for my empirical work.

A dominant theme for most respondents concerned the organisational response mechanism for any natural disaster, with a consensus that there needed to be one body 'in-charge' to initiate and to co-ordinate how existing multi-agency organisations begin a disaster response. A second dominant theme concerns the perceived 'disconnect' between the activities of in-country development, and how NGOs work with communities on post-disaster recovery. The question as to why *co-operation* between such organisations is so hard to achieve comes through in these two dominant themes. One possible response could be rested in the groupthink conundrum discussed more fully in Appendix 06; a further possible argument might be that research to bring the community into the response model as fully discussed through Section 5.2 below, has not been tried in practice. These are issues for other research reflections elsewhere.

### **3.4.5 Data Arena 03: "reportage"**

In the course of the interviews, a number of prominent people were named, and a variety of relevant published reports noted to me for further consultation. When it was appropriate and useful, I made later enquiries, and where I have used reports, they are referenced. Those mentioned to me, bar one, were accessible on relevant websites, and electronic copies were downloaded. Anonymity is respected at this juncture, so the names of the people mentioned are not listed in this thesis.



My interviewees and respondents were knowledgeable of people they spoke of or wrote about, as they moved in the same circles concerned with disaster relief management. Organisation or divisional heads of services are notable here. I make this observation, as it confirms (to some extent) that I was speaking with the right people for data-gathering purposes.

### 3.4.6 Data Arena 04: “people’s frustrations”

One of my questions was, “What should my project have as its outcome?” The responses to this question are coded into ‘Research Project Outcome Suggestions’. The question was to serve a two-fold purpose: (1) to elicit their thoughts and ideas about what *should* be done to improve disaster recovery management practice, and (2) to provide me with a broad platform of legitimacy upon which to build any solution that could develop from this project. The following table [Figure 9] captures these points.

<i>Issue (node label)</i>	<i>Specific points of concern</i>
Organisation	(Needs to be) Internationally-recognised Ownership ( <i>held by and owned by ‘an organisation’</i> ) Command structure needed Hold the focus and direct; with ‘from day one monitoring’ ‘Disaster Relief Agency’ (i.e. owned internationally)
Authority to Function	Code of Conduct needed Sanctions for refusing to be involved are required (UN level) Terms of Reference – international aid
Moral & Ethical	Trust Co-ordination

	Collaborative Transparent
Planning	Need to have established 'priority' disaster plans to hand Strong pre-disaster strategies Systematic aid (packages) 'Systematise and co-ordinate aid flow' 'Preparation tools' 'Framework' for community involvement 'Protocol' for action 'Country' knowledge index Developing existing plans to meet new needs Series of 'global' resources depots, sited strategically
Tasks for the Research Researching Tasks	'Needs' survey 'How' is complex logistics of disaster response done Address the 'issue' of access permissions Long-term review of in-country NGOS working with International NGOs Explore other forms of logistics and storage facilities Use existing schemes, develop and enhance
Thoughts	'What does the Community want?' 'How to utilise the Web?'

Figure 9 Participant's 'wish list' for good interventions

There is a general notion arising from these comments, which may be summed up as: 'we need "an umbrella organisation" (at international level), which will lead and manage disaster relief praxis, to exert control and to co-ordinate activities'. The word 'umbrella' here indicates an organisation that has global reach; it (potentially) holds good remit by way – here – of United Nations General Assembly acceptance, consent, and crucially of funding. Respondents' consensus indicates strength of certainty that the current practice of NGOs taking 'independent' action, which is *uncoordinated per se*, into any natural or other disaster, requires greater co-ordination and this requires an

organisation capable to undertake such a role. Certainly I will acknowledge that I might have asked some leading questions, given my initial interest in multi-agency co-ordination; however I sensed, in the interviews and in the written submissions (where I was not able to intervene with leading questions), a real longing for a (very) high-level co-ordination body to deal with the confusion of multiple uncoordinated agencies.

### **3.5 Analysis Commentary**

Here, I seek to understand and interpret the data outlined in the previous section (3.3). I shall interweave their commentary with how I comprehend what they have said and written. Also, I introduce the psychological concept of *groupthink*, which I find increasingly to be an issue threaded through my research. This should lead towards a proposal for the intervention to be pursued through the rest of this PhD.

#### **3.5.1 Overview**

In the last section I used ‘sound bites’ of respondents’ data to illustrate the various NVIVO™ coding nodes I had selected. These were then collated into four ‘data arenas’ that brought together the various nodes, being both tabulated and commented upon prior to the lengthier discussion below. I shall use the same four data arena titles here; however, I will now incorporate respondent quotations to illustrate the points. Following these, I will discuss how I find groupthink is relevant in this matter; and then provide a summing-up. The purpose of this is to highlight issues that will be built into my own *Multi-Agency VSM* – itself to be subjected to external testing with a further data-gathering exercise and commentary process.

### **3.6 Data Arena 01: “countries, disasters and organisations”**

The research topic is natural disasters located in developing countries. All respondents had experience in and knowledge of at least one such country. Either through interview conversation or by written response, each respondent identified countries they had experiences of, had worked in, or held other specific connections with. The nature (type) of the natural disaster each respondent spoke of is of interest to me.

#### **3.6.1 African Continent**

Earthquakes in West Africa were a surprising notification, with one respondent travelling “extensively” across the region (and elsewhere) speaking to communities on floods and “earthquakes in West Africa and Ghana ... [and] Burkina Faso. [The communities are] educated on what to do before, during and after the occurrence”. It appears that there is a proactive monitoring programme, which we discussed and has been published on, about seismic activity in West Africa. It is ‘preparedness’ that was the key point from the point of view of this interviewee, and his role was to facilitate this.

Another respondent, at management-level and having just returned from Sierra Leone, discussed his organisation’s outreach projects, some of which take groups of young people from the UK to Sierra Leone to “see their disaster risk reduction work”. This is about developing deeper understanding; Sierra Leone has recently faced the Ebola medical disaster [2014-2015].

Three other countries in Southern Africa were mentioned in passing: South Africa, Mozambique and Tanzania, with regard to earthquakes and floods, and NGOs working

together. In Somalia (East Africa), the natural disasters of flood and drought, and the subsequent challenges faced by communities, were noted. Drought in particular was described as a ‘slow onset’ disaster:

“One of the main problems with these ‘slow-onset’ disasters is the lack of humanitarian architecture to deal with them. Traditionally, fast onset disasters grab the media headlines and are thus more easily supported through public fundraising. Slow onset disasters, by their very nature, are under the radar and only attract attention when [it] is too late. The recent famine in Somalia is a good example”.

This speaks to a problem that NGOs appear to face, and – as the above respondent wryly suggests – it hasn’t necessarily been fully considered. An earthquake, for instance, is virtually instantaneous, both in terms of onset and result; while the lack of rainfall over years has a slow, cumulative effect. In the Horn of Africa (Djibouti, Eritrea, Ethiopia, Somalia) there are a combination of natural, ‘cross-over’, and man-made disasters (as defined earlier in this chapter). The comment, though, about public responses to slow-moving disasters is pertinent.

There is a further observation to make about the Somalian situation. The effect of various *natural* disasters, compounded by the socio-politico-economic environment, ‘disperses’ the effect of a disaster event further afield, rather than keeping it locally to the place of the disaster; victims migrate from their home areas seeking peace and stability that external agencies (tribal chiefs, government, NGOs, etc.) are unable to provide or to manage. This latter issue is not addressed in this project, but is relevant to the issue of resiliency interventions that humanitarian aid development programmes are prepared to undertake.

The issues of Haiti (see, in part, the case study above) plus a focus on Somalia and its neighbouring States were used within the ‘briefing case study’ for exploratory interviewees to read, providing their discussions’ referring-point prior to interview.

### **3.6.2 Asian Regional Area**

This vast geographical area incorporates large land masses and enormous stretches of ocean; there is a tectonic plate junction (eastern Indian Ocean), multiple oceanographic and atmospheric conjunctions, plus many nations that are within the category of ‘developing countries’. Respondents spoke or wrote about knowledge of Afghanistan (earthquake), Vietnam (floods), The Philippines (earthquake, typhoon, flood and landslide), Bangladesh (flood), India (cyclone, flood) and Pakistan (“almost regular floods it gets each year”). These natural disaster events are debilitating to communities, as they lose family members, property, livelihoods and social structure. One respondent commented, “Inevitably there is a focus on what does not work well. There are many instances of humanitarian response working well, but this doesn’t always catch the headlines”. The media plays a vital contribution to how the world knows about a disaster, of the immediate effects, and of the requirements of disaster-hit communities: they ‘promote’ the terrible-ness of such events, which often galvanise governments and the general public into action with goods and money. Such interventions are what I term to be *initial* Relief, the first stage of giving support to such communities; this is exactly what is needed as soon as a disaster has happened.

Two respondents, however, offered contributions towards the second stage of support, that of Recovery – this is the mid-term objective of assisting the community in either returning to ‘normal’ or finding a more resilient future. Some communities may wish to

have the *status quo* reinstated, to return ‘to how it was previously’; other communities may wish to develop a new existence for themselves and could need support to do that. This is where my own interests lie. Discussing a “recent cyclone in India”, one respondent related that “an unprecedented evacuation of people” had occurred, but they didn’t face “the expected number of deaths”; this was “largely due to improved disaster preparedness and disaster risk reduction [DRR]”. The recovery phase provides an opportunity to build in improved disaster preparedness for the future, because the community and agencies are sensitised to disasters and are generally willing to invest. Another similar respondent comment, concerning Bangladesh this time, was about disaster risk reduction and how this – as a process – is used to prepare communities: that there is “a good model there but it’s kind of based on people sharing a story and doing some analysis of their needs ... and then coming up with a response to it”. This is a useful intervention, but needs to be taken on across multiple developing countries: to some extent this idea informed my choice of the VSM to propose the creation of a UN agency that would be able to initiate this preparedness.

### **3.6.3 Pacific Rim**

Respondents mentioned a number of *developed* countries in this Region through their interviews or on their questionnaires; these are not discussed here. But of developing countries, Papua New Guinea (tsunami, flood) and Tonga (tsunami, flood) were particularly noted. With already low-lying land standing just proud of water, climate change with rising sea levels, and the increased propensity for more violent and frequent tropical storms (of all types), the nature and the scope of need that such countries have to address is changing; NGOs are beginning to look at this matter with more concern.

### **3.6.4 Latin America**

Located in Central America, Honduras and Nicaragua were mentioned for work that the respondent had done relating to disaster risk reduction. As the January 2010 Haiti earthquake and its aftermath were still fresh in the minds of all respondents, this was particularly noted by three of them. One respondent, part of an NGO management team, reported, “Often what happens is really a high profile disaster, high profile – nice word [...] but something like Haiti” is what galvanises the general public to give money. She also mentioned, as an example, that “something like, I think, £12 million raised” for the Banda Aceh disaster (Sumatra, 26 December 2004 earthquake and tsunami). Another respondent, writing of Haiti, said that “no doubt disasters like Haiti present major challenges as so-much infrastructure was wiped out, in an already chronically poor country”. Haiti is the focus for the case study used in this thesis.

The main observation to make is that most of these countries straddle the Equator. They generally have vast populations with low incomes. Many countries are near or at sea-level, where climate change is a factor with a rising nominal sea level. The nature (type) of natural disaster is often geological or weather-related. Many countries, faced with such a disaster, are unable to make the step-change in resource allocation needed for an effective response, so are strongly dependent on international support.

Next, I discuss what respondents consider hindrances to good disaster responses.

## **3.7 Data Arena 02: “issues and constraints”**

In this section I discuss a list of issues and constraints in alphabetical order, to emphasise that the ordering does not imply a sense of priority. All these points are



important and should ideally be accounted for, either in my VSM design or in its post-PhD implementation by relevant agencies.

### **3.7.1 Accountability**

A lack of accountability of multiple agencies, in a number of ways, was stressed by respondents – however, the details of accountability *to what or who* was not followed-up. Mixed up with accountability was the notion of standards; of activity, workmanship, commitment, etc. “Missing from the whole system ... is a total lack of accountability ... there’s no quality system”. However, the respondent making this claim proceeded to say that, “WANGO, the World Organisation of Non-Government Organisations ... [is] trying to produce standards and codes of practice”. Also, “DfID [the UK Government’s Department for International Development] has introduced a reporting system for NGOs who receive funds from DfID”, with an emphasis on checking where monies are allocated and whether projects are completed successfully. The latter seems to be necessary because “very often the aid comes in and undermines the economy” of a developing country, which is a normative issue about humanitarian assistance; some projects work and others are not successful, and understanding the difference can guide future strategy. This last point has been illustrated within this project with an example of transit housing that disaster-fleeing community members declined to move into, being culturally unsuitable [see in section 3.7.8 below].

One respondent confirmed this is a problem, and said the ‘top-down approach’ that multiple agencies implement is at fault:

“...the Mentawai Islands, following a tsunami, a recovery response program that was planning to distribute unwanted tools, build community toilet blocks where

there was no water, etc. The bottom up approach has not become standard because it's not easy. The [multi-agency, strategic] tools for this are lacking. For example donor agreements don't allow agencies to reshape or scrap programs as the recovery needs evolve ... the responses are remarkable in their LACK of agility" (capitals in the original).

"[Seeing a] consistent failure in this top down approach ... [of the UN's] Shelter Cluster building 60 to 70,000 transitional shelters in West Sumatra, 50% of which were never occupied.

In many senses these views are echoed in relation to the Haiti 2010 earthquake and the Syrian humanitarian crisis that Stourton (2011, 2013) reports and comments upon: that there is a methodology which 'is fixed into the processes' of disaster recovery management, and comes perhaps from an assumption that hierarchical management is necessary. Also, he says that NGO 'behemoths' are mindful of their own missions but are unable to change sufficiently fast enough to meet the ever-changing disaster situation. These observations are particularly pertinent: the VSM is explicitly designed as an alternative to traditional hierarchical management, and is said to build adaptability into organisations (Beer, 1985), making this a useful model in the disaster preparedness context.

### **3.7.2 Cluster System (UN)**

The 'Cluster System' was not a focus of my research; however a number of respondents made mention of it, and as it is relevant to the overall *initial* Relief and Response environments, some discussion is provided below.

The “Cluster System was first proposed in about 2004 ... [and is made up of] eleven clusters; [it has a] command structure ... one of agreement and compliance and [is] UN-led”, reported one respondent. The Cluster System has two aspects: 1) to bring together particular foci ‘under an umbrella’, i.e. WASH – Water, Sanitation and Hygiene; and 2) where in functional use, to bring the relevant NGOs’ representatives to meetings to co-ordinate supply against demand, i.e. in providing resources such as water butts or tanks, pipework, and standpipes (taps). However, criticisms were voiced in the interviews:

“There’re things missing from humanitarian space. One is there isn’t a command structure. The UN clusters are a gentlemen’s agreement; everybody working for the common good. But it’s not a command structure”.

“The cluster system needs to be made more robust”.

“It was sorely tested in Haiti and was found to fail. And so that is something that it needs to be addressed.”

“My particular viewpoint is that the Cluster system has improved efficiency but the system is basically designed to organize itself, i.e. the implementing agencies (Governments, INGOs, etc.). It is strongly focused around meeting the demands and constraints of donors and the particular skill set of the implementer. This is based around the fundamentally racist view that the implementers have skills and knowledge superior to those they wish to support”.

“As a cluster coordinator it’s a nightmare but shows the absolute need for clusters.”

But in support of the concept of Clusters:

“Communication between disparate agencies becomes a challenge but the UN helps to provide coordination through cluster meetings.”

So the Cluster System seems to be pointing in the direction of what is needed by way of multi-agency co-ordination, but is flawed in its hierarchical approach and in its agency-centric attitude that marginalizes communities. It is ‘top-down’ and lacks ‘agility’. The most significant objections, however, were that Clusters have ‘insufficient local NGO’ input and communication:

“Fundamentally we struggle with top-down approaches which delay community reintegration. Communities are still not being engaged enough in discussion about recovery. Recent experiences in The Philippines [Typhoon Haiyan, November 2013] show that cluster meetings are attended by international NGOs [INGOs] with very little representation from local NGOs. Is it such a difficult thing to get them invited? This doesn’t always result in inappropriate disaster future proofing but still challenges the commitment made by many INGOs to shifting the power to ‘southern’ NGOs”.

This last respondent’s commentary speaks to the need for my project, providing the view that the disaster-hit community has to be involved for their own Recovery and later Resilience. Those local ‘southern NGOs’ inevitably use local people and hold local knowledge.

### **3.7.3 Community (people)**

As alluded to above, often the community itself can help but is seemingly rarely asked; perhaps being viewed ‘as collectively in need’, and therefore made up of victims rather

than knowledgeable agents. Not all local communities are completely devastated by a particular disaster. Reporting on a small late 1960s healthcare research project (see: Robinson, 1971, especially at Ch6, pp.113-115) signposted that there are (some) strong indications of differences between how the medical profession approach the sick person, and of how the sick person considers their own malady and of what they particularly seek in terms of treatment. The study highlighted differences of approach by the sick person and/or the family surrounding him or her towards reaction and interaction or intervention by medical professionals. The implication is that a sick person may have stronger personal 'knowledge' but that this could potentially be ignored by a medical professional; the use of 'local' (the patient's) knowledge may provide a stronger long-term resiliency strategy. This indication correlates to this project.

Respondents offered a breadth of commentary, with two sides to the story of the community and its disaster. As the disaster event happens, "the terrified population... [is] getting the hell out whilst they can", which indicates the chaos and confusion that can exist. "Local communities are usually under stress in the aftermath of a disaster ...", so there is a psychological process in play that should be taken into account. The consequence of such a disrupted environment is that people who know the area are dislocated elsewhere, often communications are broken, and capacity to engage with local people is (initially) lost. The outcome of such a change is that "there is not enough adequate consultation and/or participation (by international donors) to collect feedback from beneficiaries [of aid provided]". This leads to a situation where "very often, the local context is not well-understood, and lack of knowledge on specificities of the local context can lead to inappropriate or wrong delivery of first aid kits and reliefs". A respondent observed: "communities are still not being engaged enough in discussion about recovery". One respondent clarified the position thus:

“The conversations have to include external, provincial and central [government] agencies but should be driven upwards from the local most basic element of the decision-making process; i.e. individuals, households and communities via the many structures and networks that pre-exist”.

I believe there may be a good reason to grasp that 'local connectivity process' within my intervention. But there was divided opinion among respondents as to whether the multiple agencies do or do not actually engage effectively with disaster-hit community members. One respondent argued,

“Leading INGOs are keen to engage with affected communities from the outset. They will seek out their participation, voice and expertise. After all, these communities know their own environments better than anyone. When it comes to initial and often rapid needs assessment, affected populations are consulted and often included in the assessment team personal. They are often among the first to be employed as part of the initial programme activity. This not only taps into an important local resource, it helps to build trust”.

However, this same respondent had earlier observed: “fundamentally we struggle with top-down approaches which delay community reintegration. Communities are still not being engaged enough in discussion about recovery”. So it appears that some agencies engage with communities, whilst others do not, and this doesn't happen effectively with regard to hierarchical co-ordination mechanisms.

Another respondent supported this project's exploratory proposition when he said that “better coordination within/among international donors would probably enhance international assistance”, which speaks to me about knowledge and feedback loops between agencies and the community. A “one-solution-fits-all does not necessarily work similarly in all countries after natural disaster, and there is a need to customize

assistance to local context”. A useful concept is for local knowledge usage through the activity of an ‘agent’ (Midgley, 2000); in my case a VSM-inspired UN organisation.

### **3.7.4 Engagement**

The community is in crisis, and may have been waiting for some hours or days for any assistance to reach them; the multiple agencies may be some thousands of kilometres away, assessing the potential initial impacts but knowing it takes time to translocate supplies. All respondents commented that engagement, in its multiple varieties, is one key element for developing greater co-ordination, both with the community and across the spectrum of NGOs themselves. The “UN disaster risk reduction programme is the key; the approach recognises the need to foster sustainable communities, work bottom-up, partner, engage”, being a general theme from various respondents. So “it is essential to link disaster risk reduction with sustainable development strategies (as UN well recognise)”. This is backed by the comment that “risk mitigation and resilience building cannot be separated from recovery ... [a] good example are community recovery committees following ‘Black Saturday’ [February-March 2009] in Australia”.

The theory behind ‘community recovery’ seems to point to two key ideas: the first is about addressing psychological issues, where individual and community anxiety need to be managed through community self-help and resilience-building strategies; and secondly, that government policy and intervention plans need to be shared with the community for action to be taken, and action should include community education activities (*q.v.*, Shaw *et al.*, 2003; Parliament of Victoria, 2010b; Johnston *et al.*, 2012).

The ‘management’ sense of engagement, discussed in this project, was mentioned by one respondent. He suggested that “a single body” might be a good (radical) suggestion to pursue, if community engagement was to be taken seriously:

“To a certain extent it’s evolving already. The cluster system is a sort of the first major step along the way. The UN ... has clearly got to lead [using] ... UNICEF, the OCHA ... and UNHCR ... [but] the problem that the UN face is ... organisations it’s trying to get on board are NGOs. And they take the non-governmental bit quite seriously ... quite a significance of friction [there]”.

The crux is that there are all the constituent bodies that contribute and act within disasters to provide humanitarian assistance; the difficulties appear to be getting these *to be co-ordinated*; getting them engaged with communities on a collective scale; and getting them to work on a single ‘meta’ objective so everyone can pull in the same direction – which might well help to address longer-term resilience concerns too.

Another respondent wryly stated that he and his colleagues,

“[Put] together a strategy paper... We see it as really important that if you involve the people who are actually impacted upon in drawing up the strategy ... for dealing with the problems, you get ownership of that process”.

This is a vital part of the intervention process: engagement means that people express opinions and can take control of their future lives. Here, there was a consensus amongst my interviewees that the multiple agencies (especially the UN) should engage with the local environment – the community; also that a global organisation should ‘co-ordinate’ the disaster recovery process with agreed multi-agency leadership; and that risk-mitigation and resilience-building ‘equal’ recovery. All of which is ‘the big ask’ of any responding agency to a natural disaster of course. However, the suggestion seems to be structured around the idea of ‘humanitarian architecture’, formed in non-disaster times



when discussions can take the time needed and are not put aside because of the pressing urgency of a disaster.

### **3.7.5 Media (communications)**

Methods of communicating news, news of natural disasters from the now-called developing countries, have radically altered over the past 150 years. From heliography, ‘speaking drums’, smoke signals, ‘the runner’ (a man), carrier pigeons, the ‘post-chaise’, the telegraph signal, shortwave radio, television, mobile telephones, with now today the internet with its plethora of online news and social media websites, and a basketful of electronic gadgets, so communication can provide virtually instantaneous news, views, commentary, statistics, data, archives, and ‘that cry for help’.

Respondents made a number of pertinent observations, some of which are critical of ‘the media’, recognising that today the ‘electronic age’ is here and needs to be utilised in providing the best public relations approach and educative tool possible. News of the 2004 (26 December) tsunami in Sumatra and the 2015 (13 March) Cyclone Pam across Vanuatu are typical of how quickly news permeated the WWW: help was sought.

Today the state of the global media is such that “we all know about it [a disaster] within almost seconds of it happening”. However, this has some drawbacks: the media rush-in – one news report spoke of their reporter reaching an isolated island long before any disaster responders or *initial* Relief supplies had reached the needy people there. Having reached such a place, the media broadcast their arrival with images and sounds of the devastation, with commentary and ‘*vox pop*’ from the disaster-struck local people, only to then pester the disaster responders, when they arrived, with searching

questions. However, as one of my respondents said, “You don’t really get them [the media] to convey the complexity of the response needed”; and, “they expect instant solutions to things”.

The media certainly has a role to play: “... I mean the media also plays an important position on giving the profile to the problem, and can be very useful in many ways”; so, for instance, “media coverage of the progress and trajectory of the typhoon was ‘live’ and almost accessible to all”, which means that NGO headquarters staff (via the internet) receive perspectives and views that contribute to how they target relief supplies and distribution. So the media has its role in the communication process.

Where the media, it is suggested, should be able to provide a *better* communication trail is through “education on the mitigation of natural disasters” and “education on what to do before a disaster happens”; though it might be suggested that either governments or NGOs should play this role. One outcome of the Australian bushfires of early 2009 was for the State of Victoria to “revise [its] approach to community bushfire safety education ...” (Parliament of Victoria, 2010a) so there is community communication:

“... there will be a certain amount of, umm, news and diffusion of that information that ought to be happening already ... [though pertinently] it’s making sure it is, and making sure it’s getting to the right people”.

For the other-side-of-the-coin of the story,

“But when a developed country like the USA struggled with communication after [2005 Hurricane] Katrina, there is clearly a need for a communication and command system that can be flown in within the first hours. Surely this is what the military specialise in, but humanitarian agencies are averse to working with the military”.

And this is where an organised system (for whatever reason) breaks down and the process to back-up the system fails too, so emergency planning schemes have to be better-organised in advance. There was similarly an issue during the early days of the 2010 Haiti earthquake, when the airport's control tower, plus other communication networks, failed: the American military flew in a mobile control tower. However, the more potent issue from that respondent's comment is about co-operation between NGOs and government agencies – here being the military. Communications is a vital element of how disaster recovery management is performed: such to exemplify co-ordination.

A number of points were made by respondents that begin to help us understand how to develop good communications as part of 'non-disaster time' discussions, by engaging communities to share knowledge and practice. Social media websites are well-developed and accessible via the simplest of mobile devices (electricity being available to recharge batteries). But there is the suggestion that the media (as the body of correspondents and recorders) need 'to adjust the viewing lens' they use, instantly sharing the complexity they see, but being less critical in those early days of a disaster when reaching locations with supplies involves enormous challenges.

### **3.7.6 Multi-agencies (activities of)**

Every respondent had much to say about multiple agencies, whichever organisation or body they worked with; there was criticism as well as support for the fundamental objectives of the NGOs, their people and their contributions to helping with natural disasters. Everybody said that the collaboration of NGOs "should be the optimum concern no matter the country involved", and this needs to "be part of the United Nations organization". The UN should be the highest level, overseeing everyone else.

One reason cited is, “there’s the competition of space, of mission, of priorities, of access, of transport, of communication networks, etc. ... these sometimes can spill-over and become a problem in themselves” as each NGO has its own way of doing disaster recovery, and consequently “the problem’s going to be the competition between them”.

This was an issue highlighted through the Haiti 2010 earthquake aftermath. There were too many different agencies, of vastly differing sizes and capabilities, which were not working together due to a lack of an overall response plan. One respondent explained that “up to ten thousand non-governmental organisations (NGOs) arrived to offer help”.

The concern is “people always want to start something and they’ve got a different angle and they probably have ... I mean, we have tried amalgamating [NGOs] from time-to-time but it didn’t last very long”. There is a multiplicity of agencies, promoting their own agendas. In the chaos of a disaster’s early hours, when there is likely to be reduced security (military or civil) and many cries for help, agencies will simply respond without stopping to communicate with others. “I don’t think you can stop them [the NGOs] trying; you may have to stop them getting there or landing ... and this I think is where the relationships with the local populations and the local political organisations can run quite sorely sometimes”. This, it would appear, reflects the ‘uncontrolled’ approach that currently exists. Respondents suggested an umbrella organisation: “I would have thought the UN or someone sponsored by the UN can be absolutely crucial” in fulfilling this role.

Criticisms of NGO structures (e.g., internal hierarchies in organisations) and practices were strong, particularly where the focus of the NGO is highly task-specific:

“Because you can imagine [after] an earthquake for instance, the men arrive with enormous earth-moving equipment and know what they’re doing in relation to their technology, and they will barge in and clear everybody out of the way, and just get on with it. And that’s not quite always what you want [the respondent chuckles here]. You may need it [earth moved] physically. I mean, saving lives may require that but ... there has to be a more delicate way and this is where some form of co-ordination has to go in as quickly as possible”.

Part of ‘the problem’, respondents suggested, is that the process “suffers from the same top-down approach where governments’ and agencies’ structures are developed, rather than investigation of existing networks and capacities”, in terms of developing disaster recovery management. This arguably strikes at the heart of the matter: the governments of developed countries especially and increasingly also the international non-governmental organisations (INGOs) are organisational behemoths, and adaptation and change in relation to local contingencies is lacking. It could be that smaller NGOs and other humanitarian networks, which are often already positioned within developing, could be part of the solution, as the respondent providing the earlier quotation intimated.

That same respondent ruminated on co-operation too:

“Although there are mighty attempts at coordination, in fact agencies stubbornly cling to their own developed ideas. I have, as a coordinator, struggled to have agencies cooperate. What I wonder is the source of this? My guess is lack of flexibility”.

The crux of the matter seems to be, “once on a committed course of action (a strategy), implementers struggle to adapt. My view is that they don’t appreciate that they are dealing with constant, repeat constant, change”.

It might be that some NGOs are trying to do too much, being all things to all people, rather than specialising in tasks that each does exceptionally well: again, this speaks of a sense of NGO ‘competitiveness’, with their ‘top down’ missions seen as ‘theirs alone’. The matter of imposition of disaster relief upon communities, and then of recovery and resiliency measures later, is a significant theme for this project to address.

### **3.7.7 NGOs (non-governmental organisations)**

There were comments that relate specifically to NGOs, rather than to the wider set of ‘multiple agencies’, which includes governments for instance. Three interesting perspectives are indicated, grouped here as ‘effectiveness’, ‘resources’ and ‘attitudes’, and these are discussed in separate paragraphs next.

The effectiveness concerns: “based on observation/experience, NGOs are often (very) effective, in particular after disaster, because they know well the local context; and members of NGOs are often local people from local communities”; they tend to “put together an effective procedure for dealing with disasters” that incorporates “prevention [measures] as well; so being proactive in mitigating the effects of a disaster”; and (in the respondent’s context) they are always “local organisations”. I should clarify here that these comments come from someone from an umbrella organisation that passes money to local NGOs, and oversees those NGOs’ activities. What this strongly suggests, however, is that local equals effective.

The word ‘resources’ cropped-up often in terms of local NGOs’ activities: that “most of the local NGOs lack resources (human and financial), [chiefly] in developing countries” and that “sometimes their action/engagement is limited due to scarcity of funds”.

But it is another issue – attitude – that many respondents observed is a particular problem; particularly the attitude of the NGOs towards the community. Examples of quotations reflecting this include: “very politicised, and aid comes with a baggage”; “aid agencies patronising of receiving communities and nations”; “very often you get NGOs moving in and thinking they’re ‘doing good’, and yet they’re not communicating with the local community”; “but then you get these sort of five-man operations turn up and they sort of just cut across everything and ... and they draw on local manpower and resources and redirect or misdirect ... are they doing any good or are they doing things which are bad?”. It is hard to take a dispassionate view at this point, since these were strongly expressed views, clearly forged through bitter personal experiences. It is always possible, of course, that examples of bad practice stayed in the minds of the interviewees, outweighing good practices that were taken for granted. Nevertheless, given the limited resources available, the idea that *any* of these are deployed with disregard for local community needs and expertise is problematic, and so this theme needs to be addressed in my project.

One matter that a respondent noted is, “each organization has its own specific mandate and most of the time, responses are within their mandate”, which means it is more likely ‘to work alone’ in the field. Another comment sums this up well: the “larger INGOs have little control over smaller NGOs that might have limited or even hidden/dubious agendas. Many [smaller NGOs] will arrive, deliver aid and disappear quickly as they have little capacity to do more”.

But in Haiti 2010, something else happened: “in fact that’s something you could say of NGOs in Haiti is that not only did they ignore local organisations that were on the ground and still operating, *they actually became a government within the government*,

which is an amazing event”. It is also reported elsewhere (for example, Blog: Keryn, 2010; Lendman, 2010) that the US Marines, already in situ on other activities, began to take (some) control in the capital, Port-au-Prince, ‘managing’ the earthquake’s aftermath; the government all but ceased to function due to the severity of the disaster upon Haitians and their environment.

An overall perspective might be that the organisation of local and international NGOs’ structures might form part of my later research. Of course, in the event of a major natural disaster, to have effectiveness, sufficient resources, and the right attitudes, is a basic requirement so that distressed people received the assistance they require, and these came to be bedrock values for my VSM design.

### **3.7.8 Other Respondent Concerns**

Two other sets of concerns are reported by respondents, which I bring together in this short section.

Most respondents spoke of the United Nations (UN as being the ‘ideal’ body that should hold global oversight of disaster recovery. However, there were two criticisms of the UN that should be addressed if indeed the UN is to be the governance body for my VSM co-ordination: “competition within/among UN ‘divisions’ ... could be avoided (or minimized)” and “there seems to be some sort of ‘standard’ assistance provided by UN divisions; however, sometimes, the assistance is not always appropriate and one issue is the lack of co-ordination”. The issue of co-ordination is addressed in my VSM design, as is community engagement to support agencies moving beyond ‘standard’ provision. However, the possibility of competition between any new UN agency and other



branches of the UN has not been addressed in this thesis. To have taken this on would have necessitated a VSM analysis of the whole United Nations (or something similar), and that is outside the boundaries of what is achievable within my project. It is something that might become the focus for future research, however.

Every respondent referred to ‘humanitarian aid or support’ in some way or another, and saw ‘aid projects’ as part of what it will take to reduce the impact of natural disasters, and build resiliency into communities: “risk mitigation and resilience building cannot be separated from recovery”, one respondent commented. Internationally-driven development projects are seen as part of the solution: a “good water project is one [centred on] Lake Chad” in northern Africa, and when you’re providing “capped wells and ... sanitation, then all the infections [reduce] ...” provides a good approach.

Again, the call for community engagement came up in relation to such projects, rather than “set up a school which is in the wrong place; it’s the wrong side of a stream, it’s on the wrong side of the village ... and the people just won’t use it ...” becomes the issue. As “community needs and demands for disaster prevention often arise after a disaster ... a reaction rather than a pro-action”, this provides the international community with an opportunity to make a difference.

A further set of ‘issues and concerns’ reflect the physical attributes that matter in disaster management, such as infrastructure and logistics; respondents mentioned many that bear some scrutiny. These are brought into a single discussion, below.

To meet basic needs and/or evacuate people, infrastructure across the disaster zone is vital. In many developing countries, infrastructure is contextually ‘challenging’ at the

best of times, although efforts are continually made to repair and improve roads, air fields, etc. The main issue is the cost, and many developing countries do not have the financial resources for major infrastructure investment. When a disaster occurs, it is often the infrastructure that fails first, and takes a long time to bring back into use. A consequence of this is that it becomes difficult to reach remote populations with the goods and services they require, plus moving people to safety becomes more of an issue. Speaking of the initial aftermath, one respondent said “when a disaster happens, the infrastructure gets totally destroyed ... no kind of roads to transport things”.

In Haiti, the 2010 earthquake severely damaged the capital’s airport: the “airport buildings ... [and the] control tower collapsed ... leaving the airport unusable for about 10 days”, and as earlier noted, the Americans flew in a mobile control tower. While aeroplanes were temporarily unavailable, helicopters could be used, particularly for surveying, ‘medivacs’ (helicopter-facilitated medical evacuations) and transporting items like food, water, medical supplies and people to isolated areas. Seaports are often vital for logistics: Haiti’s berths were damaged.

Along with roads being destroyed, buildings and people’s homes are often either totally destroyed, severely damaged, or are located in an area of extreme danger. A number of points were raised in relation to this by my interviewees, but the two principle ones concern initial shelter, often from continuing climatic conditions (sun, rain, storm, etc.), and transit shelter prior to medium-to-longer-term rebuilding programmes for communities. There are already well-tried ‘T-Shelters’ and ‘Shelter Box<sup>®</sup>’ transitional shelters, deployed by the International Organization for Migration (IOM). A criticism raised by one respondent suggests that the theory behind the provision of these kinds of resources needs some additional reflection: the point at issue was of a multiplicity of

housing types (in Haiti 2010); “a whole range of different designs”, but without a “command structure, nobody said we’re doing this one or doing these two and leave it at that; let’s at least co-ordinate doing this using our resources”. This is, inevitably, a tricky part of the Recovery stage that this project is concerned with, especially if a number of different agencies are providing shelter or housing across the disaster zone.

A further issue in this regard is about the type of housing provided and of its location: in the Horn of Africa and East Africa, there have been long-running and concurrent civil, climatic, military and humanitarian disasters centred on Somalia, with fleeing Somalis entering northern Kenya. When this happened, they refused to live in humanitarian housing provided by aid organisations as it was not culturally suitable for them (in the context of their religion). This shows just how important community consultation is: while Maslow’s (1954) ‘hierarchy of needs’ suggests that satisfying more basic needs, like housing, should come before cultural and spiritual needs, in practice it is not so simple – spiritual needs are prioritised in some cultures, and indeed ‘basic’ and ‘higher order’ needs are often integrated within a cultural worldview (as was the case for the Somalis).

An additional concern is about the resources being used to transport things like temporary shelters from elsewhere on the planet, and whether issues like carbon footprint should be taken into account. The concern is also whether a housing kit, such as the innovative IKEA flat-pack house concept, can be implemented, or whether

“You’re looking at something which cannot be transported; you’re looking at a kit that you’re making which is more or less actually made and produced on site, and that itself can actually boost the local economy. So why not tailor it to the design?”

There was discussion about ‘take-in’ versus ‘site-built’, and which approach properly supports the disaster-hit community; however, I have placed this question outside the boundaries of this project, as it is a technical detail (albeit an important one) that an efficient and effective international co-ordinating organisation can make an informed judgement on – and a prior concern for my project is the design of such an organisation. Respondents particularly noted the challenges of water supply and sanitation provision. Very often a developing country’s ability to supply and deal with these is extremely limited, and particularly so for remote rural and mountainous regions. Good health depends on both services being available in normal times, but in times of disaster, these services become critical to ensuring that epidemic levels of water-borne disease are not experienced. They are also essential to beneficial medical treatment and care.

In Haiti, where NGOs “actually provide water services” using “metal walled water tanks, which can be assembled very readily with a heavy-duty rubber liner”, there was a very simple problem: tanks, pipes and taps were available, but not the connector that brings these items together to provide drinking water to the population. The story of a crucial missing part illustrates how important basic systems’ thinking is for the disaster contexts: how easily one small ‘missing part’ can defeat a whole system of provision. All the issues and concerns in this *Data Arena 02* are surmountable. They simply need good planning and local knowledge.

### **3.8 Data Arena 03: “reportage”**

In this section, a note is made of some public servants – i.e. governmental heads of ministry, organisation leaders or chairs of committees, noted by my respondents as being important in addressing publically-funded disaster and humanitarian work.

Though data respondents are given anonymity, these figures are public leaders and commentators speaking through their organisational public relations services: I have not made contact with any of these named people.

### **3.8.1 Publically-available (governments') Reports**

The Chair of reports is named herein. The United Nations' Office for the Coordination of Humanitarian Affairs (UN-OCHA) and its one-time Head, the "Baroness Valerie Amos, an ex-British politician", was noted for leadership and for her action in making the role she held more proactive in raising the profile of humanitarian need and appropriate response. In the World Health Organization (WHO), "Margaret Chan ... was the most high profile head ... she's actually changed the nature of her role" too, helping to move the WHO towards a more "evidence-based" approach to providing health information (*q.v.*, Department for International Development (DfID), 2007). The Balkans Conflict of the 1990s was a combination of political machinations, murderous outrages perpetrated against civilians, and dire humanitarian need, which still reverberates across Eastern European politics: Lord Paddy Ashdown chaired the *Humanitarian Emergency Response Review*, reporting in March 2011 (*q.v.*, Department for International Development (DfID), 2011). Ashdown, throughout the Report, criticised "the NGOs working out of UK ... [saying] that there was a lack of preparedness" for humanitarian responses. The respondents to this project mentioned these three individuals for their notable innovations in thinking about disaster response.

Of specific publications that respondents mentioned, the Ashdown Report [noted above] has some relevance to this project. A further report, by the United Nations, concerning a "count [of] how many aid organisations had a humanitarian element in them, and they

got to 37,000 ...” could not be located. However, the number of NGOs, of all sizes and capacities, was highlighted as a constraint to good disaster recovery in Haiti. Two other reports referring to UK-based flooding in 2007 were mentioned and have been consulted; themes about preparedness and attention to systematic processes are echoed therein.

An important point made by one of my respondents, however, is that people with ‘good ideas’ and published reports are all very well, but they have to be implemented rather than be left gathering dust on shelves or in the electronic cloud.

### **3.9 Data Arena 04: “people’s frustrations”**

Although this project is focussed on disaster Recovery needs in developing countries, the breadth and variety of my respondents’ ‘list of must-do actions’ was wider. These respondents came from a variety of positions (academic, field, political) and offered similar contributions, but with nuanced differences; here I summarise the suggestions they offered, some of which influenced my own project recommendations.

#### **3.9.1 ‘An organisation is needed’**

Seeking an organisation that will, at the very least, co-ordinate disaster management was a key refrain from respondents: “an international recognized body ... to regulate ... relief [agencies] ... [that] should abide by the code of conduct [of] the governing body and should be sanctioned accordingly or [have its] licence withdrawn”; “a strong, well prepared and trained coordination unit – preferably from the government – to ensure the necessary ownership to efficiently assist [disaster victims]”; the “UN is the forum that could facilitate development of ‘terms of reference’” and is a “disaster relief agency”.

The question really is, “can someone out there help the government systematize and coordinate the aid flow?” The consensus was that, for disasters having global implications (i.e., they might be local, but aid flows in from across the world), the response should be better managed: with a system of control this directs relief input and victims’ movement.

### **3.9.2 ‘In advance work’**

Preparedness and warning systems are good sense. Developing these across fragile and remote, as well as urban, potential disaster zones is increasingly advanced focus of development efforts – often in the aftermath of serious climatically-influenced disasters. To have an “efficient and useful strategy [preventing] big losses/casualties and important socioeconomic disruption would be good ... to sensitize and educate communities in disaster-prone areas”; “the global community needs to work with these national bodies [multiple agencies] to set up ... a framework, a process, a protocol, or a system which is immediately put in place when [a] country suffers an emergency”; concerning supplies, “depots set up around the globe [are needed]... in order to provide these resources in emergencies”; and in terms of transportation, “... there doesn’t seem to be any sort of seaborne ... response ... you could actually carry a lot of these goods on [retired] bulk carriers”. There was a suggestion that these ‘ship stores’ should be strategically located for ready use.

While not specifically spoken about, a tsunami warning system was conceived and installed in the Indian Ocean within 18 months of the 26 December 2004 Aceh tsunami disaster (*q.v.*, UNESCO-IOC, 2006); and a raft of other warning schemes have been devised post-disaster for many countries.

### 3.9.3 'Census and survey'

Knowing the population and 'the lie of the land' has been a huge concern in centuries past for political and control purposes; geographic surveys and decennial censuses have been undertaken by governments to provide data. While these are expensive to the nation, they do provide a good foundation of knowledge; with the use of satellite and thermal imaging, and increasingly the internet, governments and scientists now hold greater knowledge than in previous years. However, the point is about "meeting the needs right" for "providing a systematic and well-co-ordinated aid package to the disaster-hit victims". The respondent saying this was doing so in the context of his experiences in surveying "the devastated area [of Tacloban, the Philippines and in] trying to provide support and assistance to the victims of Typhoon 'Yolanda' [aka Typhoon 'Haiyan', November 2013]".

Disasters affect the whole community, which comprises people of all ages, needs and capacities: addressing "the enormous age span of the population you are dealing with" and "getting the information out of them [about] how the community works, [requires] the collaborative approach", which means utilising both the community itself and other data and information sets. Building a picture of the disaster zone and the needs of people within it is a significant point respondents suggested: what this does is to "enhance coordination efforts to provide on-time relief, humanitarian aid, and [prioritise] rehabilitation" of the community.

In developing countries the influences of politics and economics are important, and they often explain why some disasters have higher casualty and death rates, destruction of property and environment, with greater long-term (international) concerns for how humanitarian and development aid monies are to be spent in a way that makes a



difference. A critical observation from one respondent was that, “since disasters are a result of the overall political and socio-economic situation, compounded by the impact of a major event, ‘preparation tools’ would address all those matters”. This is a theme picked up in my VSM design; the focus is very much on preparation.

#### **3.9.4 Concerning trust**

Trust in, and knowledge about, the Community is evidently an important concern for respondents. There should be “trust between the parties involved”, because

“Transparency [from within NGOs] is a real challenge for aid agencies, and we are all working towards better practice. However, there are real challenges in delivering speedy aid, often using local partners who do not always have great capacity and may not always meet all of the strict criteria applied in the due diligence process”.

This suggests that “a framework for community involvement” is a necessary part of my overall organisational design; this should also be able to *re-engage* the community post-disaster with purposeful activities. A respondent suggested that “considering the strengths of the University [of Hull, it would be useful to look at] ... how to address the complex logistics of disaster response. It is well known that it has to be coordinated and integrated, but there is space for ‘how’”. I believe that part of my intervention model begins to address this point, albeit at the higher organisational level and not the level of detailed logistics planning.

#### **3.9.5 Nepal and 2015 Earthquakes**

Two final points drive the argument strongly for a purposeful intervention. The Nepal earthquake [25 April; then followed by a further earthquake on 12 May 2015] highlights

two arguably glaring issues: it is a mountainous country where roads have been blocked with landslips, so helicopters are the most appropriate form of transportation; and inbound humanitarian goods have reached the international airport at Kathmandu, the capital of Nepal, but are hindered due to Nepalese Customs & Excise ‘red tape’ plus the lack of helicopters for local distribution. One respondent wryly stated:

“So [customs clearance is] a clear and immediate problem: you’ve just got that permission, there shouldn’t be permission: [clearance] should be automatic...– ‘we’ve got an emergency’”.

A further respondent contributed this perspective: “... how can humanitarian agencies maintain a speedy and effective process while maintaining the incredibly strict requirements under due diligence and a suitable level of transparency? Is compromise inevitable?” A different respondent emphatically made the point that “... I think it is the command structure which needs to be addressed”. The fundamental issue, of course, remains that natural disasters cannot be predicted: much of the thinking in this project therefore rests on the idea of preparation for the impending ‘next’ or long-awaited ‘inevitable’ natural disaster.

One respondent gave this quotation, summing the situation up well:

*“An ounce of prevention is worth a pound of cure!”*

### **3.10 Groupthink**

The activity of natural disaster recovery management, as for all types of disasters, involves human intervention. Human beings are fallible creatures, which think and talk about the situation at hand. This – by extraction – involves various psychological and

sociological processes for the interactions and interventions by management across the recovery of the natural disaster scenario. One term for this is *group process*; a further term is *group dynamics*; attributes of these terms are discussed by Tetlock, *et al.* (1992), Hogg & Williams (2000), and Elfenbein & O'Reilly (2007). In context of this project, the psychological term *groupthink* has been applied, and in particular to the NGOs' headquarters and senior teams' *mode d'emploi*. This is a broad-sweep assertion made by this author, which is not fully substantiated for this thesis. But its inclusion is, however, considered an important attribute toward how the process of *disconnect* – seen here as the 'gap-in-knowledge' that needs addressing – exists across the multi-agency sector's co-ordination and engagement, through its responses to a natural disaster recovery event. The later chapters herein will make this philosophically clearer and proffer a model solution to addressing the observed disconnect. I have made a number of references to groupthink across the thesis because I consider there is, at least, an implication that is worthy of comment. However, I record that no respondents made any mention of *groupthink* (*q.v.*, Janis, 1971, 1972, 1982) as this term.

The theme of *groupthink* here, nevertheless, is included based on what I draw from my interview data: the sense that the headquarters of multiple agencies hold a similarity of mind-set to that which Janis researched. Interviewees discussed anecdotal considerations of groupthink 'action', but as no respondents made any *direct* references to groupthink, this cannot be more than my hypothesis. The ways in which they described how agencies followed 'set missions', *come what may*, is certainly reminiscent of the thinking in NASA when the Columbia spacecraft accident happened in 2003. Ferraris and Carveth researched the NASA 'Columbia' incident: reports "... describe a NASA culture that does not accept being wrong and suggests a dysfunctional flow of information ..." (2003, p.10). If this is the situation within multiple agencies'

decision-making processes, then my *Multi-Agency VSM* might offer part of a solution. If implemented, this would need to be the subject of further research. See Appendix A06 for a more in-depth discussion about groupthink and how I see this psychological phenomenon as being pertinent to the wider concerns I discuss throughout this project.

### **3.11 Components for my Multi-Agency VSM**

There is a full discussion of my VSM designs in section 5.2 below. Here I merely pass the observation that bringing the multiple agencies into a sense of co-ordinated organisation, where shared responsibility may be gained, is necessary. There is intended the notion of wider networking and information-sharing through my VSM models, which in turn create the ‘United Nations DisasteR’ (UNDR). The purpose and intent is focused on the community-in-need, and through engaging its members toward working out an appropriate preparedness (i.e., future) strategy.

In short and so far, through my boundary critique, I have reported what the respondents said in interviews and wrote on questionnaires. I have assembled four data sets, which have drawn together statements and comments describing respondents’ experiences, have highlighted suggestions for how things ‘haven’t gone so well’, and outlined the ‘thorny issues’ they perceive should be addressed. Further discussions have mentioned groupthink, and of how my *Multi-Agency VSM* can address the issues raised.

Now I am able to give some definition to ‘co-ordination’ and ‘community engagement’; words forming part of this thesis title.

### **3.12 Framing co-ordination and community engagement as my theme**

This brief section frames *co-ordination* and *community engagement* in such a way as to produce a focus for my intervention design. These framings are achieved by way of understanding what a natural disaster event entails for the community facing devastation.

#### **3.12.1 A Natural Disaster Event**

Basically, “a disaster [is] essentially usually a physical thing” (a respondent comment). Across Nepal (earthquake, 25Apr and 12May15), two key observations were generally made: (1) people talked about the shaking and shuddering of buildings and the landscape (e.g., Botelho and Mullen, 2015), and (2) the collapse and destruction of many buildings, such as whole villages, ancient and sacred temples, and movement of land (UNESCO, 2015). These physical events had knock-on consequences for the economy, communications, physical and mental health, security, etc. Other disaster types referred to include drought, flood, hurricane, tsunami, landslide, and typhoons.

#### **3.12.2 Co-ordination**

Two issues were critical for my respondents concerning co-ordination. Firstly was the need for speed of response, which addresses the urgency of needs in the *initial Relief* stage of a disaster. One respondent noted,

“I think that, in order to respond to a disaster with a degree of speed and make sure you get the right sort of responses, I think there really is a need [to] improve that level of co-ordination – sometimes that might be the kind of one agency [acting] as the overall holder-together, if you like ... of our response ...”.

This brings together two attributes of disaster (recovery) management: speed and leadership. Ultimately, the disaster recipients do not want “... agencies who probably [deliver] the same sort of things ...” and I heard anecdotal accounts of ‘sand to Arabs’, ‘coals to Newcastle’, or ‘fridges to Eskimos’ as images of mismanagement in my interviews. It is also recalled that (well-meaning) individuals and NGOs have taken ‘first world’ foodstuffs to a central African famine-hit region, along with ‘winter woollies’, which haven’t helped either. The second issue concerns “co-ordinating resources”. This begins to speak about the ‘networking’ attributes that are needed, and are not currently connecting the NGOs together. In Haiti the government all-but ceased to exist and NGOs effectively took over vital governing roles, with the American Marine Corp undertaking a lot of management (governance) tasks: “The UN and US military have also set up a Joint Operations Tasking Centre to co-ordinate security in and around Port-au-Prince” (BBC News, 2010a).

Co-ordination is a challenging activity when endeavouring to bring together a multitude of NGOs (and the individuals who turn up) and to have any sense of order or delivery of good humanitarian aid. The balance of ‘doing the right thing’ versus being castigated by the worldwide media for being slow in getting to all parts of the disaster zone, or (even worse) for inactivity, means that NGOs will start to do something whether they are part of a co-ordinated network or acting alone. Better to have the infrastructure for co-ordination in place beforehand, so thousands of agencies are not acting alone and pulling against one another.

### 3.12.3 Community Engagement

A community is a hugely complex entity, which has been formed and developed over an extended period of time. Each community creates its solidarity through social evolution; such an evolution is severely impacted through the event of a natural disaster. A small Nepalese village of ‘simple’ construction (e.g., the earthquake 2015, as noted by FirstPost, 2015) has as many needs as the two decades’ long-term drought and civil conflict affecting the Somalian people in the Horn of Africa (e.g., as discussed in depth by Gundel, 2002). Both locations are in developing countries and are extremely different but are challenged with the same fundamental constraints through the event of a natural disaster. By way of contrast, one respondent said the following about the Christchurch earthquake (New Zealand, February 2011):

“Christchurch – major [event], involved substantive transformation of governance; committed government, enlightened civic society, many grassroots initiatives; central government appointed special agency with mixed outcomes, good for centralisation of decision making, fiscal accountability, not so [good] for meaningful engagement with affected communities.”

The thrust of this indicates that the community received what they needed in terms of physical aid, but governance was ‘directive’ rather than receiving ‘consensual’ support. According to the respondent, the effect was a community that considered itself as being side-lined. At sections 3.9.4 (p.194) and 3.12 (p.198), in connection with this section (3.12.3), I have noted the need for ‘trust’ across the community balanced with those multiple agencies which give recovery support to the distressed community. Where ‘trust’ is not forthcoming or is lost, boundary issues arise.

NGOs come broadly from two distinct persuasions: (1) overtly religious; or (2) focused apolitically on addressing particular needs.

Those with a religious foundation tend to hold a value perspective that results in them having “systems in place in this particular country so we can kind of, we can cope with the influx of information and the output of it and help you all then to function more effectively on the ground”. Such NGOs tend to have a constant presence in developing countries, and, as is suggested in the above quotation, are perhaps ‘more in tune’ with the community when a disaster strikes. However, alone, such non-governmental organisations have little capacity to address the needs of whole communities.

Those NGOs that work internationally, but apolitically and without an overt religious affiliation, may have a nominal presence in a developing country but this is less likely to be at a grass-roots level. These agencies are less likely to have close associations with any community, most often dealing directly with government departments or local authorities in promoting lower-level activities by small community organisations. One respondent commented that engagement is “the essence of the work and initiative that should be promoted and done by most International Development Practitioners to better-assist developing countries to cope with disasters!” This was said in the context of a criticism of international aid agencies, which he viewed as having less connection with local communities than religious organisations.

All respondents recognised the tension between giving the community its voice in the *Recovery* and *Resilience*-building stages of a post-disaster event, and the need to ‘manage’ all the multiple agencies that want to help. Most respondents foresaw the need for an international ‘managing’ body, which could address community engagement as a prime intervention strategy. Here there is a clear need for an *integrated* approach to co-ordination and engagement. In my view, the VSM will be a useful model to use in this regard, as it not only shows what is needed to co-ordinate



multiple System 1s (delivery organisations), but it also emphasises the relationship of the organisation to its environment (the local community, in this case).

### **3.13 Chapter Summary**

The crux of disaster recovery is dealing with effects on disaster-hit community members. Two activities are crucial: co-ordinating NGOs and finding out what a community wants from a co-ordinated response. This is therefore confirmed as the theme of this project, and my VSM designs (presented later) address the integration of these two activities.

Chapter 4, next, discusses what methodology I used and of how the various elements were incorporated across the project.

## Chapter 4: My Researching Application

Chapter Three discussed the early elements of data-gathering and of how Exploratory Interviews were developed and analysed. Now I shall describe how additional methodological elements were selected and put into effect across the research project. The principle approach utilised was Midgley's *Systemic Intervention* (2000).

### 4.0 Overview

The methodological approach of systems thinking works to encompass and to explore the 'whole' of the research matter under review. It seeks to address 'whole' problems, which are often complex and wide-ranging; this is the sense of "wicked problems" (Rittel and Webber, 1973). The matter of multi-agencies' co-operation plus the gaining of community engagement, in the context of a developing country's natural disaster event as in this project, is the contextual 'wicked problem' of complexity with extensiveness. This chapter discusses my methodological approach and the various tools used to address the research question [written at section 1.5].

This chapter has been written in a way that may appear disjointed. However, as the project developed and progressed, and particularly as some elements for data-gathering were less successful, new tools were brought into use; these are more fully discussed in those sections. In discussing these here, it is providing the necessary contribution for readers' understanding of the project and of how each contribution adds usefulness to the research project and its ultimate objective. *Systemic Intervention* (SI) (Midgley, 2000) – my methodological approach – is discussed in section 2.8 above. The 'extra' methodological ideas discussed here are those used to complement SI across this project.

Through the chapter I discuss the following theoretical aspects of these contributions: my methodological design; the Advisory Group; the Case Study; provides how Viable System Model (VSM) (Beer, 1985) is used ‘in action’; what the Design Team was to provide in terms of data-gathering and front-line experiences; discusses my own *Systemic Boundary Analysis* (SBA) tool in its structure, purpose, and implementation; and concludes with a short review of what alternative research tools could have been used.

These elements are utilised in this project, with the *Systemic Intervention* approach, to differentiate between a “small-scale, slow-onset disaster” that is often addressable by local people using local know-how, versus “a large-scale, rapid-onset disaster” (Tierney *et al.*, 2001, pp.9-10) such as this project is concerned with, which needs a different and usually more complex response to that ‘wicked problem’. The latter situation needs to be addressed, typically given the situational context, by outside agencies – the multi-agencies I identify as the United Nations, (international) NGOs and other governments.

As the absolute costs involved for recovery interventions or for resiliency measures are often greater than national budgets allow for, it is observed most developing countries are unable to deal *on their own* with such natural disasters. This is what my project is designed for: raising the focus for involving the community (being *engaged*) with those multiple agencies (who become *co-ordinated*) in providing the most appropriate and suitable intervention required. These are the main reasons for choosing and discussing these ‘extra’ methodological contributions, being their more appropriate contribution to this research project. I now discuss my methodological design.

## **4.1 Methodological design for tackling the two themes**

This section elaborates what the methodology is and the processes involved; observes some of the criticisms that could be levelled against it; discusses the impact that methodology has on a research project; and reflects on the need for an ethical approach. The word ‘methodology’ alludes also to ‘the research tools’ I have used: this concerns ‘method’, and is discussed across the ensuing sections. Here I introduce a philosophical approach to my methodological process-of-enquiry.

### **4.1.1 Overview**

Research requires a structure, a framework or skeleton, around which two objectives are achieved. The first objective is to give the researcher a (formalised) process of enquiry, which provides a beginning, middle, and end to a project. The second objective is to provide a solid justification of what was done when and why, which aids for good scrutiny of process by the academic peer community (an essential aspect of science, according to Popper (1959)). The structure is determined by methodology and I outline principle aspects below. Whether the research is being conducted by a natural scientist or a social scientist, the process of enquiry should be rigorous and transparent; these attributes are the test of quality. Every individual researcher uses, ascribes to or vehemently defends their own (favourite) methodological process; even as advocates of methodological pluralism, they will often defend pluralism as vigorously as any advocate of a single methodology. Of course, there are counterarguments to each methodology from other researchers (Jackson, 1991b; Midgley, 2000). Methodology helps the researcher to maintain a good enquiry, so that when queries occur these may be answered. Finally, the ethical stance is now a vital perspective of research and is here discussed in terms of my own project.

### 4.1.2 What is Methodology?

As a summary of my methodology, I offer this position. In this research project, I am deploying the methodology of *Systemic Intervention* (Midgley, 2000), this being the theoretical basis for approaching my choices of methods; my methods are ‘a set of specific tools’, being an *Abductive Reasoning [Approach]* (q.v., Peirce, 1909; Santaella, 1997), *Boundary Analysis* (q.v., Midgley, 2000; Ulrich, 2001b), the *Viable System Model* (VSM) (Beer, 1985), and my own *Systemic Boundary Analysis Tool* (Munday, 2011).

### 4.1.3 A Critique of Methodology

Being critical (specifically, *of something*) has a two-fold explanation. First, is a deep analytical process of commentary upon ‘myself’ and my work, explaining why one approach was taken and not another; and second, is the sense where one inspects the assertions and assumptions of another author to ‘find’ viewpoints that may not be reasonable and need to be abandoned or further developed. Criticism, critique, may be positive or may be negative; often it is a reflection from a given subjective and/or normative position, which therefore tends to be (or become) personalised. I hold with the notion that criticism should be positive, to be a stimulus to learning; I elucidate this point through my own methodological approach, which is about advancing ideas on how multiple agencies can organise themselves and their interactions with communities in the face of a disaster – I am not interested in just tearing down earlier ideas.

Mason (2002), in her textbook *Qualitative Researching*, observes that the essence is about “asking how well matched the logic of the [methodology] is to the [kind] of research questions” (*ibid*, p.189) being analysed. This is quite consistent with Systemic

Intervention (Midgley, 1990a, 2000). My own response becomes apparent later in this document. As Midgley comments, “it is methodology that allows us to examine the strengths and weaknesses of methods, and to ask what it means for a method to ‘work’” (2000, p.112, original inverted commas), thus to allow positive critique around the methodological approach as a whole.

#### **4.1.4 Issues that arise in research**

Every researcher will have issues arising out of the choice of methodological approach they select, in balancing the project’s needs and in how the various methods are implemented. The following issues framed my research project. My methodological approach needed:

1. Accountability – Midgley’s *Systemic Intervention* (2000) has been used by a number of researchers and, as a philosophical approach, its praxis has been published.
2. Applicability – being able to ‘extend boundaries’ was a vital perspective, as this allows opportunity for change through intervention and action.
3. Competence – the methodology should be able to develop an outcome that has the capacity to be workable, and which I can gain some aptitude in deploying.
4. Definition – there has to be a ‘structured approach’ offering clarity, that gives other researchers comprehension and an opportunity to reflect on the validity and legitimacy of my research analysis
5. Limitation – the methodology has its boundaries because it is structured, which frames how I, as researcher, may work.
6. Performance – in essence, that the approach functions as designed, and produces benefits greater than the inputs that I would make without it.

7. Trustworthiness – while project participants may not all understand its methodology or methods at the time of their engagement, they and later readers of this work must be able to grasp the research ‘story’ told.

Collectively, these issues ‘frame the lens of my enquiry’ through which this research is conducted.

#### **4.1.5 My Ethical Considerations**

My research project necessarily contains ‘the voices of people’ connected with natural disaster in some way or another; they are human beings for whom consideration and respect had to be accorded. Having ‘human participants’ required the perspective of understanding their needs and feelings throughout, during the time I was making my enquiries with each person: this is the consideration of others that society demands. Social research is a two-way process: for me, it involved some face-to-face meetings and communications by email; for each individual concerned, a stranger was opening up a dialogue and asking questions about matters they knew of – this had to be managed and seen with acceptable behaviour and practice.

Asking questions and receiving answers is one thing; storage of such materials, and the complexities of personal information (name, workplace, and so on) and as to whether or not material could be published, needed a process of understanding and acceptance. Given the need to behave ethically and to be clear about what I was doing, how I was doing this, and why it all mattered, the process of ethical approval from the University was part of this methodological process. In Appendix A01 I have provided assurance of the University’s Ethical Committee approval for my research. As a Chartered Member of a (UK) Professional Institute, I also comply with its Ethical Code of Practice.

The Business School of which I am a Student, states

“Hull University Business School believes that ethical considerations are critically important in planning research. The School’s Ethical procedures for research are designed to establish a research ethics system which provides guidance, advice and monitors this important issue” (University of Hull Business School, 2011, Introduction).

This code of conduct is what governed my research work; I believe I complied with its tenets fully and correctly throughout.

The principle ethical tool for my project – a consent form, was seen as essential in communicating what my project was about but also to have acknowledgement from each participant concerned that they had some understanding of what the project was about. I was able to issue and to receive back all required participants’ consent forms prior to undertaking Q&A sessions (in whichever mode, i.e. recorded interview or questionnaire). A specimen blank Consent Form is provided in Appendix A01.

#### **4.1.6 Section Summary**

I have tried to express my understanding of what my methodological approach has been, but more importantly, to endeavour to give its philosophical foundation. Elsewhere in this work I have expanded upon and clarified many of the points raised here; this is one reason for the brevity of this section. Next I discuss my method tools.

#### **4.2 Advisory Group**

Having discussed in the Exploratory Interviews’ [section 3.2] about gaining a detailed but focussed perspective of the wider disaster management environment, and of how



such data is used to prepare Q&A questions, I turn now to how the Advisory Group was framed and established. Here I discuss the cohort and its constituency, its mode of operation, technical issues, and of how the Advisory Group membership offers a contribution into my project. I briefly discuss an additional data-gathering scheme.

#### **4.2.1 Overview**

An advisory group here is taken to be: the coming together around a particular issue ... has a limited life ... and plays a critical role in defining and joining solutions to the problem (Taket and White, 2000, pp.26-27). More precisely – for me, the primary vision of the Advisory Group membership was of practitioners ‘*at the disaster-front*’, and about seeking their practical knowledge, through understanding how their own disaster support activities were achieved. I was also interested to have opinions about whether *either* a) there were issues of significant application (i.e. perceptions of a ‘failed systematic process’) *and/or* b) of what might be considered other disaster response approaches (i.e. perceptions of other beneficial forms of ‘systemic approach’).

Following the same methodological approach as for Exploratory Interviews, I again used the *convenience sampling* approach to find suitable participants. Questions were created and framed from [earlier] Interviewees’ responses. As this Group was to be scattered across the world, data-gathering had to be done by written format document. Many of the same issues about getting people to participate were experienced, but other than the physical, and common, ‘no reply-back’, few invitees declined. I discuss Advisory Group issues in these following pages.

#### **4.2.2 Advisory Group Strategy**

Data-gathering takes many forms. I was interested to experience various that could support this project by giving good data, but which could directly address the project's focal-point – disaster-hit communities somewhere in a developing country. Such a wide outlook was impossible to satisfy. So instead, the targeted gathering of a cohort of global field practitioners, of men and women dealing with disasters, might make a more valuable contribution to my research. This Group would reply to questions, drawn from my Interviews, about their work, beginning 'to flesh-out' my project. I needed real-world experiences. I 'searched the world' for potential respondents. Using a form of *collective forum* writing or sharing themes in the discussion applied.

#### **4.2.3 The Group's Purpose**

My perspective for the Group was two-fold. I was interpreting the collective word of the Interviewees' voice, by creating a set of questions for the Advisory Group to consider. These responses then would frame and guide my thinking and analysis for any recommendations to be made later, and of how recommendations could be applied. Through people using their practical knowledge and experiences via the Q&A, I also anticipated that the Group (or some of its membership) might later test the application of what I now offer as my own Viable System Model (VSM). These two perspectives are drawing me towards the application of *Systemic Intervention* that I seek, about the integrating of community engagement with multi-agency co-ordination.

#### 4.2.4 Q&A Questionnaire

Here I discuss the Questionnaire's devising and construction. The 21 questions are given at Appendix A03.

In devising the Questionnaire, the main background was in understanding issues from people working in or having worked within natural disasters in developing countries, to draw upon their comprehension of that 'real-world' scene. My parameters were fairly precise: for example, the recovery stage of a disaster, the nature of disaster, and the geographical area. However, these should not dissuade respondents from explaining further outside the question where this would add to the knowledge-base I was creating. Additionally, the Questionnaire was to be a conduit through which a respondent might highlight aspects or features of their own concern: this might include, for example, working practices, interactions with fellow-disaster organisations, and so on.

As previously noted, the questions were drawn-from the earlier Exploratory Interviewees' data; the NVIVO™ coding of those interviews greatly assisted questions' development. With the philosophy of tackling my Research Question at the high-level – rather than at one actual disaster, my questions allowed for the top-down/bottom-up approach of responses. As I seek to address my project as systemic, so I wrote questions reflecting this premise. A further – and probably, crucial, perspective was to understand what people thought about other/alternative disaster responding agencies. Here was the opportunity to glean nuanced detail about practical application, and to learn about the good and the bad points of interventions. The questions were written to give respondents the best opportunity to answer, based on their own impressions and feelings, experiences and – potentially – antipathies.

The construction of the Questionnaire was to gain understanding of how the respondent was involved at a disaster, and about some of the personal understanding of disaster response management processes they had experienced. A set of wider-framed questions began to draw upon respondents' knowledge of other agencies' activities and allow personal commentary of this in their responses. I needed to understand some of the problems that had been faced, and particularly I was interested in how international disaster aid agencies access countries – of what constraints were put in place. With the community as part of the disaster, learning about how to engage it with multi-agency personnel, to express their post-disaster needs, was important; a number of questions were written in that theme. As a disaster cannot (usually) be held in isolation, I wrote questions to glean the much wider conceptual framework ideas, wherein international development/aid projects become involved. Finally, with my project intended to have a practical application if possible, I questioned for respondents' own ideas as to what is needed; and then gave an opportunity to allow 'free answer', for giving any information or thoughts not otherwise questioned before.

#### **4.2.5 Process of Establishing the Advisory Group**

The original concept of my Advisory Group was as a pro-active interaction between its members and me, across a period of time. In essence, that once the Group was established, I would turn to it occasionally – once a month was a timeframe period – with questions arising from my research reading and early thesis writing. While it is an interesting concept and probably valid in some circumstances, I discovered getting people interested in this Group and able to participate for its duration was not possible for this project. By turning the concept into a different format, by using the data from the Interviews to raise questions, I thought the Group might take on the task of one

contact using a single Questionnaire. On this basis I created the potential participants' list, of which anonymised details are given at Appendix A03.

The Group was to be of invited academics, NGO people, researchers, and government people who, I believed, had some connection with natural disaster response activity. Names and contact details were drawn from many sources, using Academic Papers, Internet searches, and some networking opportunities. As the remit needed to be international, the sole use of an electronic interface was the means of contact and transfer of documents; originally Skype and email were planned, but with a single Questionnaire, it was then just using email via my University Account. A cohort of fifteen individuals was deemed reasonable as a representative body of knowledge, to be experienced of as broad a spectrum as possible. The broadest representation of disaster zone (i.e. location) and institution (i.e. NGO, government, etc.) was sought. As with the Exploratory Interviewee cohort, the same process of research and enquiry was made; this was designed to promote as unbiased a process as possible.

Email enquiries were issued with attached documents, with the expectation of both some acceptances, some rejections, and some where the email address did not function (in fact, this last concern was not realised). The nature of the electronic system that email is, is of any routing failure is notified back to the Sender; none of the emails sent were returned to me, so I knew at least I was hitting the email accounts of all potential respondents. However, the response rate was extremely poor. By-and-large, most email messages were ignored for reasons of which I have no knowledge. A second (noted as 'the final') contact email was sent out some 6 to 8 weeks later, to see if any enquiries would turn 'positive'. When positive responses were received, I sent an acknowledgement with the Questionnaire, to complete the data-gathering process. The

issues about how the process was happening were periodically discussed with my Supervisor; guidance and support were offered.

#### **4.2.6 Advisory Group Contribution**

Of the potential cohort of fifteen individuals, drawn from an email-contacted list of twenty-one, of a researched list counting over forty names and organisations, I managed to close the Advisory Group process with just three (3) completed Questionnaires. However, the respondents (albeit, desk-bound people) were located in three different disaster zones (New Zealand, South Asia, and West Africa), and were able to offer qualified responses of sufficient variety that the input they offered adds value to my project. But this overall return was extremely disappointing to me, as to my Supervisors, for the response dearth and the loss of opportunity for data. This impedes a reasonable appraisal of the global situation, as desired.

The contribution will be what I make of the Exploratory Interviews' and the Advisory Group's data provided to me. Rather than create additional NVIVO™ activity, I added the three (3) Questionnaires' data into the existing coding project, and used the same '*adult*' and '*child*' nodes as for the Interviews. This would allow me to draw a reasonable inference and conceptual framework of knowledge from nine (9) scripts, which at the very least offers a reasonable global overview of respondent's views and perception. This is the best I am able to gain from my primary data-gathering process. This form of data-gathering exercise is always challenging, and people are busy with their own jobs and work. Hindsight is the wonderful gift to the philosopher or social scientist alike: there are likely to be alternative modes to achieving my task requirements. I would, now, probably approach the task though other modes.

#### **4.2.7 Was my Approach a Success or a Failure?**

The primary data-obtaining attribute for this project has, generally, been well-thought and adequately resourced; no-one made any complaint about paperwork sent to them. The process and scheme are a reasonable approach, for a project that deals with such a large concept (natural disaster) and that it properly needed to cover as much global-reach as was possible. Within my own research timeframe, the approach was the best I could anticipate achieving, not being able to travel to each respondent in their own country and conduct face-to-face interviews; logistically, such a scheme was impossible. As a research scheme for data-gathering, undoubtedly there are other applications and potential tools that could be utilised, such as Action Research (*what could be changed?*) or an Ethnographic method (*researcher-embedded observation*) (Gray, 2009, p.199ff; p.312ff), or a much deeper literature or theory-based approach. With the basis of the evidence I offer here, this part of my project could have been more robust. Choices are often made and only after-the-event might then other options come to the fore as possibly stronger solutions: even though, given the amount of learning and clarification the research has produced, I am satisfied with my approach and for its limited success.

#### **4.2.8 Design Team, a Multi-Agency VSM**

Aiming to complement the knowledge gathered (and to compensate by the limitations of the chosen data gathering tools), I planned a small cohort ‘Design Team’ to look at and comment upon a designed solution. This solution will serve to improve the interface at practitioner-level, of any disaster-responding agency. It was based on the criteria suggested by the *Viable System Model* (VSM) (Beer, 1985). This is discussed in

section 4.3 below, and then detailed when presenting the suggested VSM inspired design, at section 5.2 below.

#### **4.2.9 Section Summary**

The attributes of the Advisory Group and the results it offered have been discussed here. Broadly, the process was shown to be reasonable and sound; the application was outlined for its implementation; and the achievement was noted. Unfortunately some respondents didn't wish to participate and to offer their viewpoints, which limited the success of this chosen approach. It could have been more robust. However, there was still enough value in the collected data and it has been central for the analysis [section 5.1] below.

Next section discusses practical details of the VSM application to the natural disaster organisational context; and explains how such an approach might be used to promote community engagement with multi-agency co-ordination.

### **4.3 Viable System Model (VSM), in action**

This is an extensive section that discusses the VSM in great detail, and explains its potential to address better ways of Community's *engagement* with the Multiple Agencies' *co-operation*, which is the core issue explored in Research Question of this thesis.



#### 4.3.1 The Overview – Viable System Model

This project concerns two distinct groups of people, each one with their related environments, and tools-for-engagement. One group is the community that has endured the disaster; the second is the group of responders, framed here as the multi-agencies. Both sides are made up with people affected by events, and for whom a vast range of circumstances will direct how each side acts, reacts, and interacts. Within either group there is complex variety of types of actors and hence of responses and outcomes. So an example of this is from Hurricane Katrina 2005 [USA] where “... flood elevations in many areas exceeded the 100-year Base Flood Elevations ... by as much as 15 feet” (FEMA, 2006, *Executive Summary*, p.vi).

Natural disasters, while sharing some elements – for example, floodwater, collapsed buildings, or injuries to people or animals, it is the permutations of such elements that produce the uniqueness of every single natural disaster. Similarly, this self-same description may be used of the two other forms of disaster briefly noted but not further studied herein, namely of man-made/natural ‘cross-over’ and of man-made disasters.

This project discusses community engagement and multi-agency co-ordination at the highest level of governance, i.e. United Nations, Regional and National Governments, and Headquarters’ of Non-governmental Organisations (NGOs), in the context of natural disasters. However, the route-to-explanation may variously be a focus upon one specimen natural disaster through to addressing overall global generic responses to natural disasters. It is necessary, given my premise, to encourage reflection upon these two extreme points and to apply (as applicable) a broader description of disasters, drawing upon various unique events. Thus by definition this project becomes more generic in context, but allows for a different style of analysis with stronger and far-

reaching recommendations than original intended as the main purpose of this project; there is then scope for additional research and further publications.

The case study used in this thesis provides focussing points, and necessarily draws upon a specific natural disaster occurring across a developing country; see this at section 3.1 above. This offers the opportunity by taking the reader to something that provides substance for understanding, to appreciate context and situation, and is based upon a real natural disaster. However, the project is deliberately raised to points above one single natural disaster and, as described elsewhere, begins to address specific points drawn from generic situations.

Broadly, this project attempts to address ‘merged but changeable’ natural disaster conditions, as indicative events. The purpose of the broader scope is in producing recommendations that may be applied generally but will meet specifications of any one of future natural disasters. It is aiming towards an ‘ideal’ intervention. Again, every disaster is bounded within its own complexity – thus demonstrating its uniqueness, requiring specified unique interventions and resolutions decided at the time.

To bring descriptive clarity for this project, it is necessary to explain the systemic framework that is generally observed, in part informed with various Figures; these are provided throughout this document and are explained within the text. So Figure 10 (‘World Map’) schematically depicts ‘Gaia’ as the bigger picture for supporting the design of this disaster response framework. This shows geographical regions, a breakout of one region down to the area enduring disaster, plus the counter-elements of multi-agencies, meeting in the centre with the complexity of responding teams.

Through my introductory chapter, this project begins its story with Gaia. Lovelock's definition of Gaia, "the earth viewed as a vast self-regulating organism" (OED, 2006), being fully defined in his 'Gaia Hypothesis' (Lovelock, 1979, p.152), which sees Earth as an entirety: and again, which in and of itself, manages itself. This is depicted at Figure 10 ('World Map'), where linked-up elements (here, Continents) across Earth's biosphere are shown: a *viable system*.

Given the fundamental desire through this project to offer practical tools that alleviate disaster-hit peoples, it is neither possible nor convenient to discuss all parts of the Planet where natural disasters occur. The complexity involved could not be adequately managed in this project. Lovelock's Gaia Hypothesis, however, suggests that no single unique natural disaster is compartmentalised or boxed-off, separate from anything else in Gaia, but – as shown in Figure 10 – is necessarily a globally-connected event, simply by its very situation on Earth and through its environmental connectedness. So the project needs to drill down towards a much more manageable set of circumstances, which may be more clearly described but be used (perhaps) as the foundation of a 'blueprint-by-extension' to future natural disaster events. There is a 'system-of-focus' beginning to be highlighted in Figure 10, which is further discussed as follows.

#### **4.3.2 System-of-Focus**

Systems' thinking allows that complexity may be carefully broken-down into various sectors or stages. This begins to make the comprehension of such complexity more manageable and thus more understandable. The process allows that where issues, which are perceived or are actually known – faults, confusion, or unnecessary actions,

may be emphasised. At the end of such a process, more clarity should ensue. The schematic diagram at Figure 10 demonstrates one such break-out.

With reference to Figure 10, the elliptical circle gives the boundary that is the physical planet, Earth: this is Gaia. This is then divided into the series of boxes to represent various geological, geophysical, or geopolitical regions; an alternative descriptive for this break-out would be ‘social-ecological system’ (SES). Glaser *et al.* talk of “bio-geo-chemical and physical processes ... [of] linkages between systems approaches and actor-oriented transdisciplinary and interactive methods ... [so placing] human/nature relations at the centre of how we view the world” (2008, pp.77-80). Andrade *et al.* develop their use of this theme to give,

‘A social-ecological system consists of a bio-geo-physical unit and its associated social actors and institutions. Social-ecological systems are complex and adaptive and delimited by spatial or functional boundaries surrounding particular ecosystems and their problem context’ (2012, p.15).

Of Andrade *et al.*, their “... working definition ... [to be] broadened by insights from complexity, institutional and resilience theories ... using a multi-paradigmatic approach ... through a series of ... interventions” (2012, p.15), gives support and confirms my project’s pluralistic approach.

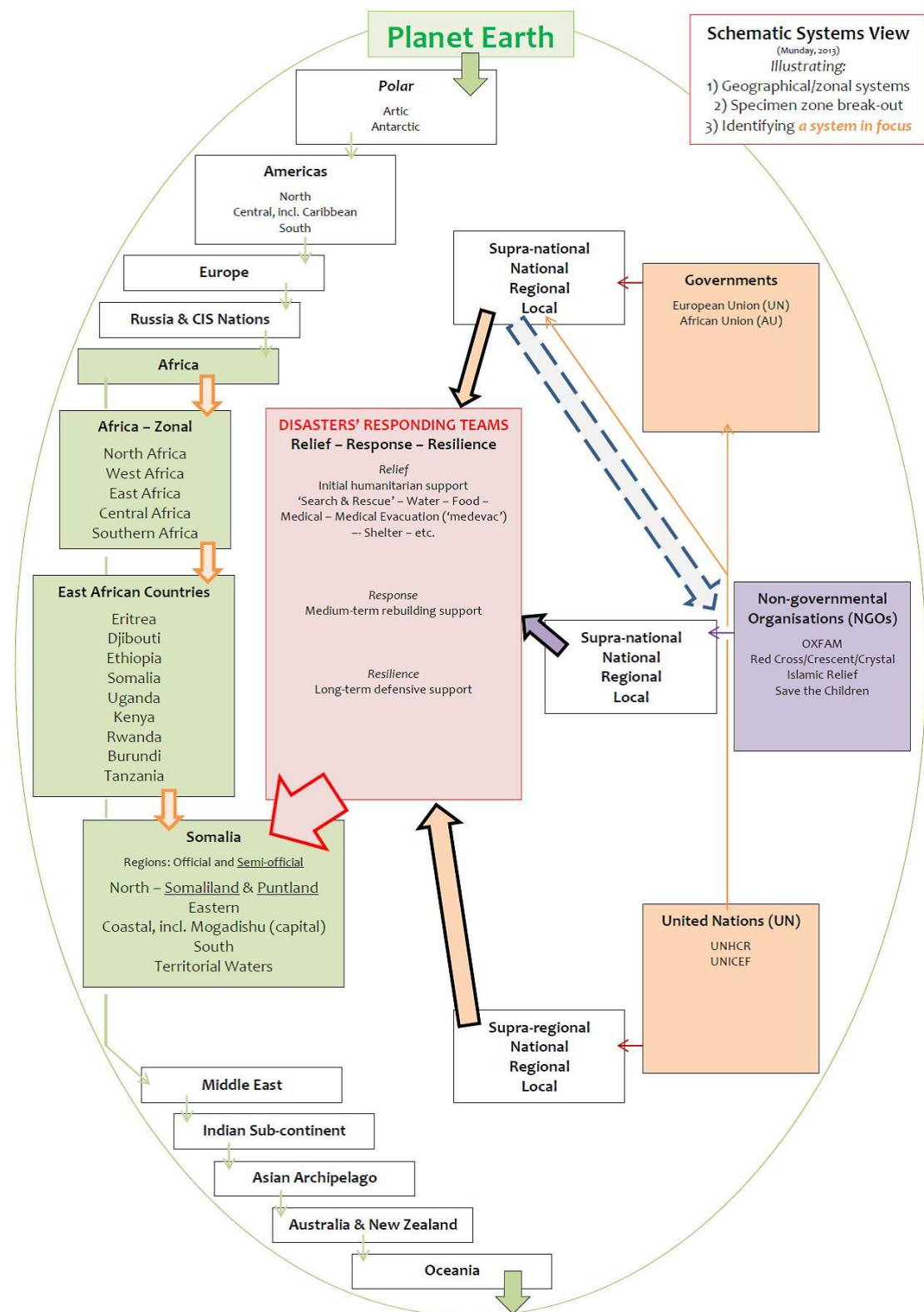


Figure 10 World Map ('Gaia') - Disaster, schematic overview of disaster actors

Those two descriptions, describing a ‘boundedness’, are reasonable. Both descriptions understand the situation of the region and its problems, which here include continental divisions, issues of politics, a climate-oriented situation, plus multiple/divided groups of people and interveners. The effect of ‘social-ecological systems’ (SES) will influence later commentary. Its inclusion here is to offer the vision, suggested by ‘Gaia’, which needs to be embraced within this project. A *system-of-focus* fundamentally provides a detailing-to-focus [shown red in Figure 11] “on an organization one recursion removed from its neighbour” (Beer, 1985, p.4). Recursion shows “a next level that contains all the levels below it” (*ibid*, p.17).

From ‘Gaia’ [‘World Map’, Figure 10], the focus is brought to the African Continent [Figure 11] and viewed as a *system-of-focus*; the further sub-divisions into the African Zones (the regions being fairly political, religious, or climatically *different*) allows the break-out for countries of one Zone and thence to one single country – here, Somalia. There is then a further division, as Somalia has various political and administrative areas within its own border (which is of itself a boundary) of further bounded areas within the country. Such divisions may then be divided into the place of a tribe, a clan, a village, a community, and so on – but this is far too fine a division for this thesis. The point here of this explanation is to express *the fine and finer detail* that may be explored, when necessary; for the purpose of this project the lowest level of analysis in this bigger system described here is the one of a community facing a disaster.

The same delineation applies equally to the counter-elements of a natural disaster, those organisations that respond in some way to a natural disaster. The UN (*all acronyms are described in ‘Abbreviations’ above*), while holding a single title, carries within itself a

large number of autonomous or semi-autonomous organisations, such as UNICEF, UNHCR, and so on.

NGOs – the IFRC, OXFAM International, or Islamic Relief Worldwide (as examples), are equally formed with a single title but contain divisions based on service provision or country organisation or some other specified mission content. Governments, whether at national (e.g. the UK's) or at Regional level (e.g. the EU or the AU), or most trading blocs of nations such as ECOWAS or the OAS, equally have a single title but comprise a vast variety of departments or functions or countries that hold interconnectivity within themselves and to many other organisations.

Within my use of Systemic Intervention, the methodological tools of 'system-in-focus' and 'levels of recursion' (Beer, 1985, Chapter 1) with which "Beer suggested as useful tools to model organisational complexity" (Espinosa, 2014), allow me to begin to examine the very complex organisational system studied by this project. My route to achieve my goal is via carrying out a VSM analysis of the 'system-in-focus'; this begins by using these tools to clarify the nature of the system in focus. These are then the first stages in my VSM methodology; they are deployed to clarify my research problem.

My pathway of examination follows thus – identifying the system-in-focus, modelling the levels of recursion, and then performing the VSM analysis of the system-in-focus (*cf.*, Beer, 1985). These mileposts become part of my methodological stages. The explanation of 'an organisational structure' that follows, with a secondary Figure correlated to the project, helps describe the system-of-focus highlighted in 'Gaia' ['World Map', Figure 1]; this contributes to how the VSM assists to resolve the research objective.

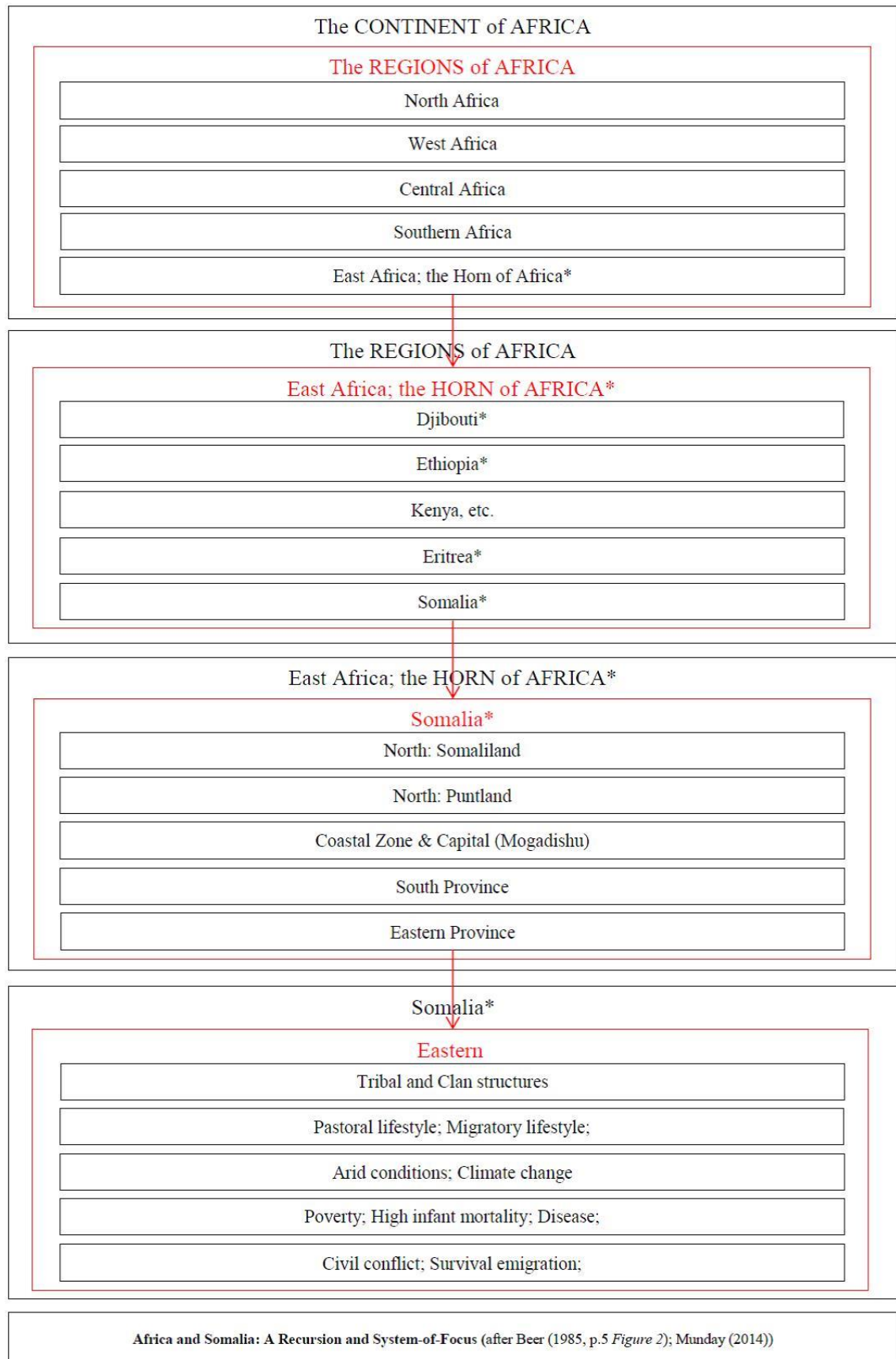


Figure 11 System-of-Focus: Somalia, East Africa



### 4.3.3 Within the Organisation

An organisation is (often) a complex system, and particularly so of the multiple agencies concerned within disaster intervention activities. Beer's 'Recursive System Theorem' – "In a recursive organisational structure, any viable system contains, and is contained in, a viable system" (Beer, 1979, p.118, 1985, p.xi; *cf.*, Espinosa and Walker, 2011, p.34) – helps to define both the complexities within this project and its nature showing the complicated contexts of interactions of multi-agency structures. This project is not about any particular organisation. Being raised here is the concept of boundaries and of complexity.

Most organisations have their genesis based on the notion of one person, where such a person may have 'a good idea' for selling a widget or in marketing an activity. Bringing other people into what may now be termed 'my project', which is 'my business' (read, 'organisation'), begins to create a structure of departments, divisions, and expansions. See Figure 12 as an illustration.

The activity of an organisation, whether political, profit-making, social enterprise, or broadly of charitable activity, requires funding. Various, organisations within that small classification will gather monies for distribution against political diktat; others will use money to make money; and others again will garner monies towards relief of charitable mission. What each organisation requires is money: its source, use, and outcome benefits are here immaterial.

Already the specimen organisation is beginning to demonstrate its structure and hierarchy, needing to establish a configuration of departments to manage various connected but distinct functions. There is likewise the need for people and of their

management, for materials and of their use, for administrative function and of regulatory reporting, and for some form or other of marketing.

That explanation is not exhaustive but will serve to illustrate a structure, therefore a systematic outline. The above description of ‘the organisation’, as compared with Figure 10, begins to illustrate a very similar systematic structure. Many organisations hold fiercely and independently within their own bounded context.

Figure 12 shows ‘an organisation’ bounded by its own corporate shell, which is the company itself. However, in order for it to function (to have any real purpose), the company needs connections with other such companies. So Figure 12 ‘represents’ the myriad of all organisations and companies. The notion of Gaia begins to show within this sense too: self-organising certainly but acquiring benefits (as an organisation) by holding relationships with *outside* to fulfil its purposes.

I used Figure 12 with alternative details [see Figure 13], drawing from the organisations concerned with disaster recovery. This is to highlight some of their complexities and connectivity, but also to observe the boundaries of each viable system.

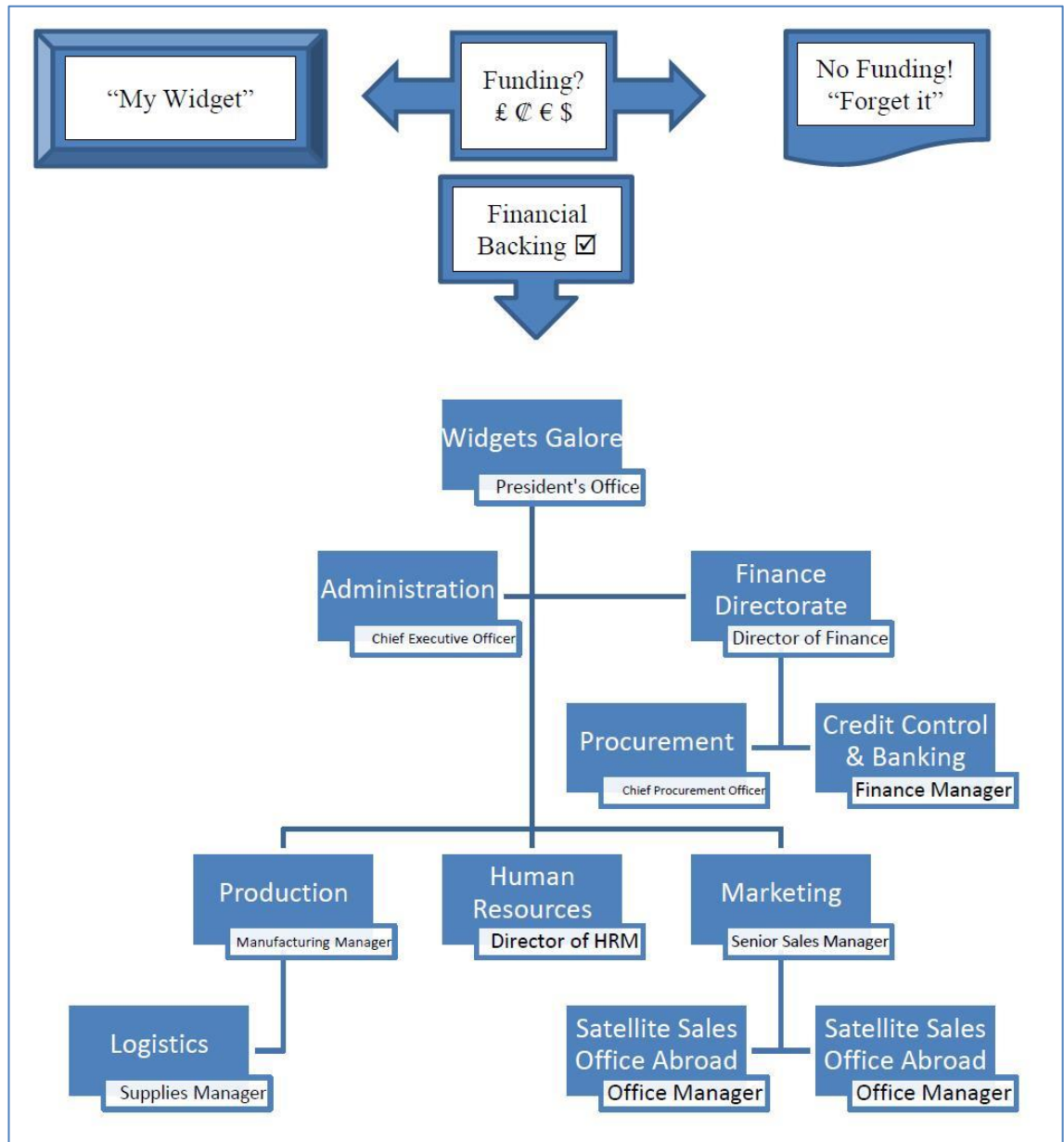


Figure 12 A simplified organisation diagram (schematic) (Munday, 2013)

Each organisation is bounded by its own reason, for its own existence. Herein rests the crux of this project's theory. This is the notion that in a natural disaster there is no full or developed connectivity of NGOs to the UN, to Governments; that multi-agencies hold fundamentally to their own bounded context, which diverts from the capacity to integrate with other provider-organisations. The result is that disaster-hit peoples do not receive the comprehensive benefit of all responding inputs that multi-agencies might provide collectively. Such 'comprehensiveness' might be termed as allowing for (initial) Relief to flow through Response to eventual Resiliency of the community, lowering that community's susceptibility of future natural disaster catastrophe or of a disaster's intensity. There is – as this research project propounds – no overall connectivity of responding multi-agencies. Boundaries contradict connectivity.

One note of explanation about Figure 13 is required. The box 'Recursions of the Viable System' with its 'multiple' arrows, reflects all other – in this case, organisations that would contribute into the initial relief, recovery and resiliency interventions of a (natural) disaster. More precisely, there is the sense provided especially of NGOs that receive public-gifted money to carry out their word. Each NGO is here viewed as being a viable system of its own right.

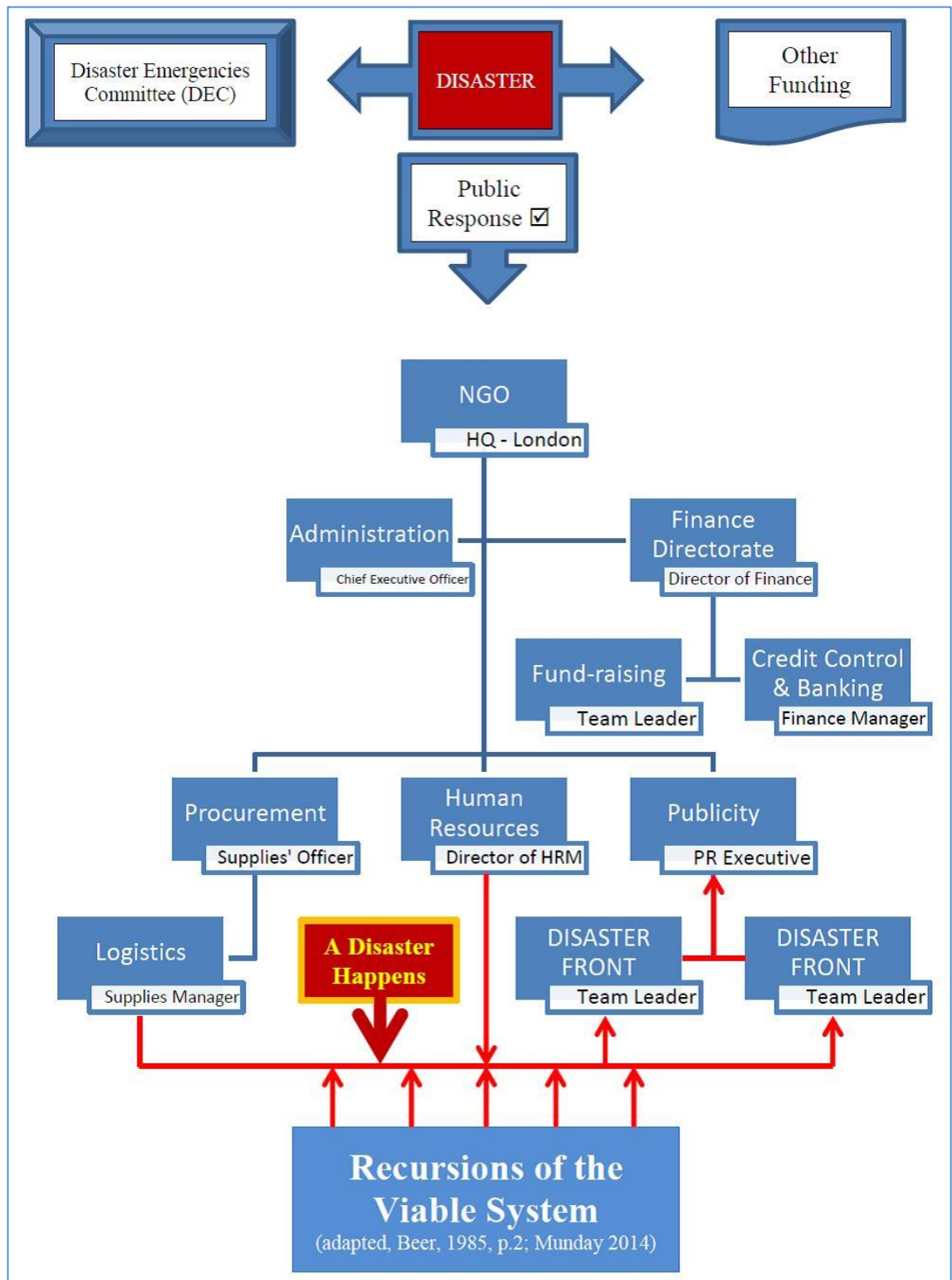


Figure 13 A simplified organisation (schematic): disaster recovery inputs

Figure 13 gives a specimen NGO at its heart. Above the NGO is its outreach into the environment – the sources of funding: from Governments, financial investments and the general public. At the centre, are the NGO and ‘its bounded self’ – an organisation holding a hierarchy of management, itemising inbound and outbound requisites. Perhaps cynically, the ‘disaster’ is enveloped within the NGO: this is not my intentional action but is to demonstrate a sense of ‘ownership’, based upon an NGO’s mission. Also shown are some of the actions and functionality, and recursiveness (meaning the replication that is other organisations – NGOs in particular, which disaster needs in order to be addressed. However, the purpose is more to identify the reality of *unboundedness* required.

To close this aspect is an example of an organisational boundary that contradicts connectivity. The organisation, an NGO, provides drinking (potable) water services from water tanks, is bounded with its own mission task – the supply of tanks. Another NGO working within the same disaster is, however, unable to connect with that NGO’s tanks despite having lengths of pipe to transport water to distribution points and taps (Stourton, 2011), due to this NGO’s *own* bounded circumstance. The problem: communications between NGOs, in terms of procurement of connectors [between tank and pipe]. Here, the collective failure of organised process is the inability to provide the required delivery of water: people suffer, exacerbating sanitation issues, compromising personal health and hygiene. An intervention is required, to be sought and be provided.

Each of these and most other internationally-based organisations would have very similar systematic diagrams to Figures 10, 12 & 13 above – it is not pertinent therefore to demonstrate these, as each would have greater similarities than not. The point is raised, however, that multi-agencies are quite complex, having the concerns with

‘entirety’ and of ‘general management’ within their own functionality. To understand this complexity I now explain the Viable System Model (VSM) itself.

#### **4.3.4 Viable System Model (VSM)**

Stafford Beer developed his Viable System Model in *Brain of the Firm* (1972). Many other, more knowledgeable authors have written extensively on VSM, its components, and its application in theory and in practicality, including Espejo and Harnden (1989) and Hoverstadt (2008). My nuanced overview of VSM is provided in section 2.5 above, describing the Model and its theoretical application, reinforced by other author’s comments. Therefore the following text necessarily provides but a simplistic definition and depiction of VSM, sufficient to explain Figures 12 & 13 above, and 15 below, and thus the application of VSM as a tool within this project.

Stafford Beer was interested in the “theory of viability, meaning ‘capable of independent existence’” (1984, p.17), using the cybernetics’ perspective. Against the background of his research, the Viable System Model (VSM) was devised: much of this research consolidated from work with the Government in Chile in the early 1970s, prior to the 1972 Coup. But from earlier research in the nineteen-fifties and then this Chilean Government work, Beer explored the conception of VSM

“... through neuro-cybernetics and social science, through the invention and study of cybernetic machines, through the mathematics of sets and stochastic processes, and at all times through the [Operational Research (UK)] fieldwork in industry and government. The quest became to know how systems are viable; that is, how they are “capable of independent existence” ...” (1984, p.7).

Espejo and Harnden (1989, p.14) later observed that Beer therefore could “construct a scientific model of the organization” by using his VSM. My own use of VSM is to construct a model of the natural disaster environment and potential supportive routes to address my project’s research question and objective.

Beer’s background was of cybernetics. A further definition of cybernetics contributes to the understanding needed here, both for Gaia but also for how Beer began to see the VSM in its functions:

The science “... of regulation and control in animals (including humans), organisations, and machines when they are viewed as self-governing whole entities consisting of parts and their organization” (Merriam-Webster, 2013).

This definition similarly suggests Lovelock’s Gaia Hypothesis [noted above], which itself forms a ‘backbone-thread’ of this project’s description and explanation. The Merriam-Webster definition further explains that cybernetics “views communication and control in all self-contained complex systems as analogous ... [being about] organization, pattern, and communication in entities” (Merriam-Webster, 2013). This then begins to outline and to define ‘organisational / management cybernetics (*accepting there are two precise definitions to this phrase*)’, which is what Beer was focussed upon through his genesis work towards the VSM.

Beer’s own clarification of ‘cybernetics’ addresses his more precise needs, and is using cybernetics to explain management practice, drawing upon this to devise his VSM for application as ‘a-process-of-intervention-to-improvement’. Within such a frame, Beer writes of cybernetics being “a coherent science ... the science of control ... [and of] management, the profession of control” (Beer, 1972, p.17). Clarification out of this viewpoint provides the foundation to VSM and of how it becomes pertinent to this



project. One observable concern, through reviewing the literature, has been of the failing connectivity between NGOs managing appropriate resources to needy disaster-hit communities, either fittingly or within a timely application: one consequence through a lack of organisational co-ordination.

I explain next what ‘viable system’ means for this project.

#### **4.3.5 A Viable System**

Espinosa *et al.* (2008) give this definition of *viable system*, being

“... a system or complex entity capable of maintaining an independent existence – not an existence totally separate from an environment, but one where structural changes take place without loss of identity and without severance from a niche” (p.640).

The diagram at Figure 1 of “Gaia” begins to be explained more clearly by this definition of ‘a viable system’. The biosphere of Planet Earth clearly has ‘an independent existence’, where changes within the biosphere do not overly alter its known perception as being ‘Planet Earth’. This is evident from photographic and composite images taken by NASA Astronauts and Scientists of this inhabited globe, from both the Moon (during Apollo Missions of the 1960s and 70s) and by using Earth-orbiting satellites.

#### **4.3.6 Gaia – Planet Earth, habitable for humans**

A brief aside now from the discussion of VSM for an explanation about Earth’s viable system, as this is directly related. This is to outline what the terms of habitation are for human beings and of the intervention that nature provides through disaster in Earth’s

biosphere. A sole source is used here (wikipedia.org, 2013), as this thesis is neither of the biosphere *per se* nor a scientific document in the sense of biology etc.

Planet Earth is aged at about 4.54 billion years. Life is reported to have started at about 1 billion years. The planet is composed of a molten core, covered with various tectonic plates forming the hard surface; water, as liquid, vapour, and solid, add the counterpart. The biosphere began to change, providing atmospheric and other physical conditions.

For humans and animals to be alive, they require oxygen: oxygen levels are marked at 20.95%; humans and animals breathe-in oxygen and breathe-out carbon dioxide. Plant life (trees, crops, etc.) do the reverse process, taking-in carbon dioxide and releasing oxygen. The effects of the Sun, the Moon, other planetary systems, plus the combination of light and dark, hot and cold, wet and dry, etc. provide the habitable environment for human beings to survive on Planet Earth (wikipedia.org, 2013). The above description, in its brevity, outlines a viable system. The implication will be apparent, which is of balance, of reliance – a delicate interconnectedness, which makes Earth ‘a fragile planet’. When, for example, seismic activity occurs, resulting in a volcanic eruption – such as that of Iceland’s Eyjafjallajökull in 2010 – a natural disaster, the ‘kilter’ of balance within the biosphere is briefly, minutely altered. The effect of the Icelandic eruption was of plumes of ash high into the atmosphere, affecting climate, ice-cap coverage, human activities, and disruption to many areas of northern Europe.



Copyright ©NASA, NASA's Goddard Space Flight Center, BabaTaka.  
 'Earth-rise from the Moon' (showing Africa, Middle East, Indian Sub-continent and Euro-Asia)



Copyright ©NASA: *Blue Marble*: in 2000, NASA produced the first of these particular satellite images of Earth [and Moon] in the form of a composite globe drawn using data from three different satellites. The resulting image was quite remarkable and we have presented it as the NASA Blue Marble – Original.

Figure 14 Planet Earth - Gaia, two images from space

The allusion here is drawn from both the “Gaia” at Figure 10, and the hierarchy of the organisation at Figure 12 & 13 [above]. Take away from either a single element, and a change is then created, altering the balance. For example, in Figure 10 to remove the central element of responding teams and the demise of a community may ensue. Or in Figure 12 [above] to remove the ‘credit control and banking’ element, so the cash-flow control capacity of an organisation may stop production activities. There is a needed interconnectivity of elements making up the *viable system* of either environment. Changes to such relatively small environments have consequential impacts. Viability of each system under review is the key point.

It is evidence of this viability that Stafford Beer searched for and developed into his Viable System Model, as in the example shown at Figure 15 (below). It is important to understand, from Figure 15, what the various parts are and of their function within the whole. Again, many other writers have described such (as is noted elsewhere here), so this description is necessarily devoid of greater explanation but is to provide an illustration within this thesis. In this account, the elements and labelling used within Figure 15 are applied as pertinent reference points.

#### **4.3.7 Viable System Model – made clear**

Stafford Beer describes something as being viable, being “if it can survive in a particular sort of environment” (1985, p.1). He further discusses of “a firm may be the subsidiary of a larger corporation ... a viable entity in itself, but ... [belonging] to the ‘parent’ company” (*ibid*); this theme is further developed in this section using the World Map at Figure 10 and the Organisation Hierarchy Chart at Figure 12. Beer continues outlining the Viable System Model (VSM) as “what is the organization to be modelled,

and to specify its boundaries” (1985, p.2): this particular statement holds relevancy to this project.

Further, the concept within the VSM is of it being recursive, the mathematical notion of recurrence or repetition of an operation (a mathematical function), which is not explicitly clarified within Figure 15 but is *implied* through the indication of three ‘units’ at ‘S1’ in the Model. Each ‘unit’ is itself a viable entity but is one contributing part to a larger viable entity – a viable system addressing a natural disaster. The parts of my simplified VSM – at Figure 15 – now need explaining. This is discussed at a level higher than individual systems, and uses Stafford Beer’s textbook, *Diagnosing The System for Organizations* (1985) as its source reference.

#### **4.3.8 The areas of the VSM itself**

System 1 (S1): each ‘unit’ is an autonomous organisation or a division of that organisation; for example, an NGO at its headquarters and a team of disaster-fronting people. Within each marked ‘S1’ is a viable system, which recursively manages itself at headquarters level and at each divisional level. There are two levels of multiplicity at ‘S1’, being many divisional levels for an NGO and of many NGOs. This pattern is then replicated for UN organisations and for national governments equally seeking to input support with aid resources to the particular disaster: there is significant complexity apparent. For simplicity and clarity, just three ‘S1’ are displayed.

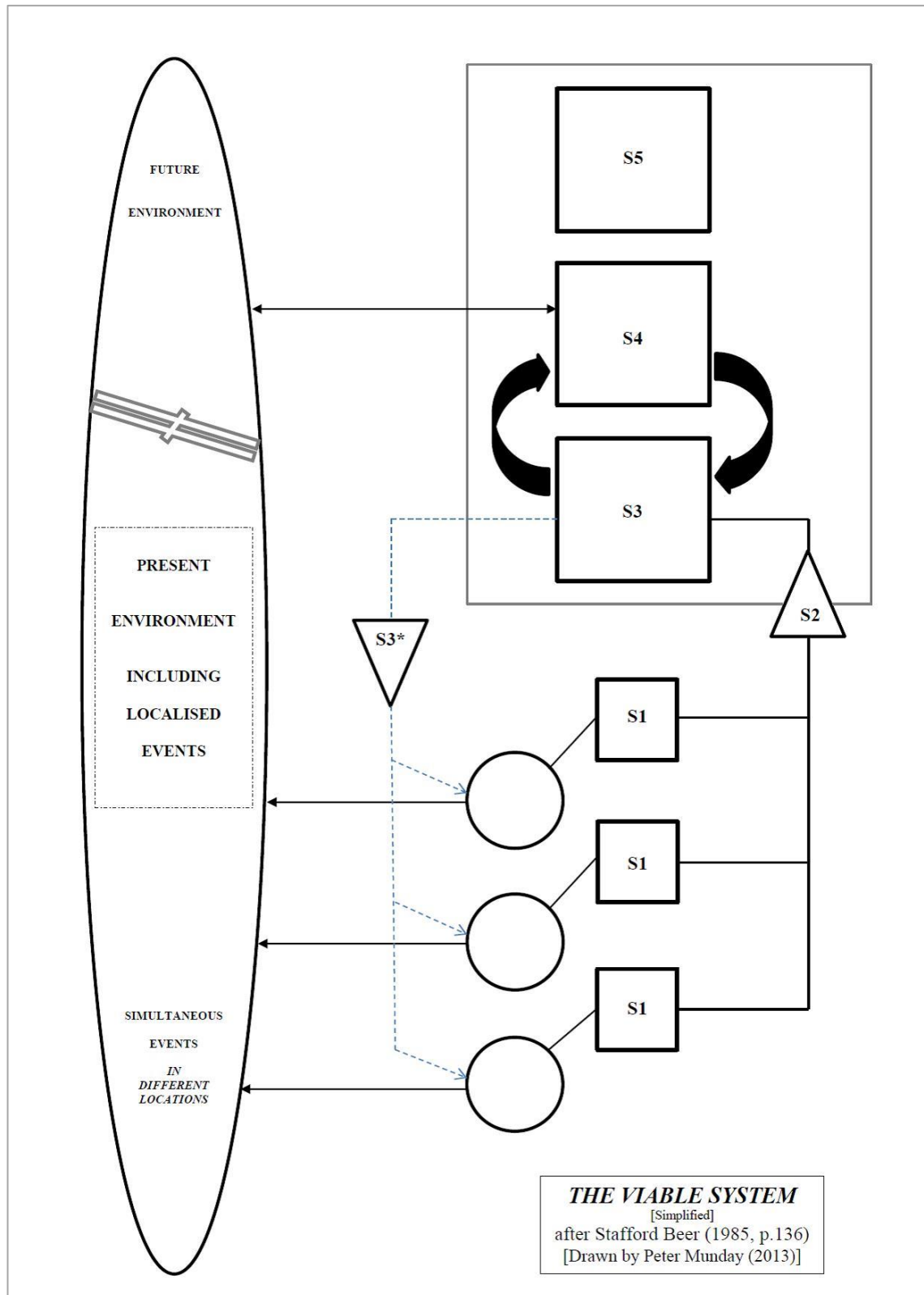


Figure 15 Viable System Model (after Beer), simplified

System 2 (S2): Beer uses the title ‘Regulatory Centre’, explaining this to be “the focus of homeostasis between management [at S3, S4, & S5] and operations [at S1]” (1985, p.41). [*Homeostasis*: the tendency towards a relatively stable equilibrium between interdependent elements (OED, 2006); Beer himself, defines ‘homeostasis’ as “stability of a system’s internal environment, despite the system’s having to cope with an unpredictable external environment” (1985, p.17).] So S2 acts as a ‘governor’ [others write of “dynamic stability” (Espinosa, 2014) or for ‘harmonisation’ or to provide an ‘anti-oscillation’ balance from the executive [managing] through to the workers [doers] and back again of instructions and information between the two groups.] The purpose is intended to be of ensuring good action through good planning: in the wider terms of this project, it would be the sense of a co-ordination seen to be either ‘failing’ or as a ‘not-present’ activity; this feature becomes much clearer in later sections of this thesis.

System 3 (S3): The role of S3 is to ‘intervene’, “because it exerts authority on the central command channel” (Beer, 1985, p.86), but “only by exception” (Espinosa, 2014). Generally, ‘the system’ is of self-regulatory activities: in management terms, of ‘devolved control’ (an analogy could be of outsourcing production to another company, which, perforce, needs to control its own activities to achieve the assigned task). So S3 intervenes *only* when S1 “fails to self-regulate” (Espinosa, 2014), then S3 interjects with its authority. As Beer notes, S3 “is responsible for the *internal* and *immediate* functions” (Beer, 1985, p.86, original italics) – the synergy [“the interaction or co-operation of two or more organisations” (OED, 2006)]. It is this very precise definition and the functionality of this element of the model that is the fundamental point at issue in this research project; as a key sense, here is the point-of-reference in expediting the disaster recovery stage and is considered to be missing, or at least is not entirely co-operative in character. The association of S3 and of a disaster event response is the co-

ordination required between various agencies towards a single end-goal set by the community.

System 3\* (S3\*): Here is the function of monitoring and of “... an alternative (non-formal) mechanism for collecting information *directly from the operational level ...*” (Espinosa *et al.*, 2008, p.50), [not obtained through other means]; Beer uses the word ‘audit’ (1985, p.87). The role is integral of S3 but “they operate ... apart from the command function [S1, S2, & S3]” (p.86); however, the function of S3\* is to monitor and to conduct monitoring of activities. The activities include auditing the management and operations of the system (organisation); thus, for disaster response and resilience features, the point that 3\* should undertake includes whether S3 is working properly and assessing the viability of projects. A point of research interest (*presently not examined*) is whether a project is right for the locality, perhaps in terms of social or political or climatic impacts.

System 4 (S4): An organisation, as a system, cannot be parochial; S1, S2, S3, & S3\* are all – in essence – internally-facing and of local concern to the system. What Beer says S4 does is managing “the *outside-and-then*, but [also] to provide self-assurance” (p.115, original italics) for the system, the organisation. The constituent activity is of observing the environment – environmental scanning; Figure 15 shows S4 directly ‘joined’ to:

- a) The environment – here being about disaster events, and
- b) Looking at and for knowledge (including data, indications, information, and/or intelligence) [Espejo and Gill (1997) use ‘intelligence’, explaining it is “the two-way link between the primary activity (i.e. viable system) and its external environment”, a functional activity] that will help maintain or develop the system to be viable in the long term.



Within the remit of this project, such activities might be of (agencies) reporting-back; publicity; the process of enquiry and research into disaster management by academics; and of detailing strategic issues and/or innovative solutions in producing better community response and resilience outcomes.

System 5 (S5): Beer draws upon the business organisation in defining the nature of this element. He writes of ‘the boss’, ‘the Board’, and that “System five knows very well what the **existing** business is. But no-one knows what the future business will be” (p.126, original emphasis). Further, Beer comments that “what we are discussing is the INTERVENTION BY SYSTEM FIVE in the balancing activity of the THREE-FOUR HOMEOSTAT” (p.127, original emphasis).

‘Homeostat’ likens to ‘a form of balance’; ‘homeostasis’ – a biological term: Beer describes this as being of “stabilising’ the systems’ internal environment (p.9); otherwise being, “the tendency towards a relatively stable equilibrium between interdependent elements” (OED, 2006). Again, all are important perspectives for research in this project.

Wryly, Beer states that system five is the “ultimate authority” (1985, p.128), the role being ‘to think about’ what other parts of the system actually do (i.e. System One); and uses the notion of the building of the whole system’s ‘ethos’ – in many senses, its purpose of existence. One aspect of S5’s position is formation of policy – again, for this research project (see Figure 16 below for the correlation here) it is the UN, and Regional and National Governments playing a significant role in how disasters are responded-to at various times. Policy decisions, change of governing body, and new remits, affect the whole system.

Environment – this is as important a point as any of the various ‘S’ elements depicted in Figure 15 or through this description. In Beer’s textbook, ‘environment’ (particularly that of the external one) is little referred to, other than as being visible in diagrams and by this specific definition: “the amoeboid shape represents the environment of all this, which – until now – has been kept in the background” (1985, p.20), and was noted as such more to retain cross-reference to other viable systems’ writings. However, the environment is, in this project, a vital element of the overall model. The ‘environment’ represents the community that faces natural disaster and now needs help to sort out matters: but ... ambiguity, though expectations exist.

Now I shall use the theoretical principle of Beer’s VSM to show “the usefulness of the VSM by applying it in the context of my Research” (Espinosa, 2014), for the Question and Objective, and of threads in my primary data themes. There is, too, the link with Systemic Intervention (Midgley, 2000) and issues of boundaries – a significant aspect of my research.

#### **4.3.9 System-of-Focus – VSM & Boundaries: Intervention delivers reality**

To draw the point, I introduce this remark that brings into some focus the use of VSM within the Systemic Intervention ‘umbrella’ that this project is using. Stafford Beer mentions within a paragraph on ‘recursive dimension’ (a chain of systems embedding each other (1985, p.6)) of “a proper appreciation of dimensionality ... that permits a most-useful determination of systemic **boundaries**” (p.7, original emphasis). This is important, as there are evident boundaries – as expressed in Figure 16 below – of demarcations of role or responsibility or professional contribution defining the disaster response arena. It is some of these ‘boundaries’ that are considered to be denying the

prompt and advantageous recovery and resiliency which the disaster-hit community seeks every time. Seeking the ‘proper appreciation of dimensionality’ for the community by the multi-agencies is perhaps the target that the VSM distinctions will allow to happen.

There are two models I might have used to depict here how Non-governmental Organisations (NGOs) – of any country, are linked with the process of disaster management activities and with higher-levels of (in this project’s ‘speak’) management ‘command & control’ activities. The first might have been of a single specimen NGO, showing the environment (disaster) and the various levels of management (‘Systems’). Alternatively, the second model – as elected for now, is perhaps more generic but demonstrates more fully the complexity understood to be at issue. Neither is wrong.

It will help to clarify all of the above language in terms that may be more understandable. Taking as the illustration, an organisation [Figure 12] is a business; then the context of a natural disaster event [Figure 13] was added in. This brings with it the community. Each are viewed, ostensibly, as a viable entity, a viable system. These ‘entities’ are now reinterpreted, and are situated onto the VSM framework; further levels of recursion are added as well. The brief reminder here is that either boundaries or connections-in-the-system are considered to be *not functional* and why this topic is under research at present. This is shown as Figure 16, and is next discussed.

#### **4.3.10 Connectivity and Complexity**

The use of lines and arrows, of implications, within Figure 16, begin to link the various components of the VSM together. These firstly unite components that have close or

direct connection, perhaps where there may be influence over activity or role. Secondly, the wider view is that all components are linked in some way. This is the connectivity of the viable system discussed above, and now demonstrated in the model generically-titled ‘Viable System Model’. For Gaia (Figure 10), an organisation (Figures 12 and 13), or the brief description here for VSM (Figure 16), there is the organisational issues of complexity. Espejo and Harnden (1989, p. 413) describe this as, “the main problem for an organisation in achieving viability [being] the extreme complexity and uncertainty exhibited by its environment”. For instance, in a small organisation it is possible to see problems: higher management is perhaps close enough to interface and to intervene; however, in a significant and long-term regional disaster area (e.g. the multiple issues across the Horn of Africa) it is evidently not possible to see the whole picture or to have complete capacity to intervene effectively. This perspective draws upon Espejo and Harnden’s (*ibid*) use of “(extreme) complexity”. There may also be aspects or elements of the psychology paradigm ‘groupthink’, discussed elsewhere in this thesis.

The Horn of Africa example is situated in the *Environment* component of the VSM at Figure 11 above. As the issues – climate, politics, migration; war, tribal conflict, etc. – are both interrelated and interlinked, have long duration, are fluid and evolving, so the capacity to see much else (for one NGO, or a development scheme, etc.) as the wider picture, defines the complexity of that one situation. However, being able to take the systems’ overview, to bring the diversity into a model – here, VSM is set out – it is possible to start seeing the complexity. Such a view begins to allow potential for interventions to be devised, implemented, and reviewed.

#### 4.3.11 Suggested VSM organisational design

Figure 16 below now helps to bring this part of the methodological discussion toward a conclusion. Across the preceding pages, the constituent elements for a generic VSM have been discussed. Therefore there is no need to re-explain all parts of Figure 16. However, some features do necessitate brief clarification, such as the interconnecting lines between units of ‘S1’, the role of ‘S2’, to explain the multiplicity of dotted lines between ‘Environment’ and the various ‘S1’, and of the purpose behind the red line linking ‘S3\*’ and the ‘S1’: the following paragraphs explain them in detail.

The interconnecting lines between units of ‘S1’: within a natural disaster located in a developing country, which has placed an international request for disaster assistance, the co-ordination (and co-operation) of inputs to that disaster become primary. The ‘interconnecting lines’ in Figure 16 are to demonstrate such a need: this ‘need’ for working towards a common goal is a central concept in this project. This common goal, the relief of the disaster-hit community, might be met in a variety of ways. This project is about ways of satisfying that central need.

The role of ‘S2’: while every organisation seeking to offer relief, response, or resiliency responses to a disaster-hit community, each organisation has its own mission remit – its own reason for doing what it does. The model at Figure 16, using the framework of the VSM in this project, is used to explore and to more clearly define ‘what’ *co-ordination* means in reality, practice, and of what it should or could mean in future. Defining the role of this co-ordinating structure and its *modus operandi* is the key for designing the interventions aimed by this project.

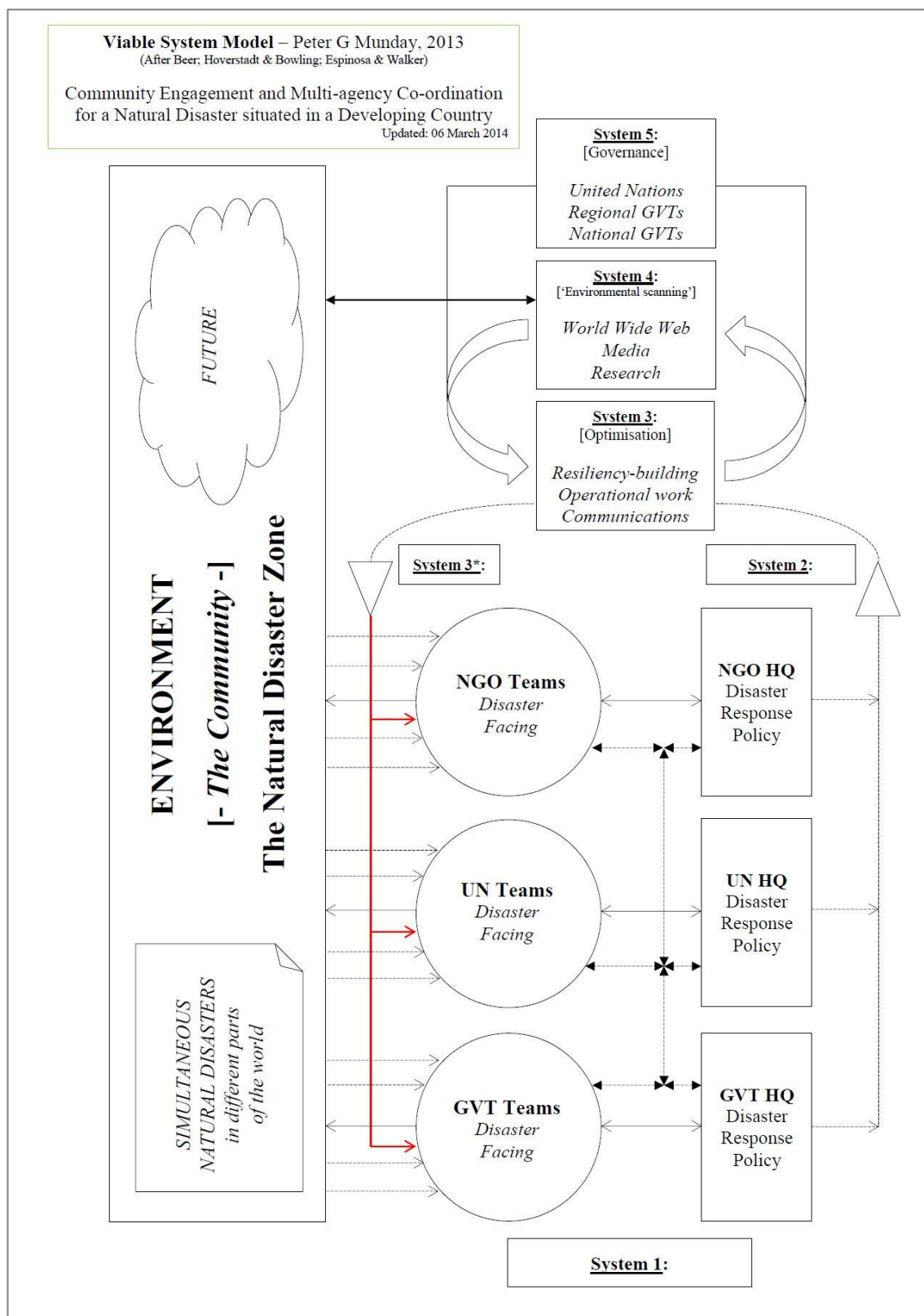


Figure 16 Community Engagement & Multi-Agency Co-ordination (Munday, 2013)

To explain the multiplicity of dotted lines between ‘Environment’ and the various ‘S1’:

a feature of any natural disaster is the principle element of the unknown; all that is known by outsiders is of the event occurring, and then from insiders, of their own particular needs and requirements *at a particular point of time*. The complexity of requests, coming from all quarters of the disaster zone, will initially be over-powering and contextually confusing to those appropriately responding. The dotted lines represent this element of ‘messiness’ (Ackoff, 1974, i.e. in Chapter 2), and explain – for this project – the need for designing interventions.

The purpose behind the red line linking ‘S3\*’ and the ‘S1’: the purpose of ‘audit’ is to examine how an action has occurred and to test its validity against the original mission task. For this project, the question is perhaps raised as to how such audits are performed by whom, and for whom. One of the results of an audit is the production of a report, often with clear recommendations. Within this project’s proposition’s logic is located the fundamental question of whether such a recommendation *is noted but then acted upon* towards future disaster reduction measures. The audit function in the VSM is integrally one part of the whole cycle of action *and* response. This project needs to show audit’s contribution, for two reasons. Firstly, is that present indications, exemplified through the data-gathering respondent’s words, is that the process of learning from the ‘current’ disaster for the next one either takes a long time – reports on dusty shelving, or is not considered as an experiential learning-curve attribute within organisations. Secondly, without the prospect of NGO-networking in the co-ordinated sense ‘old habits’ may perpetuate when new ideas from other NGOs might be shared and implemented. The process of audit becomes a two-way process of information-exchange, which may (or perhaps, should) be placed within the public-sphere – a report for action, galvanising stronger disaster management learning interventions.

So ... in this project, Figure 16 acknowledges design of a new framework, drawing together the contributions already discussed. I should define more closely what Figure 16 now means: Planet Earth as Gaia [Figure 10], the System-of-Focus – Somalia [Figure 11], the [Figures 12 and 13] of an organisational hierarchy, of [Figure 14] – ‘our fragile planet’, about Figure 15 Viable System Model (VSM), giving at Figure 16 this project’s key actors. The descriptive passages have explained the building of Figure 16 with explanations and guiding towards clarification of purpose and design, of defining the issues, thus to propose a VSM-inspired organisational design as an outcome for this project.

Ultimately Figure 16 identifies an *ideal* based upon theoretical reflection and of practitioners’ disaster-fronting experiences, as expressed through various data-gathering analyses herein: of what is considered ‘room-for-improvement’. It is this potential for intervention, using a framework for practitioners to deploy, that becomes the development stage of this project. Under the ‘umbrella’ of Systemic Intervention, a Viable System Model at the multi-agency level is designed; it is consider that such an organisational level will be strategic for effective implementation within the context of global disaster management. Practical possibilities built from theoretical rationality, become developmental research schemas.

#### **4.3.12 Section Summary**

This part of my methodology defines the use of Viable System Model as my tool of interpretation, reintroducing the notion of Gaia at its base (*see: chapter 1, plus of clarification through use of published materials*). To explain the theme, a schematic diagram is provided demarcating my Gaia base, offering a picture that breaks the global



zones into manageable parts and bringing the focus for examination upon one country. Here is that community enduring the natural disaster.

The various responding agents – the multiple agencies – are discussed, using a diagram of an organisation to highlight complexity, juxtapose the thought that there are many organisations involved – each having its own mission. Within this explanation, the use of the boundary is demonstrated, which acts to preclude good and positive co-operation between multi-agencies at a natural disaster. The idea of an organisation being only to itself in disaster relief is knocked sideways.

The VSM is explained in some detail, describing its parts and purposes. This correlates to my targeted VSM at Figure 16, with additional descriptions where needed. It becomes clearer that there is complexity within a natural disaster. From that Figure 16, I shall construct a prototype VSM targeting the natural disaster perspectives discussed across this project. This prototype VSM will be devised from the data-gathering resources and be offered to a “Design Team” [see section 5.2], seeking constructive criticism and positive feedback. But for now and based on this theoretical VSM discussion, the practitioner is able to comprehend – through components that make sense – the examination process for a system-of-focus. Where failings are observed, these may be addressed more strongly through good multi-agencies’ interventions. There should result the state of clarity, achieved through the process of enquiry, with the outcomes desired for (and by) the community hit by natural disaster.

Having described the VSM in some contextual detail, another tool deployed under my Systemic Intervention ‘umbrella’ is my Systemic Boundary Analysis tool. This now follows.

## **4.4 My Systemic Boundary Analysis tool**

The use of a diagnostic tool within social sciences research, particularly as part of the methodological design, is widely applied. The researcher's intent is to assist and to clarify understanding of, perhaps, a nuanced research direction. Often the diagnostic tool will be created and devised for the project under review. Many diagnostic tools are influenced by previous research applications, which arise in the researcher's thinking while reading literature and in talking with research colleagues. Some diagnostic tools may be derived from applications used outside the researcher's own field, where such is viewed to be of an advantageous use through appropriate adaptation.

The development of my *Systemic Boundary Analysis* tool follows this broad process of reading and discussion, being created and devised through my own Master of Research (MRes) project and into this PhD project. It derives from Systemic Intervention (Midgley, 2000) and is influenced by (Systemic) Boundary Critique (Ulrich, 2003a). In this section I shall discuss its roots and purpose, and its application within this project.

### **4.4.1 Where the Systemic Boundary Analysis tool is founded**

Systems studies, particularly Systemic Intervention and thence this project, rests on a number of research criteria; boundaries is the particular criteria relevant here. The boundary is a point of limitation, or of delimit, about where something will or will not be present or occur. Cabrera gives this indication of boundary:

“Distinction making: differentiating between a concept's identity (what it is) and the other (what it is not), between what is internal and what is external to the boundaries of the concept or system of concepts” (2006, p.7).

That notion of distinction is important within the *Systemic Boundary Analysis* concept, as will be clarified below; what is or is not included within ‘the boundary of analyses’ is necessary. Midgley (2000, p.36ff) phrases this as, “... no view of the world can ever be comprehensive, [so] the boundary concept becomes crucial”. This is where ‘distinction’ as the philosophy of research and methodological approach then becomes important. The purpose of ‘boundaries’ – for this project anyway, is to bring clarity. If there is no clarity, or from a different perspective there is too much ‘noise’, that there is too much being involved within the research parameter, then the potential for confused comprehension is increased. Thus, “the blurred boundary of the self and the other ... has its moments of complication ...” (Ghorashi, 2005, Abstract).

Within section 2.4 Boundary Analysis I have discussed ‘Boundary Critique’. As a brief explanation of boundary critique is helpful here, I draw upon “... boundary critique [is] (reflection on, and choice between, boundaries) ...” (Midgley, 2000, p.132). This is the Systemic Intervention approach. Ulrich develops the explanation, with

“the purpose of boundary critique is not boundary setting but rather boundary testing – switching back and forth between them shows how relevant facts and values depend on, and may change with, boundary assumptions that are specific to the concerns of certain stakeholders but may exclude or not adequately consider the concerns of others” (2003a, p.334).

So these two points, together, suggest there is the sense of judgements being made; that an ‘agent’ (for example, see Midgley, 2003a) being two facets of research capability: seeing the whole ‘picture’, and of necessarily taking a selective ‘position’. However, Ulrich’s position allows that there is fluidity (in a sense) about where a boundary is drawn or of what is drawn into or excluded from the bounded research arena. The further extension of this, which begins to ‘encompass’ the philosophy of my own

*Systemic Boundary Analysis* tool, concerns the notion of what is the right ‘knowledge’ to be bounded, judgement values being made. This starts to form its structure with:

“... it is now also a question of the ‘proper’ bounding of the domain of observation and thus of the underpinning value judgements as to what *ought to be* considered the ‘relevant’ situation of concern” (Ulrich, 2001b, p.15).

Ulrich (1993) wrote of the ‘normative (ought)’ and the ‘descriptive (is)’: this is the quandary that faces the ‘agent’ using *Systemic Boundary Analysis* ‘in-field’, as there will always be vastly different and hugely compelling arguments about what should be ‘included’ or to be ‘excluded’. What ‘ought’ to be considered and ‘is’ considerable, are two challenging dichotomies. So Systemic Intervention aids the process: the purpose of boundary analysis is to be “the ‘cut-off’ point for analysis [making] some things visible and others invisible” (Midgley, 2000, p.129).

#### **4.4.2 Systemic Boundary Analysis tool, described**

This researcher believes the concept ‘*Systemic Boundary Analysis*’ is new for systems studies. It is constructed as a ‘diagnostic tool’ to incorporate perspectives of boundary Critique and Systemic Intervention in the arena of Critical Systems Thinking. ‘Systemic boundary analysis’ crosses paradigms’ boundaries, questions positions, to lead the researcher – the ‘agent’, to consolidated discernment. The ‘diagnostic’ phase of Systemic Intervention is where people are trying to understand the nature of the problem (Midgley, 2011b, paraphrased). I allude above that the context of a natural disaster is complex, complicated, and challenging for all people involved. Meeting the needs of disaster-hit community members who are in dire need, trauma, and helpless, requires emphatic tack with strong leadership. The competing demands will often flood-in and become overwhelming: “the disaster has hit the livelihoods of communities

mostly through its overwhelming destruction of homes, communities and, in some cases, whole villages” (BAPPENAS, 2005, p.75) – this is concerning Aceh, Sumatra, and the devastating ‘Boxing Day’ (26 December 2004) earthquake and tsunami. In Haiti, the earthquake of 12 January 2010 caused long-term damage to a country poorly-resourced or capable economically to address the housing (or other) needs of hundreds of thousands of its Nationals. Television and social media broadcasts of the 25 April and 12 May 2015 earthquakes across Nepal continue to highlight the devastation that occurs across developing countries, to show the fragility of such communities for which vastly-expensive rebuilding projects are required. Such disasters continue to highlight the prioritising complexities that an ‘agent’ is faced with, when beginning to undertake *initial Relief, Recovery*, and then *Resiliency* interventions for such disasters.

#### **4.4.3 Systemic Boundary Analysis, its purpose**

Broadly, the purpose is to use resilience-building solutions from the paradigms of infrastructure, institutions/organisations, community, and environment/ecology – this is a plural methodology. The systemic boundary approach draws from the wealth of systems studies research, and it seeks to enhance the researcher’s (the ‘agents’) thinking by creatively developing answers via research and publication, and in delivering real-life disaster solutions.

This appears, on the face of things, to be an academic application – which is perhaps more as it is designed for. However, the notion is the building of an analysis tool into the Multi-Agency Viable System Model application (the model presented in this project) – being viewed therefore as a practitioner tool, for development into the field. This is part of further research.

#### 4.4.4 Criticisms of this ‘tool’, of its theory

There is a distinction between Boundary Critique and Systemic Boundary Analysis. Boundary Critique uses stakeholders to create the bounded research area; the researcher does *not* pre-judge what this should be in advance. Whereas Systemic Boundary Analysis *does* have a pre-judgement element of boundary-setting: the researcher undertakes a period of paradigm evaluation in advance. There are strengths and weaknesses to both approaches. This muddies the waters somewhat, for the purposes of this thesis, as there is no definitive or conclusive capacity demonstrable within the present proffered discussion. Rather, it should be observed that the philosophical direction and argument of the *Systemic Boundary Analysis* tool has been applied without clearly identifying it throughout the text. Thus, I find, this allows the diagnostic tool to be seen ‘doing’, rather than be considered as something ‘simply’ theoretical.

Boundary Critique and Systemic Intervention hold ‘emergent understanding’ as their base; this “could result in the insights from a paradigm being ignored if [stakeholders] do not happen to share that worldview” (Midgley, 2011b). A “researcher is to identify strongly marginalised perspectives” (*ibid*), counteracting it. Whereas Systemic Boundary Analysis draws-in observations from pre-judged evaluation, where such wider observations could be disregarded; a weakness of this may come from ‘pre-formed knowledge’ that sways further research activity. It could be resolved with an additional step of creative thinking to evaluate “the consequences of different boundaries” (*ibid*) as part of the researcher’s process of boundary ‘pre-judgement’ activity. The Systemic Boundary Analysis tool is theoretically designed for use by academics and (front-line) practitioners (such as the ‘agent’) alike; disaster-field workers from NGOs are probably not the intended target audience.

#### 4.4.5 Systemic Boundary Analysis tool, other issues

Two perspectives have been covertly noted in the last paragraph and concern the sense of ‘pre-judging’ and about ‘pre-formed knowledge’. Within the primary data-gathering analysis (see, sections 3.3 and 3.4) there is the connection in making an assessment about a disaster situation – of its needs, say for housing, and of the psychological concept of ‘Groupthink’ (see for example, Janis, 1971, and Appendix A06) – where a ‘nod-in-agreement’ consent to ‘a something’, say a *particular* style or type of housing, is agreed as the ‘standard’ to be supplied into a disaster zone.

I have noted that in the man-made/natural disaster (civil conflict / drought) situation of Somalia (see for example, Loewenberg, 2011), of a housing situation at the Dadaab Refugee Camp (northern Kenya) that was established for Somali families fleeing the disasters unfolding in their homeland, which were not used – they were the ‘wrong’ type and style of housing, not meeting cultural or religious needs. A similar situation occurred in earlier natural disasters across Malaysia, The Philippines, and Indonesia, where housing was constructed but built to ‘First World’, rather than ‘Community’, design needs: for an observation on this see Ahmed (2011).

This raises two interesting perspectives: 1) that the sense of ‘groupthink’ is present in terms of the thinking processes and I have discussed this topic further in Appendix A06, and 2) that the notion of ‘community engagement’ has failed by not asking for local knowledge, by the multiple agencies coming in to help especially the *Recovery* stage but also the *Resiliency* development for long-term stability. This project’s *raison d’être* is to address such an identified issue and concern. The *Systemic Boundary Analysis* tool is designed – in part – to address this particular housing point.

#### **4.4.6 Section Summary**

This section has described how the *Systemic Boundary Analysis* tool was founded. An explanation is provided of some of the systems thinking perspectives used in its formation. Its purpose and different uses, academic and practical, are noted. Some criticisms have been discussed. Two ‘covert’ themes – ‘pre-judging’ and ‘pre-formed knowledge’, were outlined in terms of ‘Groupthink’ and of housing issues. *Systemic Boundary Analysis*, as a philosophy, is used across the thesis, without its identification.

### **4.5 Alternative Tools of Research**

It is pertinent to note of other approaches that might have been selected for this project, but were not, and to explain why so. Here I look at two other methodologies or tools, and comment upon their implied usefulness to me.

#### **4.5.1 Overview**

The beginning of a research project offers tremendous opportunity, given the research matter, to use either existing (i.e., known about) research methodological approaches or to embark upon exploring different or new approaches. For me, I was entirely new to Systems Thinking, with little comprehension of the field’s diverse approaches available to me. I began with the premise of my own openness to learning, but was certainly guided by my Supervisor to use the Systemic Intervention (Midgley, 2000) methodological approach; this, however, is no fault nor criticism but my chance to begin exploring my own Systems’ journey of investigation. Systemic Intervention is, of its construct, multi-methodological in scope, therefore I have not been held to any one particular research approach for my learning or this project.



In the early stages of researching I was introduced to a number of alternative approaches, and – as it happens – in the first two years’ reading, my choice and use of approaches has restructured. I began to combine a number of research potentials and with appropriate guidance came to my own compilation of methods (tools), all definitively settled beneath the ‘Systemic Intervention’ umbrella (tool box) of this research project.

To illustrate, in some brevity, the breadth of research potentials, I seriously considered two different styles of research approach. One was an entirely theoretical, a desk-based approach. This would explore the contextual issues of community engagement, of multi-agency co-ordination, as set against the research question, from a theoretical and philosophical perspective. The potential outcome of this approach would have been a methodological framework of some type, designed to meet future academic researchers’ investigative support. The second approach was to research the theory and literature around the contextual issues but provide a more descriptive (than prescriptive) study of the situation. And the potential outcome of such an approach would be more an ‘end-user’ or a ‘disaster-front’ or a practitioners’ application tool. There are pros and cons against either approach. A pertinent observation I need to add here, of my own thinking towards this project, is it should have some form of practical application as one result: therefore, this is more the direction I have taken. I describe two possible strategies I might have used, under my umbrella of Systemic Intervention.

#### **4.5.2 Alternative Research Approaches**

Two approaches are discussed: archival research and ethnographic research.

### 4.5.3 Archival Research

Saunders *et al.* (1997, p.587) express archival research to be analysis of “administrative records and documents as [a] principle source of data”. This form of approach could be suitable as, in some senses, I needed ‘to look backwards’ in order to determine what causes ‘my research gap’ and so to consider the way forward from that point. In discussions with my Supervisor we covered the notions of how to explore the theoretical considerations of what ‘community engagement’ ought to mean, and of what political and social theories might help to redefine this state. This, though, excludes the engagement required in my ‘Exploratory Proposition’ with the various multi-agencies: it is that ‘exclusion’ – the *unconnectedness*, observed between any disaster-hit community and multi-agencies, which is what I have researched here. So engaging with practitioners (at some level or other) became a focal aspect for me.

Critical thinking about the community and its engagement is required, but this must be linked with praxis for disaster-fronting practitioners (i.e. both the multi-agency directors and their employees) to serve any real and cogent purpose within the intervention I seek here. Producing social theory without the input of world-of-practice denies the impact beyond academia that does matter to me. Theoretical research is vital; some form of application is required too.

### 4.5.4 Ethnographic Research

With a project concerned with people, their (disrupted) lives, of organisations and concerns where people are intimately working with those in distress, to take some form of ethnographic approach would be appropriate. Gilbert defines this approach ‘as the observation of the settings within which such people are and, importantly, of describing

such analytically' (1992, p.507; paraphrased). Typically, such research is undertaken by the researcher being *embedded* in the situation: for me, hypothetically, this would entail readiness to travel somewhere in the world at very short notice to examine a natural disaster 'unfolding'; this was neither appropriate nor ethical. However, for any researcher wishing to delve deeply into their project, to experience it closely, it is a tempting prospect and held some interest to me. But I am aware of the critique held by action researchers saying that social scientists often focus on the problem description, leaving proposals for solutions as an afterthought (e.g., see Reason and Bradbury (2001) for a collection of writings on the rationale for action research). As earlier stated, I believe that my research should have a practical application and so both aspects of that the equation – description and solution, are vital. There are systems thinkers (e.g. Checkland, 1981; Burns, 2007; Zulauf, 2007), working in the action research mode, who explore problems but carry this forward to develop proposals for change.

#### **4.5.5 Section Summary**

To demonstrate that my research direction has not been entirely focussed to one approach, both archival and ethnographic research approaches were examined. Both certainly held usefulness: they would produce part of the information resource needed but individually neither would serve purpose in total. Archive resources are spread across a huge range of organisations, many of which guard their archives closely; to be directly present at a disaster, following it through the experience ethnographically, heralds high-risk. Another approach, appropriate to my needs and to examining the high-level perspectives defined in this project, was sought and used.

## **4.6 Chapter Summary**

Across all the sections of Chapter 4, I have explored the methodological design, looking at how best to make clear the core research themes. This has assisted with what tools would give that clarity: the elements I have used in Systemic Intervention have been discussed.

Chapter 5 now opens-up the closer work undertaken about the building of this project's Multi-Agency VSM and about how this was subsequently tested and analysed.

## Chapter 5: The Primary Data Shows...

In this Chapter, discussing results and findings and the construction of my own contribution, I briefly reprise how I carried out my analysis of the primary data, and the tools used, of what this data means for my project. Next following is the section that develops my own *Multi-Agency VSM*, bringing together information and context from preceding sections of this thesis. Following that section I explain how the *Multi-Agency VSM* was received and critiqued by the Design Team – a further data-gathering exercise, and whether the *Multi-Agency VSM* could be implemented as an intervention. This project has used three different primary survey tools, which have developed each following tool and provided rich data towards and into the *Multi-Agency VSM* that is offered by this project for others' intervention.

### 5.0.1 Overview

My data-gathering method was to obtain information from people who were connected (in some way or other) with disaster management process or policy, but specifically to approach people with connections to the events of *natural* disasters. The information – the data-set, was of responses to my questions, either as face-to-face interviews or using questionnaires; this is described in sections 3.2 and 4.2 above. This is a qualitative project.

As more fully discussed in earlier sections [i.e., 3.3 and 3.4], interviewee's interviews were arranged via emails and used a digital audio recorder, following my standardised Q&A script: some interviewees received questionnaire versions; my Advisory Group received questionnaires. Questionnaires were distributed by email, using my University of Hull Student Email Address. Audio was transliterated using proprietary software –

Dragon NaturallySpeaking®; all texts were then formatted into NVIVO™ for coding; the process of coding against a standard set of ‘nodes’ (labels) then ensued. Materials and resources are held for archiving and for my future research purposes.

### **5.0.2 Data Analysis**

My purpose in gaining other people’s points-of-view, against my questions, was in developing or countering my perception of the research gap I believe exists in the literature, but also in fact. As a qualitative project, while there are objective facts and statements made in published accounts, it is none-the-less subjective because each interviewee or questionnaire respondent inevitably offers their own nuanced and personally-situated understanding. And also, as I have previously observed, a natural disaster is a unique event, in its space and time for the community so hit, of the multi-agencies responding, and for the environment affected. Personal opinions, drawn into formal text – as in this project, necessarily hold some bias; I hope and intend that such bias (my own included) is dissipated through the collectivisation and reporting process that coding provides. The analysis that followed therefore should form a natural and coherent account, drawn from many sources, and thus hold as being more balanced while addressing my Research Question.

### **5.0.3 Commentary**

As the researcher I have certain expectations forthcoming of the analysis; these include that key issues will form around the notion of systemic failure in community engagement and multi-agency co-ordination, and that I begin to find emergent properties in the form of potential systemic solutions. Likewise, the proposed solution developed for intervention in this project needs to have some account of the

infrastructural and ecological issues that are part of the community and systematic construct that I researched here. Such outcomes may either be useful towards my own understanding or be directly useful (through my solutions) to agencies and others in due time: this is now clearer having undertaken the analysis and discussion of the results.

#### **5.0.4 Criticisms**

Inevitably there are issues that have caused the analysis to be somewhat swayed, perhaps based upon my own perceptions and personal biases, of my expectations and against the data (its quantity) eventually gathered. One significant criticism is that the minimal number of respondents will not provide the depth and breadth of information that was originally envisaged by either me as researcher and by my Supervisor. This matter was discussed. The mode of data-gathering for interviews was broadly successful; however, many sources and contacts proved elusive or were unpersuadable to participate: the NGOs and Government particularly were not interested in offering a participant. For data-gathering of people with first-hand or close-contact experience and knowledge of natural disasters, these were especially hard to locate: anticipated responses from most continental regions of the world were not forthcoming. The use of email for this form of data-gathering has shortcomings; a different approach, such as via an 'embedded' researcher (potentially within NGOs) or a researcher-created Website with suitable 'search tags' might produce greater interest and participation.

A further constraining issue was the advent of two natural disasters occurring in the South Asian region to which NGOs sent their staff; one respondent was so despatched. The development of a disaster event takes greater priority than a PhD Student's questionnaire: this was expected but did cause a delay.

A more general critical comment, which takes the form of a researcher reflection, concerns a ‘truth’ arising though the extant data. The UN and Governments have agenda that take their responses and actions in certain directions; here, the sense is that of *an attitudinal stance* – this is the way we do our response. NGOs often reflecting their own mission statements (which covertly or overtly target specific perspectives) tend to give the impression ‘that *we* are the experts in our field for the group we assist’.

This directly or indirectly suggests ‘of the multiple agencies’ as I class them across this project, have reached a high state of managerial control and process, such that to entertain a further (and potentially costly) ‘rebranding of delivery’ is too much to bear. This ‘impression’ (for it is little more than that) confuses the sentiments of Taket and White in their book *Partnership & Participation*, where their sense of “participatory decision-making and multiagency work” [a chapter’s subheading], suggests that “once organisational boundaries are crossed ... we can identify various forms of networks” (2000, p.14 & 15).

It is these ‘networks’ that the philosophy of the *Multi-Agency VSM* is concerned about, both in terms of people working in the co-ordinated sense to help the disaster-hit community and of the sharing of information (open access) that the *VSM* addresses in its construction. However, as my section on *Multi-Agency VSM* [at 5.2] provides, the framework of NGOs’ patterns of structure (management) would not be interfered with, rather it is the *co-ordinating sense of connecting* each NGO appropriately to meet a natural disaster’s needs that is being questioned: of the solution being offered. There is potential for longer-term NGO *attitudinal* change via the *VSM*.



### 5.0.5 Section Summary

I have reprised to explain some of the nature of this data-gathering process and observed some critical points. A number of pertinent issues have been explained, especially concerning the dearth of participants and the narrowness of data gathered. A reflective observation – drawn from analysing respondents' responses, about multiple agencies' approaches is given.

Next I draw upon all the analysed data to explain how the *Multi-Agency VSM* came into existence. Then, I discuss the 'developing and testing' of the VSM I proffer, which then leads to the final phase of data-gathering – the 'testers' responses, taking the form of a further questionnaire issued by email.

## 5.1 Develop and Test

The analysed data-set raised a number of points, plus respondents' suggestions, for what should be considered 'the ideal solution' – the essence of which, is the formation of a body at international level that would 'control and manage' a natural disaster situation using the co-ordinated NGO interventions this project seeks. In keeping with this project's *Exploratory Proposition*, a suitable tool within Systems Studies was required.

As is variously discussed through this thesis, the Viable System Model (VSM) (*c.f.*, Beer, 1985) was adjudged the most appropriate intervention tool. This section explains, with reference to data-gathering responses, how my VSM has been developed. The following section then gives the full and detailed account of its creation, design, and intended intervention, with images of the three proposed models. The testing stage of the *Multi-Agency VSM*, which concerns the Design Team responses, is analysed and

discussed in the section after. By way of a caveat, this project and its VSM design does not deal with legal or financial constructs of an organisation.

The following discussion takes two themes and supports these with commentary from the nine (9) respondents' data-sets of the primary data-gathering exercises.

The first theme concerns respondents' *ideal solution* to the broad disaster management issue that this project is concerned with, namely the effective and efficient disaster response to community members.

The second theme develops respondents' concerns about how such an *organisation* should function and operate, and of the responsibilities that the multiple agencies should have into that organisation.

### **5.1.1 The 'starting point'**

Over centuries, people have seen a need in their fellow man, understood they could do something to help, and have helped; this has often led to the formation of philanthropic and charitable organisations, charged with a specific humanitarian mission. Such organisations worked hard to achieve their social goals. With time, many developed into the significant national and international non-governmental organisations that are well-known today and have instantly-recognisable names (or acronyms). In times of crisis, people will turn to such as these for help and support, or will give time or money for that organisation to pursue its mission tasks. "So ... every country suffers its emergencies. Every country's got registered NGOs. The vast majority of NGOs, which actually operate in-country, are actually in-country NGOs ..." one respondent reported.

And not only in (our) Western-centric and First-World-orientated society is such the case, “... in Uganda, they’re actually Ugandan NGOs”, and this is the case across the world. The respondent further reported that, these NGOs “need to develop ... in-country plans. ‘If something goes wrong in this country what do we need to do, who is it we’re going to work with, what is the organisation that we’re going to work with’”: so it appears that evolution along the lines of this project’s VSM theory is already considered. But ... “... a lot of developed nations have got them [plans]; a lot of the developing nations haven’t”, so there appears to be preparatory disaster planning capability but is not universal across the world.

What develops from this, in respondents’ voices, is, “so it is community involvement, it is developing programmes with local countries ... that there is a plan in place ... [for the occasion of a disaster that] NGOs don’t go in and work despite what’s [already] in place”. Respondents were ever mindful of the *localness* that a community holds, and how this should be encouraged and developed, particularly within the NGOs that are in-country. However, perhaps with an experienced-eye based upon working experiences, it is suggested that such plans should be “enforced in some way”. This legal sense of structure was noted by other respondents.

The question therefore is how to get this philosophy into practice: one respondent mused, “But I think it is the command structure which needs to be addressed”. When pushed for this to be expanded – as with other respondents too, they each worked towards stressing the need for an international body that would have widespread authority and acceptance. This is how the United Nations Disaster (UNDR), as depicted by the Viable System Model, came into its theoretical existence.

### 5.1.2 Discussion – (1) An Ideal Solution

While the terminology ‘about the organisation’ was expressed in various terms, the essence became “an internationally recognized body should be set up to regulate [NGO] activities”. Different approaches were suggested: “A framework for community involvement”, “What is needed is a (strong, well prepared and trained) coordination unit – (preferably) from the Government”; something “... to enhance coordination efforts to provide on-time relief, humanitarian aid, and priority rehabilitation”, and that the “UN is the forum that could facilitate development of ‘terms of reference’ for international aid (and I believe they have)”. [This last point, in parenthesis, was not further queried with the respondent but investigated by me: while there are international NGOs in this field, none holds the widest brief *sufficient* to undertake such activities as the UNDR is envisaged to do. The nearest United Nations division with similar but not equal-to or of-full capability is the United Nations Disaster Assessment and Coordination (UNDAC); the ‘UNDAC mobilization and missions’ office is based in Switzerland.] It is surmised that worldwide there are many bodies that might be ‘brought together’ and be working ‘as’ or ‘with’ the UNDR; this requires much further research work.

Another important note from respondents was that “the global community needs to work with these national bodies to set up ... a framework, a process, a protocol, or a system which is immediately put in place when [a] country suffers an emergency”. So the sense of NGO co-operation that this project is working upon is *extended* to encompass a far-wider concept of ‘co-operation’, which further suggests an UN-based functionality is required. The United Nations, serving its role akin to ‘international government’, is extant and prospectively provides the space for discussion about, and construction of, the UNDR from this theoretical ‘ideal’ intention.

### 5.1.3 Discussion – (2) Function and Responsibility

Respondents were clear about how the ‘UNDR’ should work, in terms of the way multiple agencies should comply with any sense of legal structure; this sense of legality is not further discussed, but the sense of ‘terms of reference’ (TOR) does take the focus.

One respondent strongly stated, “Every relief agency should abide by the code of conduct by the governing body and should be sanctioned accordingly or licence withdrawn”, which is stringent and strident but perhaps addresses their perception of what NGOs have performed as in earlier disasters. Many respondents held some critical positions about multiple agencies, and sometimes proffered a research route towards dealing with such issues. One reported, NGOs should be seen, “Meeting the needs right – so, can someone out there do a needs survey for the survivors based on their socioeconomic status?” And, likewise, NGOs should be doing, “Providing a systematic and well-co-ordinated aid (package) – can someone out there help the government systematize and coordinate the aid flow?” The situation being addressed here came out of the Typhoon Haiyan (locally known as ‘Yolanda’) disaster that hit Tacloban in The Philippines, where the respondent was *in-situ* at the disaster front: evidently a real situation observed by a front-line worker that was not being fully resolved by NGOs. So there are continuing practical matters that this project’s intention can begin to address, and the function of the *Multi-Agency VSM* is part of this activity.

Another practical input suggestion that the VSM can address concerns the general understanding about potential and high-risk natural disaster areas: the recent earthquake in Nepal, 25 April 2015, and the subsequent earthquake, 12 May 2015, highlight a number of urgent ‘knowledge-base’ requirements. Information about a location at risk may be available in various libraries, reports, assessment packages, and on the minds of

academics and politicians, but as separate ‘blocks’ that are not networked. There is little chance of a co-ordinated and global approach to tackling the short-, medium-, and long-term needs if not co-ordinated. Another respondent offered this suggestion: that “... a tool that enabled a) an [understanding] of all the stakeholders, b) a way of mapping and logging resources and capacities rather than needs, and c) a common understanding of what the situation is from an appreciative enquiry standpoint” would begin to fill-out the informational needs that are showing as presently void. This is a suitable criterion for *between disasters* activities, by Continental / Regional Bodies (as described in my VSM model at figure 18, see section 5.2). Scientists, politicians, consultants, NGOs, academics, and others, are already undertaking such investigative research – there is no requirement in this project that this becomes replicated; it is the ‘bringing together’, forming the network, and the knowledge links, that this project recommends.

However, “you can do a certain amount of categorising and ... and, pre-emptive determination of what might be needed in a series of, you know ... events ... each one is ... completely specific”, another respondent mused. And this is right. There is the time for talking to stop, and for action to commence.

An interesting perspective was offered by a respondent (holding senior managerial oversight of flooding issues) that, “I think in times when you’ve had that complete devastation, I think that’s a really strong thing for a community just to have that Case Worker or that person, that one point of contact ... someone they can trust” as part of the disaster response provision. This project, through the Viable System Model, proffers the ‘agent’ (Midgley, 2000, p.129) as the ‘co-ordinating pivot-point’ between the NGOs and the community in need, see figure 19 (section 5.2); more about this is

given in the following section. It is important to see the community as people, as individuals, and not as a whole group – this is extremely difficult to do. When a disaster worker first approaches a disaster-hit village that is devastated, broken and half-swept away, it is the people who clamour for help but that group's magnitude is overwhelming.

#### **5.1.4 Broader co-operation ideas**

There were many throw-away comments or asides in respondent's interviews and questionnaires, all of which hold resonance or pertinence towards this project's overall provision; many are of first-hand reports or heart-felt requests. It is important to report some here, though their implementation or further research action is outside this project.

About 'job's done' attitudes: "... some people [NGOs] just leave ... there is an enormous gap ... and one would expect the UN to provide, if you like, the 'glue', ... for making sure those people [NGOs] come back, or get back, or someone takes their place ... and that situation is monitored from day one". This is a point that bears research but where a NGO were to 'suddenly' leave in the present conditions, rather than in the 'ideal' situation of this project, there are ethical and moral behaviours to question.

About 'transparency': "... is a real challenge for aid agencies, and we are all working towards better practice. However, there are real challenges in delivering speedy aid often using local partners who do not always have great capacity and may not always meet all of the strict criteria applied in the due diligence process". The fundamental point concerns how NGOs network with each other, and where there is no 'formal'

structure, that earlier call for ‘control and manage’ or oversight, so no-one can really be held accountable for their part towards overall disaster recovery management activity.

About ‘trust’: “... between the parties involved”. This is a very loaded phrase: there are a number of interested parties – the disaster-hit community, the government of the country affected, the sense of law and order (consider the Haiti earthquake 2010 issue where the American Marines undertook such tasks, against vigilante groups), and the multiple agencies coming in to offer humanitarian assistance. There is no single answer to deal with this point.

About logistics: “... how to address the complex logistics of disaster response. It is well known that it has to be coordinated and integrated but there is space for ‘how’”, and a suggestion that “any depots set up around the globe ... in order to provide these resources in emergencies” are valid contributions, particularly as scientists report that natural disaster events are likely to increase in number (frequency) and become more damaging (intensity), leading to greater devastation. Rapid deployment of goods, from strategic points seems sensible. “One of the things which surprise me, there doesn’t seem to be any sort of seaborne ... response. You could actually carry a lot of these goods on bulk carriers because a lot of them are being retired ...” and these could be berthed strategically near potential hot-spots. The International Red Cross (IFRC) has been reviewing such a policy within Africa, and established some warehousing facilities containing goods of the type needed locally for some climatic disasters.

About “an ounce of prevention is worth a pound of cure”: from most major disasters there are many reports published, which offers recommendations and solutions to alleviate the greater suffering a community endures. A respondent gave, “one possible



efficient and useful strategy to prevent big losses/casualties and important socioeconomic disruption would be good campaigns of preparedness and early warning systems to sensitize and educate communities in disaster-prone areas”. There is a lot within this statement, and all worthwhile for intervention work, but *natural* disasters – the context of this project, tend not to give pre-warning signs. Many developing countries have few ‘excess’ financial resources to address the substance of what is suggested; First World countries, similarly, are facing fiscal constraints [circa 2007-2015], with humanitarian aid budgets being targeted very precisely towards health, education, women’s rights, children’s services, and the like – all admirable, but can only indirectly address resilience matters, which this statement is really suggesting.

About government: one suggestion concerns the controls that countries ‘continue’ to exert through Customs & Excise, in the immediate post-disaster days.

“So it’s, it’s a clear and immediate problem: you’ve just got that permission [to help], there shouldn’t be permission: it should be automatic and it should be implied – we’ve got an emergency, we’ve agreed, please come in and do this. And it would cut maybe as an extreme anywhere from three to seven days, 10 days from the start”, comments one respondent.

This is a highly complex situation, as the April 2015 Nepalese post-earthquake state highlighted: the Nepalese Government indicated that it required exact details of what goods were being brought into the country through the only (and limited-capacity) international airport (*c.f.*, BBC News, 2015). This caused, as was the case for Haiti 2010, a vast hiatus in processing inbound humanitarian goods and the vastly restricted dispersal of those good to needy recipients; NGOs were unhappy and sought matters to be expedited.

Where a government, whether in Nepal or Haiti, or elsewhere in developing countries, apply strict compliance to ‘rules and regulations’ (red tape; bureaucracy) in times of extreme catastrophe, they have to expect some criticism. Unfortunately, and particularly so in Haiti 2010, a government itself may have suffered catastrophic failure: this issue is complex. One respondent noted this point of criticism, that “since disasters are a result of the overall political and socio-economic situation, compounded by the impact of a major event, ‘preparation tools’ would address all those matters”. I am unable to make or confirm such an assertion via this project, but rather emphasise that humanitarian development projects address such matters as best they can.

About Information (sharing): “So there is an enormous amount of information around, but it’s how well it is easy to tap into it, [but] should get increasingly [easier] with Webs etc.” This speaks directly into the thrust that UNDR information should be *open access* and available to all requiring to consult it. There could be a link with the previous point, which helps government get its Customs & Excise data through NGOs’ use of the UNDR provision and uploading their inbound manifests.

There are always many suggestions and voiced-opinions: these few reported here demonstrate the complexity that a disaster produces and the multiplicity of needs that multiple agencies endeavour to address and meet. Some are possible; others are not.

### **5.1.5 Section Summary**

All nine (9) data-set respondents, independently, came to a similar recommendation, such as discussed in this section. The Multi-Agency VSM structure is drawn from

- 1) The need for an ‘ideal’ solution, *and through*

2) Holding a defined outline for its purposes and activities.

Respondents provided their arguments. A number of other issues have been highlighted that provide support and confirmation of what the United Nations Disaster (UNDR) should undertake as tasks within its activities. There is a perception that the notion of ‘networking’ (co-ordination) between multiple agencies, which develops and addresses disaster-hit communities’ needs (engagement), forms a strong impetus for the formation of the UNDR.

These points are now utilised in the design of the three VSM models,

- 1 – United Nations Disaster (UNDR): a Viable System Model,
- 2 – United Nations Disaster (UNDR): South Asian Region, and
- 3 – The Communities’ Engagement with UNDR.

These are described in the next section.

## **5.2 My VSM to the Multi-Agencies**

Now I describe and comment upon the construction of the three VSMs illustrated herein. All three VSMs start to build the systemic intervention sought by my Research Objective. They begin to address the nature and substance of my Research Question with my perception of a solution, thus providing a structural and systemic response for good interventions. This project is working in the ‘ideal’ mode of approach to a natural disaster.

In this section I shall explain the three models with reference to the Figures provided, drawing upon earlier concepts in this thesis. I shall comment on how the models thus correspond to my Research Objective and Question.

This section looks at the precise notion for why this project exists and of how I should set about resolving the issues I have so far uncovered. The Stafford Beer *Viable System Model* (VSM) (q.v., 1985) is utilised: there are three recursions given, which I have devised for this project to represent different organisational levels that are interconnected. This ‘interconnection’ is the vital premise for the sense of co-operation deemed to be ‘the missing’ gap-in-knowledge that the project addresses.

The first two models (Figures 17 & 18) are to be the multiple agencies: the first model illustrates at the global level, for overall management and co-ordination; the second model represents one-of-many units at continental/regional level, creating ‘local’ expertise; both models act for natural disaster recovery management. These two models represent the multiple agencies’ purpose of co-operation that is part of the project’s title. The third model (Figure 19) is devised to bring together the disaster-hit community *with* the multiple agencies, to give the other part of the project’s title – community engagement, in that community’s recovery from disaster and for future resiliency.

My discussion focuses on a number of aspects. Firstly, of how the systems function (at their highest levels), demonstrating the interconnectedness of the model (Figure 17) at United Nations level, *with* the model (Figure 18) at continental/regional levels. There would be further recursions of VSMs directly out of the model (Figure 18), representing *national* levels, to depict *existing* structures of national governmental disaster response departments or international/national non-governmental organisations’ [NGOs], which in this vision are required to be *tied-into* these two higher level models – these further models are not provided here. Secondly, using the model at Figure 19, the discussion gives focus to how the community is given its voice concerning its own recovery and resiliency; however, all three models are connected to ensure that the community

engagement with the multiple agencies' co-ordination is satisfactorily achieved. The purpose of this discussion is to show the organisational systems using their various levels of recursion; plus, in correlating Beer's VSM 'organisational system' to being functionally observed and analysed through the VSM lens. Particular note is of the 'agent' (see: Midgley, 2000, p.129), a 'key person', in the model at Figure 19, who holds and has the sense of a 'kingpin', giving the community its capacity for engagement, against which is needed the multiple agencies' co-operation. This is the project's required attribute for future disaster management praxis giving good response and ultimately increased resiliency.

### 5.2.1 Overview

Across this thesis I have alluded to the circumstance, that – based on the premise of this Project, the sense of the multiple agencies' capacity of being 'integrated' [*the sense of cogs seamlessly mashing together, as in a car engine gearbox*], to co-ordinate together early enough at the beginning of a natural disaster, is not present. This leads to the consequential failure of co-ordinated responses to the disaster-hit communities through their *waiting longer* for the comprehensive and adequate disaster response they need. This is expressed as a lack of, or no full and developed, connectivity between response organisations – NGOs, UN, Governments, and with the Government of the Nation affected. This is explained by me in the form of two *missing* elements, as considered through this project.

The first missing element is the gap in *practical* knowledge demonstrated by this research project. Part of the explanation (anecdotally) is that multiple agencies, in and of themselves, are bounded organisations: their wider outlook (generally) to integration

with other organisations is anathema. The impact of this anathema is based in part on funding, structure, history, and an often innate sense that they do not seek too much contact from elsewhere that might taint, influence or reduce their own activities' input; these particular issues have not been further explored in this project but would prove a useful proposition in other research. A further explanation would be based from within the numerous reports published *after* disasters, which seemingly are not used towards a systematic approach of investigation and design-improvement of process.

This is reflected, in turn by the second missing element, through the gap in *academic* knowledge, such as:

‘a paucity of validated information and of process-sharing’ (for example, see Preece *et al.*, 2013); or

‘rapidly-evolving National security conditions to address and to reflect changing social climates, i.e. political, environmental, civil/social, climatic, religious, etc.’ (for one illustration, see Albores and Shaw, 2008); or

‘the need of including more use of theoretical management models, which provide a sense of comparability tooling for studies and for assessment’ [here using, Viable System Model (VSM)] (for example, see Brocklesby, 2012); and

‘development of information resources concerning post-disaster situations for the community in need – for recovery and resiliency strategies’ (for example, see Yamamura, 2013).

These ‘gaps in knowledge’ have been begun to be tackled through this thesis.

However, generally but sketchily, there is the sense that such multiple agencies (NGOs and governments, for example) keep to themselves, to shun external influences, especially when – with charitable status or similarly-advantageous tax benefits governing their business activities, being associated with other organisations might prove problematic. A number of respondents in my data-gathering exercise ‘intimated’ this to be the case. But the days of a small NGO working in limited circumstances with a small budget, and alone, are far gone. Many NGOS now have international bases, work with significant budgets, funding, workforces and influence, across many Nations, and particularly through working in those Nations termed as ‘developing’, where a high proportion of natural disaster activity is focussed. With the two-fold concerns for humanitarian workloads rising, brought about through actions of civil society failings or of climate change, and of the rise of destructive intensity in natural disasters of all types across the globe – where, often, many tens of thousands of people require support, the need to have something created that acts as a co-ordinator and is applied *as the international-reach body* begins to now make sense. There perhaps is required *a change of philosophical working* within these multiple agencies, towards an engagement between themselves comprised of co-ordination purposes: a useful focus for later research work.

### **5.2.2 Current Response Provisions**

The United States of America created the Federal Emergency Management Agency (FEMA) to manage all forms of emergency need and response across that country. The International Committee of the Red Cross and associates similarly are working on plans for their own organisation’s support and response activities. But much of this activity is directed toward a specific geographical area or for a particular emergency response

organisation against its own mission statement and goals. The United Nations (UN) has established, through its Office for the Coordination of Humanitarian Affairs (OCHA), its ‘United Nations Disaster Assessment and Coordination’ (UNDAC): see section 5.1 above for further context and explanations of its activities. This responds with a team of people experienced in emergencies to any disaster event. The UNDAC provision is of experienced personnel to provide *a first phase rapid response system* to the country involved, and of co-ordinating inbound international relief (UNDAC, 2015).

But much of this, it seems to me, needs to be brought together – at least, as in *through comprehensive connection of global ‘communications’ of (disaster data) information and processes, gathered for analysis, and then shared* – in order to provide a fuller and stronger, earlier response to a natural disaster. This concept is a significant theme from my own data-gathering instrument. Through the Multi-Agency VSM Models, the elements of scientific data about an event occurring ‘now’, with the global coverage of my proposed UNDR (see below), of the extant processes of UNDAC, plus the Communities’ Engagement VSM (see below), there would seem to be provided a greater comprehensiveness of (natural) disaster management, which has currently appeared to be fragmentary. Addressing these issues is the crux of this project: it looks at high-level governance and support infrastructures, brings in the local community’s participation, and is framed with the Systemic Intervention ‘umbrella’. The project’s Exploratory Proposition can be tackled. As a theoretical project, seeking the ‘ideal’ position, it lays out a design strategy for a new UN Division, which incorporates continental or region levels with community inclusion, to ‘fill the practical gap’ identified in this research; following publication(s) will begin to ‘fill the academic gap’. This research project and my thesis are offering the start and contribution to this process. The practical and academic gaps are here being closed, by explaining the



needs for co-ordination and cohesion of intra-organisational levels (academic), with the proposal of a design criteria inspired in systems thinking: thus by using this, to suggest a feasible design for such an organisation (practical solution).

Next I explain the ‘Global VSM to the Multi-agencies’, followed by that for the Regional levels, with a summarised position about the integration with existing National multiple agencies; to explain the Communities’ VSM and its purpose toward the longer-term perspectives now outlined here; finally, providing a brief summary of this section. Within each of these sub-sections I give each VSM its title with a detail of its role.

### **5.2.3 Global Multi-Agency Viable System Model (Figure 17)**

The United Nations has many existing structural divisions, and also contacts with all Nations across the globe. While its budget depends upon all Nations paying their financial (membership) dues, often it is Directives of the General Assembly or the Security Council that provides the impetus to a Nation(s) to undertake a specific action, for which that Nation(s) will provide funding to meet the terms of the UN Directive. In broad terms, the UN does not fund activities but seeks funding support from its membership to finance projects. It is not the purpose of the two iterations of VSM suggested here that they become significant financial functions, requiring massive funding resources to undertake disaster management: this attribute remains with the *existing* multiple agencies across the world, in conjunction with National fund-raising and Governments’ expenditure. The essence of this point is that – fundamentally – the addition of a further division at this level should not incur exponentially higher Nations’ (membership) dues. The principle of the VSM at this *Global Multi-Agency* level is in receiving timely global data and information concerning ‘natural disaster activities’, of

making assessments, in judging needs, and considering such needs against standardised criteria for which Nations' Multiple Agencies would best-meet such needs, and then disseminating this information as a resource for those Multiple Agencies to begin their interventions.

While this provision might, at first thought, appear to be 'an administrative function' that adds complexity to often highly-complex interrelationships dealing with any natural disaster, it is exactly this global 'connection' that is highlighted as required through this project. One of the issues that are now highlighted here concerns an NGO being bounded to itself (for various, reasonable, reasons), but this project is addressing a global situation: this is a meta-systemic level situation requiring a truly global function. The consequence drawn therefore is that such 'an administrative function' is necessary, though not to be perceived as or to become a bureaucratic activity. The 'added-value', however, that comes from this design strategy concerns the primary key services for each level of recursion – that is, first the UNDR, second the continental/regional level, and third the community engagement models discussed below. There is the synthesis processing and diffusion of key disaster information throughout the collective state of these models. The use of cloud computing and electronic devices is part of this design proposal. This is about open sharing of information that will help and advise the end-user, whether this is an NGO, a disaster-front worker, or the various management teams who seek to improve processes for the community's benefit. It is the opportunity to open networking processes, to promote these and to develop co-ordination, rather than to continue a pattern whereby an NGO holds to its bounded condition.

Today, across the world, Nations have their own technical and scientific capabilities in monitoring, measuring and observing natural disaster progressions, i.e. tsunami

monitoring units now placed on the seabed around the Indian and Pacific Oceans, sensors implanted on volcanoes to record seismic activity, and so on. The data from such monitors is gathered and transmitted via many electronic modes to central offices; assessments are then made regarding potential disaster implications. None of this activity would change, other than to direct data suppositions or potential (disastrous) outcomes towards the Global Multi-Agency body for rapid assessment against standard criteria, and intervention procedures implemented.

Of this global-level VSM, its activities are various but precise.

- 1) To become that of a *depository* resource for the international community, gathering-in and collecting early data of, say, seismic activity with assessment information from the scientists and scientific observations as to nature and degree of threat to the relevant community.
- 2) To be the *agent* and co-ordinator of internet resources – both of databases and of information traffic. The concept here concerns that the World Wide Web (WWW) has increasingly becoming *the* tool of communication. It provides the viable and valuable access-point for disaster-fronting NGO staff.
- 3) To be the *instigator* of good academic, technical, and practical communications using databases built out of the expertise of the international community to develop greater (natural) disaster awareness. The vision here is that these communication data are open-source and readily accessible to all well-intentioned users.
- 4) In VSM-language, the ‘*co-ordination*’ point [shown as a blue triangle in figure 5.1 below] is ‘S2’ or ‘System 2’, and is “the Regulatory Centre for the System-in-focus” (Beer, 1985, p.68). Beer notes the ‘S2’ purpose is to be ‘in

touch' with – in this instance – all the Continental/Regional desks in the Global Multi-Agency, that is having overall contact with *all* of 'S1' or 'System 1' (my 'multiple agencies'). These are the 'primary desks' of action and direction, and become the relevant 'go-to' desk for help and management within the 'UNDR' headquarters, when there is an active natural disaster for that desk's sector. This 'co-ordination' point's activities would include addressing the whole organisation's intended purpose to 'co-ordinate' and 'standardise' the disaster response mode into disasters from local and international multiple agencies. So the role of global development of a) conflict management tools, b) information and communication standards and protocols, c) shared databases processes, and d) shared norms regarding how to act in a disaster situation, are active elements. These are 'S2' activities; such a list is not limited but would be viewed as 'global', and is not a specific or exclusive role.

- 5) Beer notes "the management of complexity" (1985, p.21) and discusses how 'S2' or 'System 2' addresses this as being "one such subsystem" (*ibid*, p.31) that has its own language and functionality as management. The matter of management is not as 'control', but is as guiding and directing to achieve the best possible outcomes. This concept is important here – especially within the first recursion ('UNDR' model), as natural disasters do not 'recognise' that when one occurs the next has to 'wait' until the first is 'sorted out'. There is inherent complexity – Beer uses the word "variety" (*ibid*, p.35). The use of electronic, rather than 'paper', modes is vital. That complexity will exist, is inevitable; its management requires the best possible solutions.

So this is a description of global-level activity that concerns co-ordinating actions and/or resources through this international centre, but not undertaking any implementation. Implementation is undertaken by a) the continental or regional units and specifically by b) the extant multiple agencies, such as OXFAM, Islamic Relief Worldwide, and Médecins Sans Frontières (MSF). The overall achievement point is that best practice, enhanced learning, and well-developed activities for *initial Relief*, *Recovery*, and *Resilience* bring change for communities in disaster need, to begin to radically reduce response fatigue, and to give resilience where needed.

#### **5.2.4 The ‘to and fro’ of multi-agencies’ data sharing**

Nations facing a natural disaster may be able to manage locally the early stages of an event, but too often events escalate out-of-control and overwhelm National resources. The onset of a disaster would be notified to the Global Multi-Agency body, which would then begin to make assessments and judgements to likely needs – based on prior knowledge and of earlier extant data and information. One constituent of the overall activity for this Global Multi-Agency body is not to re-do, duplicate or to replicate any activity undertaken at lower levels, by the scientific or technical or academic levels; rather it would be collating and disseminating valid results that allow good actions to be undertaken early-enough. Clearly there remains a deficit of process and procedural structure here against this point in this project but it is not part of this research activity, and would be placed in the hands of those competent to undertake the tasks needed.

#### **5.2.5 United Nations Disaster (UNDR) – a UN division**

The principle body, established at UN level (with global oversight responsibility), requires international consent and a robust mandate actioned by the UN General

Assembly. I name this body ‘United Nations Disaster (UNDR)’, to reflect both its international status and the precise purpose of its task. The name and its abbreviation are taken from its being an international United Nations’ divisional organisational structure that deals with disasters but additionally reflects the broader requirements of *initial Relief, Recovery, and Resilience* for and to the community then hit by a disaster.

While this project is definitively addressing *natural disasters in developing world countries* – for the reasons described throughout this thesis, I would envisage and surmise the organisational structures described here would activate taskforce operations within any properly defined disaster situation for which either the scientific input data indicated support activation or when a Nation sought its help. It takes its place as an organisational division at the UN Headquarters in New York, USA, and receives budgetary funding from the UN General Assembly – funds devolved from UN financial (membership) dues. UNDR’s line-of-responsibility upwards is to the UN Secretary General and the General Assembly, and downwards to each UN Member State.

The UNDR’s remit – given here broadly – is two-fold. 1) The receipt of appropriate (natural disaster) data from external extant and future scientific communities allows assessment of risk to human life, potential damage to property and environment, and requirements for interventions to support or defend both at national and international levels. 2) To then issue instructions to the relevant ‘Regional Multi-Agency’ body with sufficient information to activate interventions into the pending or in-progress disaster.

Such precise activities cannot here be detailed, as they include the requirement to understand the scientific data input, technical capacities on building codes and ecological statuses, and to-have-at-hand *the interventions’ manual* (which presently

does not exist but which would direct the organisational requirements). A later activity, but post-disaster, would be the collation of relevant data, knowledge, and interpretation about a particular event, to produce a report to the UN General Assembly of results and actions undertaken, and importantly proposals to upgrade and improve process and interventions against future (similar disaster) events. This latter activity would increase knowledge of what happened and assist with developing better future responses and interventions, to aid an affected Community.

Taking up again VSM-language, the United Nations (as the corporate entity) is Beer's 'System 5': this plays the oversight role, as it does for all other UN divisions. The 'UNDR' (headquarters and its management team), are 'System 4': overseeing its activities and being the link out-to and back-from the external environment; it also takes the 'future look-to' forecasting perspective. Within the 'UNDR' ('S4') itself, the other 'Systems' reside: 'System 3' functionally takes-in data, prepares such for management, and directs information to 'System 1' Continental/Regional desks; and 'System 3\*' ensures that what is sent in terms of data and information is correct, is delivered to the right desk, and that protocols etc. are undertaken and performed as designed, and to report against any discrepancies or failures. The 'System 2' and 'System 1' are respectively treated in other parts of this chapter.

'System 2' is the 'co-ordination' activity discussed above about the role of the UNDR. 'System 1' is the Continent/Regional desks and the subject of figure 18 below with my commentary there.

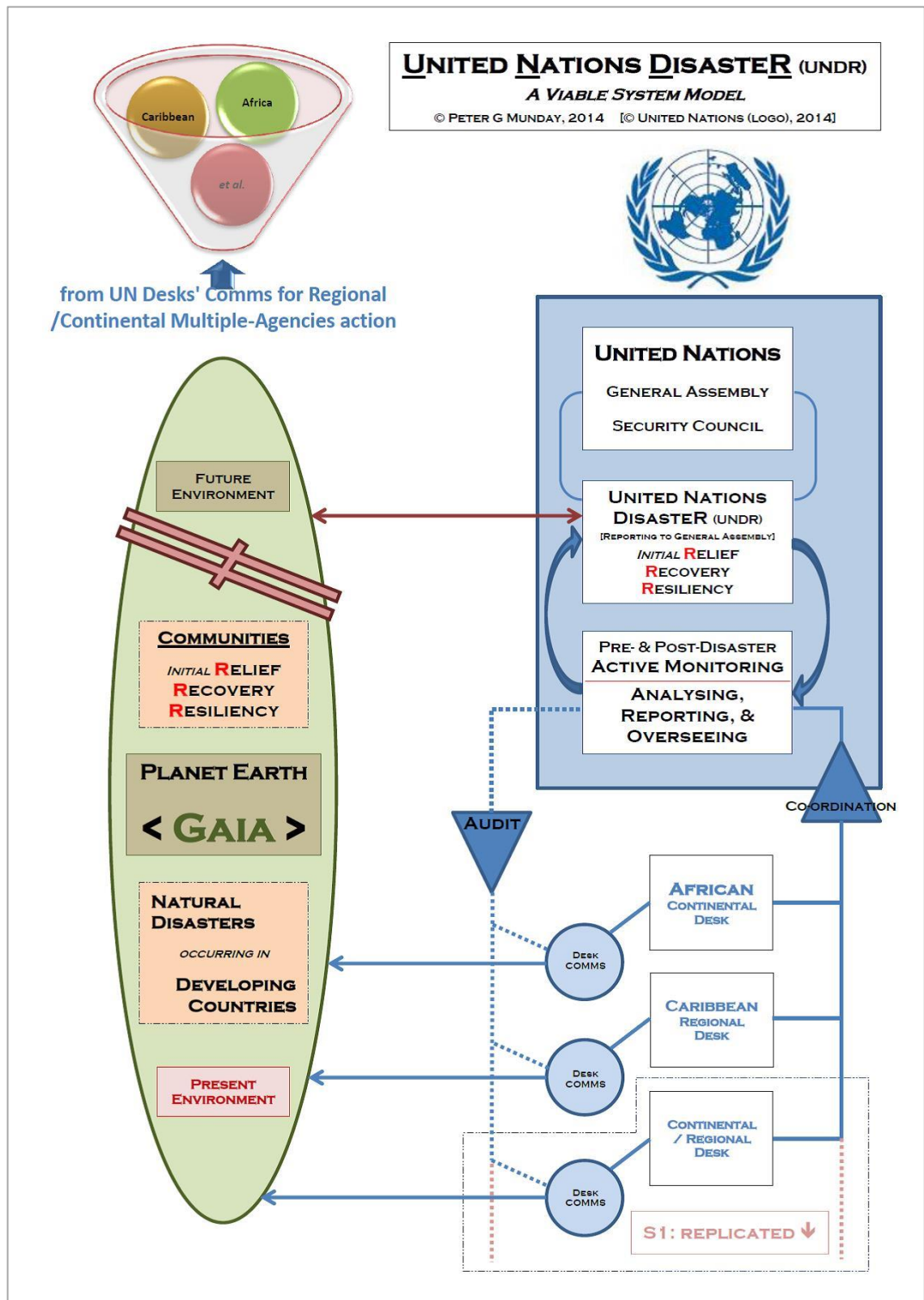


Figure 17 United Nations Disaster (UNDR): a VSM (Munday, 2014)



A further activity, for addressing disaster intervention requirements to a Regional Multi-Agency, would entail assessing the likely international impact of the event: as such, this activity becomes *the core of the organisational identity* at this global level (figure 17). This might reflect the risk to human life across more than one Region. For example, of the effect a tsunami might have to coastal regions of Sumatra, Sri Lanka and southern India, and of East Africa (as was the case in the Aceh 2004 event) and thus would involve three Regional Multi-Agency bodies; or, of how the volcanic ash, spewed high into the atmosphere and moving along ‘trade wind routes’ could affect northern Europe, or western Europe, or eastern States of the USA, or a combination of these areas, and thus involve three or four Regional Multi-Agency bodies and potentially others because the impact can affect the transit-flying-routes of aircraft through the affected area(s).

The nature of the disaster and of its location, and of the (unique) circumstances required through the life-cycle of each disaster, might require that international support – in the form of fund-raising or gifts of humanitarian and disaster support products, is garnered; this should be assessed against the established standard criteria created by the Global Multi-Agency body and be communicated down to Regional level as necessary. Within the simple writing of this paragraph there lies a complexity of administrative process details that just cannot presently be itemised; such work evolves from the activities of the processes once instigated. I have endeavoured to highlight top-level requirements that would be developed if this ‘UNDR’ proposal was implemented. The point here is that a themed structure is offered now, for later development.

There is always the potential that either of these Multi-Agency VSM structures creates a life of its own and becomes unwieldy: this is not the intention of this writer or a goal through this project. It is because of such cumbersome circumstances that this project

took its life, due to disaster-hit communities not gaining the immediacy of support required to find viability. With the advent of both the World Wide Web (WWW; Internet) and of improving international communications' systems – for example, facilities such as satellites and Global Positioning Systems (GPS) covering the globe, it is possible to envisage the Global Multi-Agency body not outgrowing its necessary structural boundary. The 'necessary structural boundary' means that the office structure and its activities do not become over-wieldy or start to duplicate activities carried out at side or lower levels to itself; the 'office' function at UNDR is *not to do* intervention but to communicate with accuracy and speed to its-next-level-down bodies that do have capacity to 'control and manage' and to engage and direct primary NGOs to the disaster front. So to address this concern, the process of support stemming from the UNDR in New York, USA, needs to be concentrated but small in terms of its administrative activities. With the development of 'cloud computing', of much material being (deliverable in) electronic formats, and taking an ecological approach toward new working practises, the so-called 'paperwork' should be digital, allowing its dissemination as open-source material as earlier noted. With the UNDR undertaking more of a directional role there is no requirement for it to undertake any disaster-front activities or to offer any micro-management of Continental/Regional Multi-Agency tasks. Therefore, at this level, the UNDR should remain succinct within its role and always to assign tasks downwards; its boundary should be precisely defined and adhered to, it should not be viewed as 'controlling' but as 'sharer' with its global partners, though clearly taking a primary-task position – point-of-initial-information.

This point is particularly important. Taking such a Viable System approach to this organisational design implies understanding and acceptance of these criteria. It represents *serious* change of comprehension and implementation, compared to more

traditional designs. While management *per se* has and continues to hold herein its role, this cannot be hierarchical or ‘top-down’; the form of management migrates to this project’s ‘co-operative’ perspective that is viewed as being the gap-in-knowledge uncovered here. So, whether sharing supplies of first aid kits between NGO workers at the disaster-front, or of providing open-access data from scientists via the UNDR ‘cloud’, the achievement is better aimed, less bounded, for the needy person in the community. The UNDR ‘partners’ in a whole schema, is not a ‘head-in-the-boardroom’ issuing directives; thus it plays its role with the corporate whole for disaster recovery.

Two points of view may be taken about the UNDR’s ‘role’ and about how it does what is intended. One would go with Stafford Beer’s stance that “the rules come from System Five ... by creating a corporate ethos” (1985, p.124): suggesting ‘togetherness’. Another is in taking the ‘commander’ position – such as intimated by Peter Senge’s book chapter ‘The Art of Seeing the Forest *and* the Trees’ (1990, p.217ff; original italics): he opens about past-US President Jimmy Carter being “a victim of complexity” (*ibid*), wanting to know about everything and losing all sense of perspective about much. The Beer point is what is intended for the UNDR, even though there is also some activity – a difference about the ‘precise’ *expected* tasks of ‘S5’ from VSM’s ‘traditionalist users’. This ‘more hands-on activity’ is a necessary part-of-process for the whole (but *unbounded*) disaster recovery management schema that is UNDR. Such activity is the collating of outside-generated information and data, consolidating data, and directing data to a relevant Continental/Regional Multi-Agency *for its activation* into its action plan for the natural disaster in its zone.

There are many (scientific) databases (e.g., Altay and Green, 2006, lists some of these); the data is helpful but located separately: the UNDR’s (*probably automated*) process

gathers and garners information through algorithms for allocation to match established criteria. By ‘inserting’ the outcomes or results – geographically based, into zones and disaster type, the process identifies the relevant Continental/Regional Multi-Agency body for action.

Consequently this *Global Multi-Agency* body is intended and designed to be the beginning (or at least, the collector or collator) of internationally gathered data, to make scientific, resource, and financial assessments against agreed standard criteria, and to disseminate appropriate requirements and plan-of-action down to the relevant *Regional Multi-Agency* body (or bodies). Having set the *Regional Body* into action – about which see below, the UNDR will receive-back knowledge about the disaster, what action plan is activated, updated local knowledge about the disaster and requirements, and make further assessments. This creates, develops and enriches the knowledge base (situated ‘in the cloud’, available as open access to users) for strengthening the disaster recovery management strategy, and in encouraging stronger policy debate for the UNDR itself. Then, post-disaster, the UNDR gathers all relevant disaster information, and prepares to report to the UN General Assembly with an analytical document for discussions.

The level below the United Nations Disaster (UNDR) comprises Regional Multi-Agency bodies. These are located one to each continental or regional zone of the world and take information communicated by the UNDR in New York, USA, and begin to implement an action plan. In the next section I describe the activities of one Regional Multi-Agency body, using that for the South Asian Region (Figure 18).

### 5.2.6 Regional Multi-Agency Viable System Model (Figure 18)

The purpose of each continental/regional unit is to take a) the functional and organisational ‘point of contact’ for natural disaster recovery management in its area, and b) to provide the structural capacity for its role as the regional co-ordinator with the numerous multiple agencies that exist in nations across its region. This task is not underestimated of its complexity or its needs for excellent communications and dialogue across its area of activity. It acts with authority to engage and to commence disaster response activities, in concert with the relevant local national government. At this level, the continental/regional unit has two prime tasks: 1) to create a standard plan of response by locating and ascertaining strengths of NGOs (a database), and 2) in receiving communications from UNDR when notified of a disaster type and location. These points are described following.

Receiving information and data from the *Global Multi-Agency body* – such as, disaster location, type, anticipated needs, requirements for outreach (to other Regional Multi-Agency bodies given the nature and expectation of support needed, etc.) is its main role. This is the key activity for which the body is designed to manage. The role also consists to establish early contacts to the multiple agencies, for preparations to be made, raising awareness that systems and processes, goods and services, funding and personnel, are required against any specified disaster across its region. Establishing both the principle co-ordination body and its remit (including funding structures, plant and equipment, personnel, and legal status), and that it covers the whole Region or Continent with full acceptance by all constituent Nations, remains a significant task to achieve. However, it does not create disaster relief, response or resilience bodies (multiple agencies that do the actual disaster event work) as these are those in existence; its role is co-ordination and co-operation enhancement. As with the Global Multi-

Agency body (UNDR), all Regional Multi-Agency bodies will hold knowledge about natural disasters – type, potential locations, resources needed, etc., with emphasis to its own area. A prime role is the engagement of all relevant multiple agencies that will be required to respond to specifically-identified disaster types. An application of disaster type and all anticipated or potential components, per each regional disaster type, begins the process towards meeting disaster-hit communities' needs.

Such a prime role is initially an administrative exercise while building-up the database resource, but which is developed and enhanced with time, experience and innovations from later responses. As an example, by preparing emergency shelter and accommodation kits, then situating these at pre-selected reception points (once disaster locations are determined and survival points defined), disaster survivors have something to go towards; survivors would be informed of reception points via social media and other public announcements.

The purpose therefore is to have necessary response support available when and where required, to alleviate the conditions all-too-often observed in television news reports of survivors struggling for basic disaster support – which often takes days or weeks to be gathered and trans-located across the globe, during which time people's health conditions deteriorate unnecessarily raising the death toll.

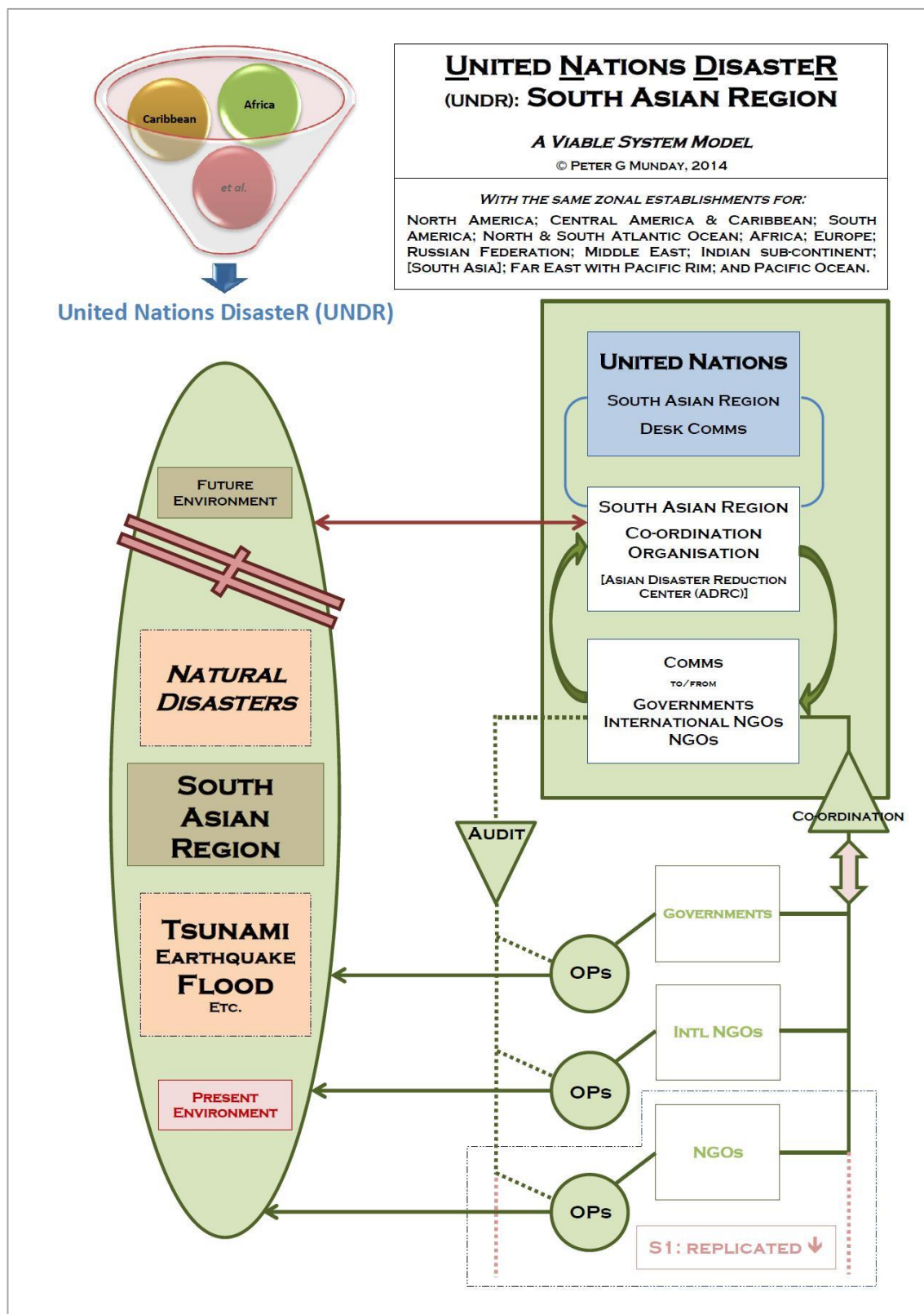


Figure 18 UNDR: South Asian Region, a VSM (Munday, 2014)

Fulfilling a similar activity role as its ‘parent’ at the United Nations, each Regional body will become expert at the vast administrative task entailed but allowing the multiple agencies within its zone to quickly activate and begin engagement with the disaster-hit community concerned. As has been discussed in earlier sections in this thesis, often referring to the Haiti January 2010 Earthquake ‘debacle’ of disaster recovery management responses, the purpose is to alleviate and to reduce the previously identified conflicts and constraints in disaster aid delivery. Thus, because (to the best of all endeavours) this would ensure that *all* the requirements of, say, a water storage and pipe-distribution system within a camp (for example, Stourton, 2011) are made available on time to service the needs of intended users. Stourton talked with a UN staff member, discussing water tanks, pipework and taps/standpipes, but was told that the vital connector for pipe-to-tank was not available, therefore water and sanitation needs where disaster-hit people faced poor hygiene and potential health hazards, were not met.

### **5.2.7 South Asian Regional Multi-Agency – its activities**

The creation of this organisation, funded locally (where possible) so that all Governments and NGOs take ownership of its role and tasks, and being situated at a geographical point suitable for good (electronic) telecommunications and ‘disaster-safe’, needs the same structure and processes as all other bodies. The point about ‘sameness’, though locally-appropriate, concerns the transferability of staff in the event one body goes out-of-action or needs to have staff brought in from other Regional bodies, or that other Regional staff can remotely take control of electronic communications and systems processes to direct tasking *in extremis*. It is the sense of holding ‘transferability skills’ of personnel into any body that ensure smooth operations and timeliness to tasks. One principle concerning all *Regional Multi-Agency* bodies is



the accumulation of local knowledge by personnel, but also of the local capacity accrued to explore improvement-to-process through addressing local responses.

So, for the South Asian Regional Multi-Agency body [comprising the Nations of Pakistan, India, Sri Lanka, and Bangladesh – the Indian Subcontinent], this could be located at Indore, Madhya Pradesh (India; being equidistant of the extreme borders of the region by straight lines and taking the nearest main conurbation at the cross-point). As its purpose is not to undertake active disaster recovery work, its location relies more on accessible personnel, good facilities, and resources-to-function, plus good telecommunication links: Indore, here, is an entirely arbitrary selection; formal assessment is demanded of any location to site a Regional Multi-Agency facility.

It is recognised that in many Regional zones – as identified for use in this project, are subject to long-term, significant or periodic political tensions. The South Asian Regional Multi-Agency body covers one such area of long-standing political tension. *For the purposes of this project*, such tensions are ignored within this thesis but would inevitably need to be addressed via the process of implementation of the model in due course.

The models' activity, especially that of the activities situated in the regional form (figure 18), should be viewed only as either extra-political to accede to the strength of the wider social and economic benefits accrued, or possibly used as a potential conduit through its implementation as a tool to mediate better and longer-lasting accords which address political differences and National pride. It is not the role of this project, or of the recommendations herein, to represent any political party or jurisdiction, nor to be the instigator of political change: this project is apolitical.

Again, the daily tasks of personnel cannot be identified. However, in broad terms, the activities would include understanding geographically-identified disaster zones and the potential requirements in terms of a ‘variety’ of relevant natural disasters and the communities’ resultant needs to be met by multiple agencies<sup>2</sup>; ‘disaster variety’ is a research topic within itself; it is not further explored herein. This enquiry also includes determining the present level of NGOs’ support and capabilities, of which in-area International NGOs and their resources are available, and of the four Governments’ Departments responsible for co-ordinating natural disaster management responses, thereby creating a data-base of resources. As with the Global Multi-Agency body, all Regional levels would devise their ‘standard criteria’ for use when information and data about (an impending) a natural disaster is received: this ‘standard criteria’ is then used to alert and fore-warn all response organisations as to requirements and location, etc. This leads me to mention about the information and database resource.

### **5.2.8 Information gathered, shared**

There is a further role that any *Regional Multi-Agency* body should take cognisance through its activities, that of communicating – outside disaster events – with all relevant bodies in its Region. Such details as reporting post-disaster information, or making recommendations towards improvements of disaster management processes; or of arbitrating how its own processes are developed to meet changing disaster circumstances. The process also of communicating upwards to the Global Multi-agency body (UNDR) at the UN is seen as vital, so that information is shared more widely. These two ‘information and communication’ tasks are seen as pertinent to the role of

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<sup>2</sup> This speaks to the matter of ‘variables’ and of ‘agents holding and using knowledge and resources’: it is of ‘requisite variety’, such of W Ross Ashby, and of Stafford Beer – who observed that “only variety can absorb variety” (Beer, 1985, pp.26, 35). A perspective of the language of variety, of the ‘variable amounts of difference’ that exist, would be useful in deciphering the complexities of management tasks and activities which NGOs undertake separately – *uncoordinatedly*, as this project ascertains.

these bodies. After many (natural) disasters, especially those situated in developing countries, reports are collated, written and issued: the question is *how* these are then used to improve disaster response, and *by whom*. Without the ethos of a ‘centralised’ body that is specifically tasked with – at least – gathering together such reports, and then making such information and resources widely available, the *developing* countries will continue to face what I might anecdotally-term ‘a lesser response’ (or a less organised or timely response) to their disasters, or perhaps ‘be some steps behind’ the improvements that *developed* countries appear to already enjoy. It should be envisaged this activity is achieved through digital means, including transmission and storage, for ease of access.

More generally, and recognising the inherent risk implied, working electronically throughout both Global and Regional Multi-Agency bodies is seen to be the most appropriate administrative process. The use of cloud computing and storage, where either one agency or multiple agencies as a third-party interface is contracted to hold and make available all resources of these multi-agencies’ data, is probably the right choice. The tenet of open-access and of no secrecy about these bodies’ activities means that, ostensibly, there is no reason that the system needs to be ‘computer-hacked’, because the data is openly and freely available to any enquirer; the effect should be that there is stronger confidence in its robustness and that it remains always available to use.

A further benefit is achieved by storing and using electronic data – via the Internet, to be gained by disaster-front workers and managers. For example, where a local situation develops requiring an immediate intervention, and such an event has previously occurred and is recorded, the various interventions’ or actions’ details used would be accessible to such workers or managers with (virtual) immediacy; thus, a potentially

simple and readily remediated situation does not escalate into anything larger, requiring inevitably greater (possible unavailable at-point-of-need) resources. A feed-back-loop in that enquiry process would then add additional information to that record for future consultation regarding circumstances, actions taken, effectiveness, etc. The principle is intended that the disaster-hit community is the prime concern, so that all agents participating with or using the data seek its appropriate use in valid tasks.

### **5.2.9 How do these Multi-Agency bodies meet my Objective and Question?**

My Research Objective essentially asks about ‘effective integrated processes’ to improve ‘future disaster response’. The recognition is accepted that any sense of potential co-ordination of all relevant parties – as envisaged by the two models here – is a huge international task and fraught with many difficulties and challenges. However, the premise of this project is that *without* such co-ordination being brought into some organisational design it means natural disaster-hit communities across developing world countries will at best continue to face piecemeal (*make-do and mend*) interventions into the future.

My Research Question asks, navigating with the systems approach, how to ‘effectively integrate’ the various multiple agencies – to bring necessary disaster-front and back-office activities to cohesion, and especially at and within a natural disaster event. For the purposes of this discussion, the following aspects are taken to comprise the overall argument: that there are four aspects needing to be considered,

- 1) The people hit by the natural disaster (the community itself, made up of citizens, environment, local ecosystem, and so on),

- 2) The type of natural disaster (as each disaster is unique to itself, with its differing contributory elements),
- 3) The National Government (ultimately the responsible body for its citizens and their well-being), and
- 4) The International Community (that responds to the call for assistance with whatever resources it, jointly and severally, may muster to contribute).

Many natural disasters, reported at international level, are deemed to be intensifying and therefore require interventions and resources that the Nation concerned (often) is unable to fund, manage, or resource through its own Government. It is not so much the *initial Relief* issues that this project addresses, but the following two stages of *Recovery* and of *Resilience*, which is where many of the issues highlighted herein, are centred. And it is these latter two stages that cost vast sums of money, to providing either the *status quo* of pre-disaster position or ‘to create and develop’ the post-disaster position that the community desire – hence the need to have engagement between the community and the multiple agencies, as this project depicts. However, it is those ‘vast sums of money’ that most developing countries do not have and cannot borrow (arguably this latter point concerns fiscal and economic matters and are outside this project’s remit). So, for example, other resources such as internationally-led projects have to be drawn upon via international aid projects and by using humanitarian NGO activities – often funded by developed countries’ taxpayers, to rebuild and to fortify developing countries’ communities against future natural disaster events.

By offering an organisational design in the *Global Multi-Agency* model, pinpointed at the UN, and being created and established with internationally-accepted protocols and

processes, begins to set in *earlier* motion more robust measures, preparing to alleviate (where possible) the greater damages and excesses of a natural disaster's progression. As was observed of the Haiti 2010 Earthquake, one year on, many thousands of people were continuing to live on or near refuse dumps, or within temporary shelters, because the housing stock was razed to the ground or so badly damaged it was unsafe for habitation. Health and education, civil governance, law & order, commerce, and social life, all faced massive interruptions too. One reason for the hiatus was the international community's ad-hoc approach to its intervention programme.

Certainly there were then many significant issues – logistics, a loss of infrastructure, mismanagement and misappropriation of resources, etc. But the tangible task of the *Global Multi-Agency* is to bring order to the process of highest-level disaster recovery management and administration, drawing together all the data resources and presenting the appropriate Continental/Regional body with that information. The *Regional Multi-Agency* then begin the process of 'kick-starting' actual disaster management interventions, through its zones' networking frame of contacts and alerting relevant national resource suppliers to the crisis and potential requirements – here is where 'the local knowledge' is important. Simply-written, it is to get structured action happening for good intervention that reduces the disaster's effect upon the community. It is the community that is uppermost across this project, so a third VSM is offered here demonstrating how the previous two Models become integrated to work with the community and of hearing its voice in the midst of a natural disaster.

### 5.2.10 What of that Community and its Engagement?

The Systemic Intervention approach searches for methods, strategies and tools, which the agent may use to produce a “purposeful action ... to create change *in relation to reflection on boundaries*” (see: Midgley, 2000, p.129, 2003a, p.79 & Footnote 76). Having extensively discussed the theoretical contributions of Systemic Intervention, these two models (Global and Regional Multi-Agency, above), thus contribute as towards the ‘purposeful action’ of Midgley’s Systemic Intervention approach; they begin to bring about the necessary change through the respective interventions that is sought in this project.

But I need also to demonstrate how I sense that the ‘boundaries’ perspective is observed and is challenged. To do this I have utilised a third VSM, as this appropriately depicts the way I wish to bring these executive Multi-Agency VSMs into direct cognisance of who connects with whom (i.e., which social or providing groups), as the natural disaster and its aftermath progresses. These ‘progresses’ are the modifications and transformations that the disaster is wont to wrought across the (natural) environment, about which the ‘agent’ must take necessary cognisance from within the (human) community, by reflecting upon the boundaries being detected across the timeframe. The agent’s *boundaries’ observation* may be of the natural but certainly is of the human environment(s), as is identified in this work.

### 5.2.11 Communities’ Engagement VSM, communications

Meyer and Rowan, looking at ‘institutionalised organisations’, produce a pertinent remark that begins to help what I perceive as the lack of good co-operation of multiple agencies, and of their engagement with the community at dire need. They give that, “...

technical activities and demands for efficiency create conflicts and inconsistencies in an institutionalized organization's efforts to conform to the ceremonial rules of production" (1977, p.355). I correlate this with my earlier assertion – writing anecdotally – that NGOs proffer the sense of not wishing to openly and fully make connections with other multiple agencies due to various business or economic attributes, which lie outside the mission values of humanitarian aid and its provision. However, it is accepted – in general terms – that field-working and disaster-fronting NGO staff do co-operate across agencies' bounded organisations' 'parameters': this is a personal observation, requires further research, and is outside the scope of this project. But this observation derives from that sociological view of organisations, termed 'new institutionalism'. This is where institutions have interactions, 'interplay', across the societal environment they inhabit, and concerns the play of institutional behaviours (dynamics, rules, and norms) by which citizens or employees (i.e. NGO disaster front-line staff) perform their own undertakings, particularly of work interventions.

DiMaggio and Powell summarised their thoughts thus:

"Policy makers concerned with pluralism should consider the impact of their programs on the structure of organizational fields as a whole, and not simply on the programs of individual organizations" (1983, p.158).

Such reflective institutional work could avoid interventional mishaps, such as the Haiti water supply problem that Stourton (2011) reported on, where a simple but missing connecting component meant water could not be properly piped. The ways by which organisations (my 'multiple agencies'; in particular, the NGOs) have developed might be explained in part by the philosophy of 'new institutionalism'. One observation, relating to the Aceh tsunami and earthquake 2004 disaster, perhaps illustrates part of the issue. There was the requirement to build tens of thousands of replacement houses ...



but though “a very large number of agencies [participated] through the community-based participatory processes ... they largely acted in isolation rather than introducing strategic institutional and policy changes ...” (Lyons *et al.*, 2010, pp.135-136). The matter of building houses is not easy and takes considerable time; the inference drawn by me is that better and stronger co-operation with engagement should produce more long-term resilient communities. However, it is the case that a hungry, homeless, hurt, but ever-hopeful, disaster-hit individual holds no care for whichever agency or representative is able to provide the support they desperately need. Obtaining *initial Relief*, followed by *Recovery*, and then having *Resiliency* of each person’s environment (and therefore the collective senses too), is the paramount objective for that individual; providers’ credentials, mission statements, and politics, hold no concern. This is a vital reflection to embrace, and its consequence is why this project exists.

Communities right across the world hold forms of structures, whereby a sense of order, of governance, of communications, is already part of the social fabric. All community members – directly or indirectly – understand and comply with such processes (or, if no compliance, that society then has forms of social controls, i.e. legal punishments and rehabilitation, designed to ‘*re-conform*’ such offenders). A *natural* disaster, particularly in a developing country, has the tendency to (temporarily at least) distort such social structures and norms, resulting in disorder and loss of social identity. However, the social leaders, while suffering themselves, do not lose their social standing, and it is these individuals who continue to represent the community even in its distress. I use a quotation that refers to the USA Hurricane Katrina 2005 disaster but specifically of the New Orleans’ “Vietnamese community in New Orleans East [...] community leaders remained in New Orleans during the storm and subsequent flood, tending to community members in need” while many Vietnamese had evacuated to surrounding areas

(Patterson *et al.*, 2010, p.137). The point concerns that community leaders facing the same dangers maintained their role and gave support to their community. Peoples' vulnerability in a natural disaster does not always mean that leadership qualities are lost. Blaikie *et al.* define vulnerability as "the characteristics of a person ... in terms of their capacity to anticipate, cope with, resist, and recover from the impact" (1994, p.9) of a natural disaster; and I suggest these qualities and attributes are those of community leadership too. Figure 19 below demonstrates this sense of community engagement.

#### **5.2.12 How the Communities' Engagement Model functions (Figure 19)**

The 'story' begins with the environment of the community and that a natural disaster has occurred; there is chaos, destruction, unknowing, fear, and need. As previously indicated, two features occur at this point: 1) extant scientific measuring and scientists' assessments will be underway, and 2) *initial Relief* – most likely from the local district communities and other national disaster management support, will start to understand the situation and make rescue and help available. In this present commentary, the work of international bodies, communication trails, the work of the 'UNDR' (as identified within this project, and its two VSM organisational designs – as described) will set into motion the 'agreed standard criteria' as the action plan to get multiple agencies into action, and beginning their activities.

The *Communities' Engagement VSM* [figure 19] is intended for implementation at the *Recovery* and the *Resiliency* stages, with early work by the 'agent' to be initiated; this is the point where this commentary next moves.

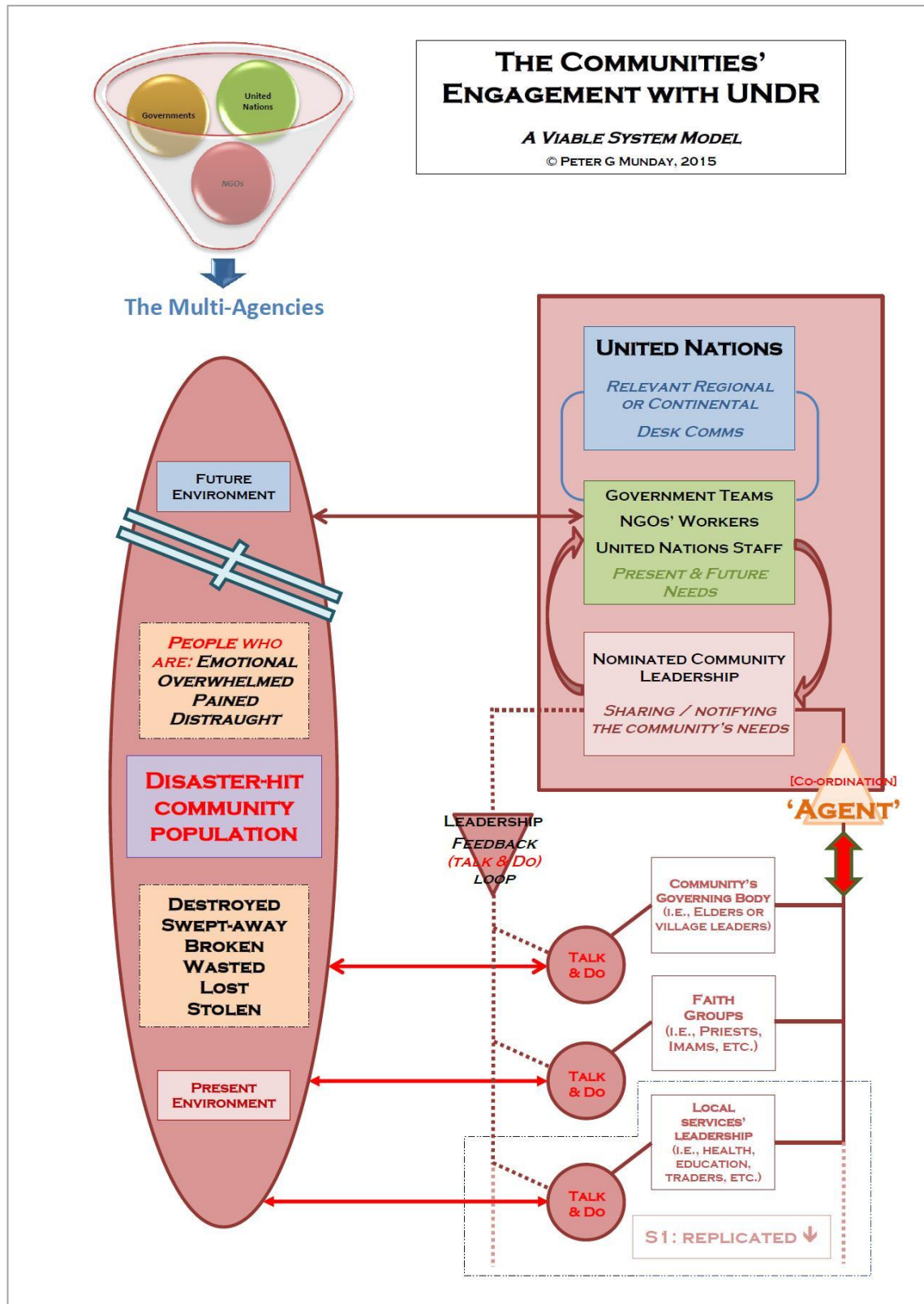


Figure 19 Community Engagement with UNDR, a VSM (Munday, 2015)

The ‘agent’ is likely to be from the appropriate Regional Multi-Agency body, having already acquired knowledge and expertise of the Region or Continent and its particular disaster types and needs; this person would also liaise (and communicate with) into their Regional Multi-Agency organisation. Though *initial Relief* is commencing, the tasks in bringing together Community Leadership for *Recovery* begin; this action also starts a ‘process of comprehension’ about the disaster, of the community’s needs, and of what the boundaries are/would be that need to be explored with the Leadership group.

The principle is of community representation describing the community’s needs through a group of (respected) people, through forming a unit that communicates to and from between their community and the multiple agencies. The ‘agent’ may act as proxy of the multiple agencies, as group facilitator, and as the point-of-contact, channelling communications – an onerous role and position but vital to providing knowledge that is expedited to gain the intervention. The reverse perspective is apparent too: the multiple agencies have a named contact who is known (in Regional Multi-Agency body), who holds ‘disaster-wide contacts’, and can make interventions where appropriate. Local needs become known earlier than might presently be the case. The most important feature of the model is between the ‘Nominated Community Leadership’ directly back to their Community members; this by-passes the ‘agent’ who may be seen as holding other than community sensibilities through their work. By adopting community elders, Faith leaders, and local business people to this representative role, the community know such people and (generally) will have some trust in their capacity to negotiate on their behalf, for the good and the benefit of the community. The ‘agent’ acts as conduit by supplying information to the Regional Multi-Agency body and in requisitioning (so to speak) the community’s needs – which are fulfilled by the multiple agencies assigned into the natural disaster event.

### 5.2.13 Connecting Theory with Reality

I now correlate these positions and roles into Stafford Beer's VSM-language (informed by: Beer, 1985). The environment is that of the disaster-hit community, whatever size or geographical-reach this might be. Within System 1, the operational circles represent the 'talking and the doing' between the community and its community leadership that is management (System 3). At System 2, the 'agent' is the regulatory centre; this is the sense of seeing the overall picture on-the-ground. System 3 – the management zone, gathers the community leadership and 'agent' together to express needs and desires; this is where the Systemic Intervention *boundaries* are noted, adjusted, and resolved; here is also the sense of 'monitoring' the disaster's progress, of how the stages of *initial Relief*, *Recovery*, and (ultimately) *Resiliency* are implemented, taken as the perspective of the community leadership's point-of-view. System 3\* is to represent the position of how the Community Leadership communicate *directly* back to their community; the notion that the community itself is able to 'audit' the actions of their Leadership.

These four Systems (1; 2; 3; and 3\*) are immediate to the disaster event and the environment within which everything is happening. System 4 – the 'outward-looking' element, is the Regional Multi-Agency body, which is concerned with bringing together the requirements of the disaster event (bringing-in the applicable multiple agencies), and by looking into the environment at past, present and potential disasters in order to develop better 'standard criteria' – the notion of a 'check list' that aids the speedier responses into the disaster area. System 5, the UNDR itself, represents two interconnected activities: 1) the receipt of disaster reporting (scientific data, etc.), and 2) the instigation of communications transmitted to relevant Regional Multi-Agency bodies, which contributes to fulfilling its purpose in developing improved interventions to natural disaster events into the future.

### 5.2.14 Relational Intervention – a briefing

A number of viable systems practitioners are researching the concept of *relational intervention*. It is a fairly recent concept under research, in conjunction with the use of VSM (*cf.*, Beer, 1985). There is likewise a psychological perspective within this attribute, alluded to by Beer's foundational research, which raises new interest. Here I briefly introduce my understanding of the concept, though this has not been a principle research 'thrust' across the project. However, it is of importance due to the sense of the 'people connections' that I perceive rests within the term. The human and spatial interaction of community members, resulting from the implicit/explicit disaster confusion, holds research content. The multiplicity of interventions that multi-agency personnel bring into the arena of the disaster event *raises* 'the contextual temperature' of the event. Some of this could be due to 'groupthink' philosophies [Appendix 06].

*What is 'relational intervention'?*

Beer began, post-WWII service, "as an army psychologist" (Beer, 1984, p.7). From his own professional studies and work, Beer's foundational *viable system* work came as "analytical models ... hypotheses set up and tested ... [being] neurophysiological in structure and statistical in operation" (*ibid*). Where human beings are concerned, of their daily lives and activities, there come relationships and connections. Likewise, it may be needed that interventions – for instance, to change behaviours – are enacted (by professional intervenors). The Viable System Model (VSM) extends this theme.

In *The Heart of Enterprise*, Beer refers to 'requisite variety' and that "to preserve requisite variety in our relationships with other people is helpful in ... relationships" (1979, p.103). So there is a strong connection of how people behave (act, interact or react) within situations – particularly under severely-stressful conditions, and that how

other people bring in resources to assist with such situations has implications. This is how I begin to view the part of ‘relational intervention’ that forms a viable system aspect of our (human, personal psychological) ecosystem. I will mention-back to my use of *Gaia* and of how Planet Earth is seen as ‘a whole system’ in this regard (see Chapter 1). For the purposes of this research, this sense of ‘wholeness’ and of ‘personal interaction’ raises powerful emotional forces that are typified by a psychological and innate need to help people in trouble. This builds the argument for Community Engagement (see section 5.2 above).

#### *Characterisation of ‘relational intervention’*

For the purposes for this thesis, as a brief review of ‘relational intervention’, I propose this characterisation of the phrase. That ‘personal interactions between two groups, i.e. one in need and one able to help, become the involvement producing benefit to improve the viability of the needful party ... a relational intervention of mutual benefit’. Implicit, I sense here, is that a disaster-hit community receives that which it requires to bring about their desired position of *status quo* of their situation, gendering improved goodwill and – again – required stability; this reinstates their psychological permanence. The humanitarian offering, provided by multiple parties – often highly culturally-divorced from the disaster site, gain appreciation through their interventions; this brings about a sense of general psychological well-being for those provider people. This, in turn, offers opportunities for *Gaia* or wholeness to be engendered, bringing back the brokenness of an ecosystem to its viable state once more.

#### *Relational Intervention researching*

I have yet uncovered little in terms of published papers across systems studies’ work for relational intervention. Anecdotal notes have directed me towards the book

*Organizational Systems* (Espejo and Reyes, 2011): my scant overview therein picked-up a few references towards ‘relational’ perspectives. Two other referrals, to texts within viable systems’ research, remain to be uncovered. Other disciplines’ publications, such as Purvis *et al.* (2013) discussing ‘Trust-Based Relational Intervention (TBRI)’ as a systemic approach, gives credence to the Beer/Psychology link I referred to above. In *A Complexity Approach to Sustainability* (Espinosa and Walker, 2011), the authors discuss (through Chapter 6) relational issues; of individuals, families, neighbourhood, communities and towns associated with ‘ecosystem’ credentials. So I hold the conviction that a researchable concept of ‘relational intervention’ is viable, and brings together – for my personal researching interests within this thesis, VSM and *Systemic Intervention* (2000) approaches with psychological attributes. The concept here is perhaps tenuous but offers new and developing research prospects, which can bring together the Systemic Intervention approach with my own Systemic Boundary Analysis tool towards further enhancing the use of and capability of Viable System Model.

### *Briefing Summary*

The concept of *relational intervention* has been introduced. It has been characterised for this thesis as personal interactions of mutual benefit bringing about wholeness. A number of researchers interested in its viable systems usage are noted.

### **5.2.15 Section Summary**

This section has given the broadest outline of how the two Multi-Agency bodies should be established, to function; precise detail would be applied once bodies were created. The image is of a globally-interconnected administrative organisation that communicates within and between each body, with outreach to the multiple agencies –



the Governments and NGOs; the UN is here one of the multi-agencies for this project but is the principle focus point in this discussion.

Here, the emphasis is of the highest-level belief and principle of openness, particularly concerning post-disaster reports. Here is an international function, based at the United Nations but activated at and staffed at Regional levels to represent differing local needs and responses. A commentary about how the Models reply to the project's *Objective* and *Question* is given, expressing the elements and what addresses them. This gave rise to understanding the needs of the disaster-hit community, through the intervention of an 'agent' and enacted through the *Communities' Engagement VSM*. This represents the engagement of people in need with co-ordination of the multiple agencies in fulfilling a purposeful intervention, providing greater community resiliency in the long-run. Thus, the purpose of these VSMs and of how they are implemented, for directly responding to people's needs, is the clarification about the effect of Systemic Intervention's *boundaries*. This brings the community its engagement with the multiple agencies' (new) task of co-ordination, reflecting the disaster-hit community environment response to take it into the prospect of a safer future.

For these Viable System Models (VSMs) to function, to correctly address natural disaster situations, there is needed full and co-operative consent from all Nations toward good and rapid, internationally-addressed, disaster management in meeting disaster-hit communities' situational and contextual needs. This requires UN-led discussions to make the theoretical proposals here be realised, to begin the process whereby people devastated by disaster are not left waiting or wanting longer than is necessary. Such an activity becomes this project's 'next-step' research stage.

In having constructed and discussed the theoretical ‘framework’, I devised the three Models discussed in this section to be considered into the practical application of disaster management. The following section discusses how this transition is achieved and brings the voices ‘of the Design Team’ – a small cohort of disaster-field people and of VSM-users, for their opinions to its applicability and worth.

### **5.3 Design Team, a Multi-Agency VSM**

This section seeks to achieve two purposes. Firstly, is to record the establishment of the Design Team to critically review the three Multi-Agency VSMs that I devised; and, to mark the progress of that constituted Design Team and its application. Secondly, is to use the gathered data, from the Design Team Questionnaires, to analyse responses and to show the various themes of interest or concern which respondents provided.

#### **5.3.1 Introduction**

While the Design Team, in its construct, was a later consideration for this project’s design methodology, it has turned out to be a useful contribution to the overall research and of how systems’ methodologies – plurality of methodologies, is demonstrated in practice. The two earlier data-gathering exercises, because they necessarily were combined to form a single unit of primary data and as they strongly suggested the very high-level ‘co-ordination’ structure now visible through the three Multi-Agency VSMs, so this also required testing by knowledgeable practitioners.

The feature of the VSM being exploited within the three models under critique is of ‘organisational hierarchy’. Beer’s publications on his VSM (perhaps) detail the ‘ideal’ to be strived for, in order to achieve effective and efficient operations; the three models

here strive similarly. It is the perspective of ‘co-ordination’ of the multiple agencies, making the ‘engagement’ with the community that is being tested and sought. Therefore the note should be made that, in the view of this project, the organisations (the multiple agencies) are already autonomous, and must remain so. As Boyd *et al.* (2007, p.1316) intimate, “... organizations ... already carrying out evaluations, ... [had] scope for improvement ... practice was *ad hoc* and fragmented”. The suggestion is that developing the ‘co-operation’ theme may offer greater benefits. By association, for the ‘engagement’ theme of NGOs with the needful Community comes the variety of research projects supporting ‘inclusive’ and ‘participatory’ modes of Action Research: for instance, writing to participants “asking a few simple open questions prompting them to express their views as to what would constitute an ideal [provision]” (Walsh *et al.*, 2008, p.138). The Design Team Questionnaire purposefully raised ‘simple open questions’ to find what practitioners really think about the proposed new structure.

The following pages illustrate the framework lying behind the Design Team, plus some issues encountered through its progress. This will include how the questionnaire was designed, the process in forming the Team itself, and of its administration. Then will be presented analysis of the questionnaires, using the questions to give context, and to conclude with a critique of the responses received. Now I describe the overall concept.

### **5.3.2 Design Team Framework**

With my PhD timeframe rapidly approaching its due date for submission, this part of the project required to be actioned relatively quickly and be manageable, whilst providing the best objective approach possible. The Team was required to be of practitioners who had some understanding of Beer’s Viable System Model (VSM) (*q.v.*

Beer, 1985), though not necessarily ‘expert’ of its use, but sufficient to read the presentation and make critical responses. Reviewing the list of participants from my earlier data-gathering, I decided some may be further interested in this section of work. I also reviewed other potential contacts, in consultation with my two Supervisors, whom we knew work within the systems’ field and could also be encouraged to participate. A cohort of seven (7) was decided a manageable number, of a spread across NGOs, management, and consultancy arenas, with some to have knowledge or academic research background within ‘disasters’. The use of two documents was considered practical: an Evaluation package, containing the three VSM models and descriptive passages outlining VSM and of how each model functioned; and to use a Questionnaire, with few questions – six (6), plus two (2) optional – that addressed the three models and how these might be considered for implementation by relevant authorities at some later point. With potential participants again located across the globe, email was used, as this provides direct access to such people. An initial enquiry email with a letter of invitation describing the activity and the Consent Form were issued; receipt of the completed Consent Form meant issue of the Evaluation and Questionnaire documents.

### **5.3.3 Design Team Evaluation (document)**

The document was issued as a PDF, containing text and images across eleven pages. It comprised a number of sections. The introductory passages introduced the overall project (some participants held no earlier knowledge of it) and outlined the schema of what the Evaluation was reviewing; this covered both natural disaster information and a briefing about the VSM in its various implementation guises.

Next the three (3) VSMs were introduced by explaining the environments each was designed to be part of –

Model 1, the United Nations Disaster (UNDR) based at the UN Headquarters;

Model 2, illustrating one of the Continental/Regional units; and,

Model 3, identifying the Community Engagement perspective into the Multiple Agencies' engagement about which the project is all about.

A copy of each Model was included in the document, as a figure. [This is fully described and discussed in section 5.2 above.] A concluding commentary was provided: this expressed the point that only *high-level* context was given, as minute detail would be dealt with towards implementation time, and to note the theoretical and 'ideal' context that the models illustrate. The point was made that the models thus form the basis of presentation to, for example, the United Nations for consultation, and that Design Team participants were offered contextual 'freedom' to discuss their analysis with this in mind.

#### **5.3.4 Design Team Questionnaire**

The Questionnaire was designed to be both 'simple' but 'effective' in addressing the crux of each Model and of how the overall schema might be considered by relevant authorities in future. The consideration of the responder, considered to be a busy person in their own field of work, was important and the limited number of 'to-the-point' questions was vital. As responders were either or both expert or knowledgeable in VSM and/or natural disaster environments, it was reflected they would not require laboured-points for information or question form.

The questionnaire format comprised: 1) an introductory passage, including some definitions and identifying data; 2) the questions, laid out in sequence against the Evaluation PDF; and 3) the 'return to' details, with a note of appreciation for participation. As a Word document, respondents could use as much or as little space as required in offering their points of view. The questions were evaluated by both Supervisors, with amendments incorporated, prior to the 'final' version being issued.

Designing questions, particularly for this intended audience of expert people, was challenging. Accepting potential respondents held greater knowledge of either VSM or disaster environments than I, meant writing tightly-phrased wording that would be acceptable, not be seen as naïve, and be answerable to the context intended; it is considered this has been fairly achieved. The questions are used below within the analysis section of this section.

### **5.3.5 The Design Team Formation**

Enquiry emails were issued to the seven (7) potential participants, with a personalised letter of invitation and the Consent Form attached. Replies were return (slowly) with the Consent Form completed; five readily agreed to participate and the Evaluation PDF and the Questionnaire were issued to these people. The remaining two individuals and I had an exchange of emails: they both were interested and wished to participate but noted more-pressing business at present; I indicated my thanks and wrote I would re-contact both within a few weeks to enquire again – this was done. A reminder email was issued to the five 'agreed' participants three weeks afterwards, to note appreciation of their participation and as a reminder to look at the paperwork towards its completion.

A record of all activity was made for archival purposes, including some respondent data, copy of emails, and completed questionnaires. As with the earlier data-gathering, the note concerning anonymity in using respondent's answers was made, and is adhered to in the following pages of analytical work about questionnaire responses.

### **5.3.6 A Required 'Change-in-Approach'**

Circumstances outside my control, other than the late application of the Design Team element of data-gathering, necessitated a reappraisal of the Design Team and its application to this project.

While the actual timeframe offered from its start appeared to be reasonable for respondents to confirm consent to participate, to receive and then read the Evaluation PDF with the Questionnaire, plus to make their considered replies to questions, it seemed this was not possible. One respondent communicated to indicate that there was no time-availability in their diary to now add this activity, to give it considered and due justice. A pragmatic decision was required, in order that the thesis was submitted on its due date and be in as complete a state as possible. Therefore, in consultation with my Supervisors, I made a change-of-approach for this element of the thesis.

The following work in this section reflects this revised approach and is explained in more detail next.

One completed Questionnaire was received, though its tone was to a negative position and *against* the proposed models' schema. The text will, however, be incorporated into the analytical work now following; it will be identified anonymously.

Using the Questions and reflecting a positive position, I address each question to highlight attributes of value – such that I anticipated Design Team respondents might have offered. To counter these, I will use the actual words from the one received Questionnaire, such that this criticises the Models and the overall proposal. I believe this to be a reasonable and fair approach towards offering a balanced comprehension of the model's ultimate goals. In doing this action, however, I recognise the failings and the inevitable biases that I impute to my own research and models' devising. I seek to offer a reasoned argument, defensible under examination. I proceed thus as described.

### **5.3.7 Multi-Agency VSM – Analysis, Critique: some Design Team words**

The eight (8) questions are given in order below. The commentary endeavours to offer a rational critique about the models' potential for later discussion and implementation.

#### Question 1:

Having read through the *Design Team Evaluation* document and considered the models, what are your initial thoughts about this proposal to translate 'theory into practice'?

The project has endeavoured to recognise two fundamental issues. 1) That the community hit by a natural disaster in a developing country is presently in dire need of help but that such help is viewed – through this project – as being *uncoordinated*. 2) That politics, especially in such developing countries, is fraught with tremendous conflict and tension, that addressing the project at the United Nations was *a beginning step* towards being a non-partisan 'command & control' initiative; virtually all countries of the world have some form of relevancy and connection with the UN.



The question's intent was to obtain a sense of perspective and overview about seeing *the global picture* of international multiple agencies' approaches to giving disaster aid and support, about how this is viewed at present, and how it might be in the light of the Evaluation document and its three VSMs. While not made obvious, the intention is to the highest level of disaster recovery management and to address an international need that had been strongly noted in earlier data-gathering. The literature used within the project has attempted to show that this position is valid and that a solution to incorporate an UN-involved status was desirable.

The project, through the Evaluation, endeavoured to note that there are distinct stages of a natural disaster and its aftermath. However, it is difficult to incorporate every evidential element and is why the Design Team cohort was so selected – its membership containing persons of knowledge about VSM and disasters. The one respondent opened with, “Response, recovery and resilience are not consecutive phases; the proposal needs to relate to the early, external aid response only, otherwise it contradicts principles of good recovery and resilience building ...” which suggests a more nuanced, disconnected understanding of the question. The criticism perhaps levels at ‘local’ rather than of ‘international’ level of disaster management, which was not the project's intent.

Understanding of the proposal's sense is acknowledged ... “the initiative is sound”, and this offers some hope. Reflecting the political point above, the respondent noted “the model has to be acutely aware of the political Worldview and the potential to perpetuate dependency and the ‘underdeveloped’ status”: this is one sound reason for taking a global approach and using the UN as the base-point. A final note is, the model “will be open to criticism of systems approaches creating totalitarian bureaucracies”. This is perhaps a reality of the world community today, and one that Systems Thinking is

probably a reasonable methodological approach to apply now; it is / can be apolitical and hold ‘arm’s length’ from influence. Politics affect countries: disasters affect people.

Question 2:

Model 1 – Earlier respondents in my research indicated that “someone” should have “management control” across a natural disaster event. How well do you think the “UNDR” might meet that purpose, based on the Evaluation you’ve read?

This model was designed to be a global ‘single point of contact’, in the sense that a *developing country* hit by a natural disaster of a magnitude it simply cannot manage itself may turn to early and thus kick-start requisite disaster management support. It needs to have good information (evidential, scientific data) in order to function. These two perspectives, when collated against ‘out-of-disaster’ periods’ preparatory and developmental work, are designed to bring about co-ordination of multiple agencies *most appropriate* to the natural disaster of the moment. This is an ‘ideal’ situation and proposal. That it is located within the United Nations structure speaks to the international coverage of the UN, and of its capacity – when well-implemented – to produce organisational input, and (potentially) improvements to the community across time in terms of resiliency measures.

My respondent wrote: “Absolutely not – the management has to sit with the country affected” to this question. However, drawing attention to the lamentable state of Haiti’s earthquake in January 2010, governments and local authorities can be devastated at- and post-disaster and be unable to function; even the United Nations itself lost valuable and knowledgeable staff in Haiti. Certainly the advent of increased cycles of natural disaster events that are seemingly becoming more intense, many countries are taking the

matter more seriously and developing strategies for disaster management. But the constraint is often financial, especially those countries where a sizeable proportion of Gross Domestic Product (GDP) consists of development and aid monies from overseas.

Continuing further, the respondent then observed: “Your proposal should be for UN to coordinate provision of external aid, in support of the management structures in affected countries – and definitely not the whole disaster management”. In the early stages of the research proposal for this project, such a point was germane and a significant thrust of the proposal. With the progress of this work and the input of earlier data-gathering, this feature and sense of ‘localisation’ lost its capacity to achieve its purpose: the earlier point about Haiti’s Government all-but non-functional is the point here. It is also observed that many developing countries’ governments hold other priorities. Many developing countries’ governments are riven with ‘other-than-political’ issues.

The crux of the matter rests with this point: even developed countries – the USA and Hurricane Katrina 2005 being one instance, confront many challenges in the face of a natural disaster that is usually *unquantifiable* against its extent of damage. An earlier respondent in the Exploratory Interviews highlighted an issue in the Tacloban typhoon (The Philippines; Haiyan (Yolanda), November 2013), questioning “can someone out there help the government systematize and coordinate the aid flow?” The point may be extended to suggest that this proposal can begin to assist such a government’s request – allowing the government to undertake its correct functions; this project is dealing with the ‘here and now’ situation and constraints, and may be earlier into action as a result. The respondent’s point is valid: the government should – ideally – have and retain control of the disaster management situation. It is pointed out here that often such governments are impotent, damaged by the disaster, or functionally unable to attend to

such tasks. Perhaps over the long-term of this proposal from implementation, the learning gained and shared will develop countries' disaster plans. Even North Korea (a totalitarian Nation State), of recent decades, has needed to reach-out to the international community for disaster help, when famine struck that Nation after adverse climatic conditions affected harvests. To defend the project's aims, in-country NGOs and scientific bodies are instrumental 'in doing the work on the ground', with the international NGOs being directed so that the right and best recovery support is provided, rather than the perceived present *ad hoc* situation; this is a process that builds resiliency into disaster management processes.

Question 3:

Model 2 – This represents all Continental/Regional bodies: its purpose is to organise its area's NGOs and collate other data and information through local area networking activities. The 'key person' also comes from these bodies, as co-ordinator between community leadership and multiple agencies on the ground in the disaster area. What is your view about setting up regional bodies, such as these, as single "go to" points of contact?

Developing a theoretical 'work-flow' process, which can utilise the localised regional knowledge of natural disaster types and the contexts of a group of developing countries, appeared to be a reasonable attribute. Model 2 seeks to offer such a remedy. With many developing countries spread either across vast land masses, i.e. Brazil, or huge numbers of variously-sized islands across vast ocean, i.e. Malaysia, natural disaster challenges are exacerbated. One comment that continued to arise in the recent (April and May 2015) Nepal Earthquakes concerned the number of villages yet unreachable by any government or NGO personnel; landscape and terrain often hinder rapid access.

The respondent criticised this question, and therefore the nature of the model, with

“I believe the proposal needs to differentiate between broader disaster management as such (including recovery and resilience building) and coordination of provision of immediate international aid”.

The project is about the middle of three identified stages of a natural disaster (*relief, recovery, resiliency*), and aims to address the broad context of the criticism but taking a different (new) approach. Using Haiti once more, the broad assessment this project ascertained of that earthquake disaster was of haphazard and uncoordinated disaster management interventions; here is one potential solution. But, and this is the essential point, it aims to address disaster management from a global perspective while using all the local resources that are extant.

My respondent further stated: “There definitely should not be external bodies as coordinators between communities and local government – it is contrary to principles of good recovery and resilience and a blatant political intervention”. Well and good; except that such a philosophy of ‘internal bodies’ – perhaps governments and local authorities, are often impotent in the face of the disaster. Notions of ‘good recovery and resilience’ – I surmise predominantly funded through various international funding projects, are not necessarily tied-into a country’s strategic development and appear more *ad hoc* and independent in nature.

The issue about ‘blatant political intervention’ may have bearing: however, the world is no longer comprised of ‘independent states’ able to look after all their nationals’ needs, are increasingly becoming affiliated with regional trading blocs, and necessarily co-operating with other countries to achieve mutually beneficial goals. This project is not to be seen as political, hence the use of the UN.

A point not observed within the respondent's comments, concerns the nature of what the Regional body was seeking to do: this was to be a localised centre of excellence, of (natural) disaster knowledge, bringing together the countries in its area, to share good practice and to develop co-operation between nations.

#### Question 4:

Model 3 – The Community is often provided with ‘a standard, off-the-shelf solution’ to aid its recovery, post-disaster. Model 3 offers an organisational means to engage communities so their specific needs can be identified and responded to. What is your view of this?

The issue of exactly how the disaster-hit community is engaged with the multiple agencies bringing in, particularly, materials and support for the recovery stage seems to be ‘passed-over’ in previous disasters – so far as appears through the literature. At the point of disaster impact, the community needs immediate initial relief – shelter, food, water, medical assistance, and ‘someone to care’ that they are in trouble. The international community with each affected Nation already achieves this activity, and does it well; processes could be improved upon but this is not within this project.

“Again the model [suggests] a bureaucratic solution to a much more complex problem. ‘Political commissar’ model has not worked so far. Red Cross provides community advocates as do other NGOs”, so relates my respondent against what model 3 is trying to offer. Fundamentally, the premise in these three sentences hold water; the argument is that ‘community advocates’ from each NGO work towards their own employing NGO’s mission, and may not necessarily be interested or concerned with co-operation with other NGOs. The charge of ‘political commissar’ is strong; it is the respondent’s

personal viewpoint against this model. What could be suggested is that the context of what and how the model is proposing may have been missed, possibly because the idea that the model's 'key worker' (Midgley's 'agent' (2000)) is drawn from the Regional body which itself brings together local NGOs towards a united approach, and the UN in New York offering a unified and co-operative consistent practice. This suggests that the proposal's explanation needs to be more comprehensive, and that the question here failed to put across the concept sufficiently well to gain qualified support.

My respondent further noted against this model, "Much more is needed and the organisational means proposed are not effective enough. I do not think that anyone believes in 'off-the-shelf' models – needs assessment is a common practice". This is of interest, as a criticism of the proposal and its present presentation. In its defence, this is in 'early stage and theoretical' development. The longer-term approach would be that each Continental/Regional body – i.e. this of South Asia and the others, develop best practice applicable to its locality; at present the project is offering the high-level and 'ideal' proposition. Much more work is required upon substance and structure.

#### Question 5:

Please compare and contrast my proposals in the *Design Team Evaluation* document with either what is already done in the field or what the literature says should be done (or both). For you, which is better and why? What are the strengths and weaknesses of the different options that we should pay attention to?

Through the earlier chapters of this thesis I have explained what the problem is seen to be, what the literature indicates, obtained commentary from knowledgeable people, and devised a systems approach towards addressing the problem. I leave that overall

discussion to speak for its-self. I address myself here to the respondent's responses to this question, and attempt to make appropriate rebuttals.

The first sentence of the response reads,

“I believe that the proposed model is flawed in that it assumes the arrangements should include disaster management, recovery and resilience building whereas they might be applicable to coordination of the immediate post-event international aid only”.

In answer, the point is that any overall disaster management policy should – ideally – provide from *initial Relief, Recovery, and Resiliency*, measures that bring back the community to its wholeness. This ‘wholeness’ state might be a *status quo* of what was the community's original situation, a return to what was; it could be an entire relocation of the community to another site, which is deemed safer; or it might indicate a rethinking of what the community desires and that the natural disaster has brought conditions towards a point where remaining *in situ* but with perhaps radical changes is most appropriate. Such is the point about the Community Engagement model. The other two models are designed to providing the best and most efficient process mode towards achieving multiple agency co-ordination. Both perspectives have been seen to be inadequate or missing in previous natural disasters. So the challenge to the respondent is that small and *ad hoc* interventions – of the past, need to be brought into a co-ordinated package of disaster management policy: these, this thesis proposes, are seen as failing in their ‘wholeness’ attribute.

The second response reads,



“International literature offers more realistic approaches which demonstrate understanding of fundamentals of resilience and effective recovery, international interference not being one of them, even when it brings the goods. The model runs a risk of perpetuating dependencies”.

It is acknowledged that ‘international literature’ does offer many innovations ... the crux of the thesis’ argument is that these remain in published form, stacked on dusty shelving and disregarded. Part of the UNDR activity is to bring together such reporting and to ascertain the voracity of the claims, and where appropriate to incorporate such recommendations and conclusions into current praxis of disaster recovery management.

The ultimate aspiration of any community is, surely, to be sufficient, non-dependent, encompassing of its own ethos, to support itself (as part of its local, regional and national, and international state) and to provide its future generations a place to live, a job, and a social life. The world is unequal in many perspectives of economic and social life; a natural disaster often destroys even what then was existent. Dependency is not appropriate as a ‘claim’ against these models. The defence is to argue that the engagement and co-ordination should set in motion a new impetus to the community’s future to its own success.

The final response to this question reads,

“Again, I believe the model might be effective in coordination of the first aid only, and under the command and control by the affected country.”

References were made to all ‘stages’ of natural disasters’ aftermath: the project is related to the *Recovery* (second) stage. The *initial Relief* (first) stage receives adequate help from the international community in the early days of a disaster, in association with

national (the disaster-hit country) NGOs etc. – this is the stage probably referred to as ‘the first aid only’ in the response. The project has been properly concerned with the *Recovery* stage – which is where the *uncoordinated* ‘gap in knowledge’ is identified. But this must also demonstrate the early constructional elements of *Resilience* that takes the community off and towards its successful and safe regeneration for future growth.

Concerning the note about ‘command and control’, Haiti has already been cited as deficient in national governmental capacity to undertake management of that disaster in January 2010. The concept of using the United Nations, which should bring at the time the relevant (remnant) National Government capacity into its close consultation, is designed to provide the wider co-ordination which is less likely to be affected by the disaster and should be able to be objective, providing ‘command and control’. It is anticipated that, broadly, the sense of co-operation and not of dependency is the key phrase seen through this proposal. The UN has most of the world’s Governments sitting in its Assembly: this is the place of consent and direction for the UNDR.

#### Question 6:

Scientific opinion indicates that natural disasters will become a) more frequent and b) more intense. The world community currently reacts positively, though fairly *ad-hoc*, to natural disasters. How well do you think that implementing these models would improve the situation?

While this question was already recognised as ‘leading’ in its context, the anticipation for response centred in acceptance that natural disasters are more increasingly prevalent and that *indirectly* the international response needed improvements. My respondent offered this statement:

“If seen as a model for coordination of first aid only and under the auspices of the affected country’s governments, the model might improve a fairly chaotic situation of first aid provision”.

The issues of ‘first aid only’ and *about who is in control* are addressed through Question 5 above. While the response affixes itself to this project’s *first stage* of a natural disaster, the *initial Relief*, there is the conditional acceptance that the model(s) could offer some incremental development to disaster recovery management. Without further responses from practitioners, there is no opportunity to balance this subjective opinion to others’ points-of-view. I would acknowledge that there is a lot to achieve in disaster recovery management policy, interventions, and implementations: this thesis is adding to the commentary and offering its proposals for further consultation.

Question 7: [optional question]

If you think the VSM is strong enough to implement, how do you suggest this is put on the agenda of the multiple agencies, such as the Red Cross or the UK Government’s Department for International Development (DfID) and/or the United Nations?

My respondent provided this response to Question 7: “Based on what I know about those organisations, the model should be re-designed and focused on coordination of first aid in support of the responding government”. The rebuttal here focusses on the point of its addressing just the first stage of disaster responded by the local, regional and international communities, which is already deemed to be fairly functional but could do with some sense of structural ‘command and control’ system. There appears to be ‘a local approach is best’ context to the respondent’s answer. This, across many *developing countries’* natural disasters, is observed to be not entirely cogent; as governments struggle, bowing to pressure, so international help is then allowed in too.

Question 8: [optional question]

There might be something else you wish to write about, not dealt with in these questions above. Please use this final space to have your say. Thank you.

My respondent offered this note:

“Unfortunately, while elegant, systems solutions have a potential to come across as totalitarian and bureaucratic when applied to real life situations. Care has to be taken that the proposed model is not perceived as such. But it has a potential to address a real issue”.

I take this response as being the respondent’s personal and perceptual consideration of both the models offered in this project and that this is based upon their considered reflection of their practitioner work. The themes have been discussed elsewhere in this Q&A section, and through the thesis itself. It is true that the international community – predominantly *developed countries* – can seem domineering in their approaches and interventions; they, generally, have the resources to give disaster assistance.

This concludes the eight questions and analytical work of them.

### **5.3.8 Critique of the Design Team’s responses**

It is disappointing to report that just one of the seven Design Team participants was able to record their views in response to the questions about these VSM models. It is clear that this one respondent was not comfortable with the model’s schema and theme, though suggested that there was some room for improvement but only for the earliest stage of a natural disaster’s input response. There was also the point that the models suggest a top-down approach, rather than the much-more desired – the respondent

suggested – ‘bottom-up’ and ‘localism’ approach: this has essentially been observed as a flawed consideration. Too many *developing countries* face economic crisis across a year, and endure many difficulties in responding to what may be termed ‘normal’ considerations of national life and its improvement. Climate changes, civil conflicts, and lack of infrastructural and economic investment – across many decades, have impoverished countries ... the significant financial input post-disaster is often too much for a (fragile, nascent) government to meet. International support is sought: this thesis is proposing a structural and systems’ approach to aiding the long-term national goals. The *complaint* to be aware of ‘totalitarian, bureaucratic’ is noted but refuted via my commentaries in each Q&A: the monolithic states that currently are part of the international community have reached out for disaster help and support, and certainly will do so in future. The models proposed are *apolitical* and concerned with the community in disaster distress; any political changes resulting would be unintended.

A briefing about respondents who did not complete the Questionnaire is pertinent now, to offer some balance. All respondents gave email responses and most received the Evaluation and Questionnaire documents. One, a systems academic, later wrote to indicate that time was now unavailable; this person was invited because of their research of disasters and use of systems methodologies and models, and was seen to be a vital contributor. Another participant, from an NGO concerned with many ‘south-of-the-Equator’ countries, was invited because of the NGO’s practical work in many countries where natural disasters are presently seen to be of great magnitude. Two participants are consultants using the Viable System Model through their work, and were asked for their expertise on how the model functioned, and might have offered further insights in the disaster context. One participant, from the world of business in South Asia, has remit for natural disasters across the Far East and how the impact of

natural disasters affect both the economic foundations thereabouts but of how the international community is engaged to resolving such conditions. The final prospective participant works in a humanitarian capacity, using systems methodologies, but is a practitioner ‘on-the-ground’ travelling to natural disasters to give assistance, and was anticipated to offer that close observation and reflection of the thesis model’s potential application. It is very regrettable these individuals felt unable to make their contributions; I acknowledge their interest, noting the very limited timeframe that I had for this part of my data-gathering.

In consultation with my two Supervisors, I took the pathway given above in order that I could complete this thesis and submit it on-time, to comply with the University of Hull’s regulations. This is not satisfactory but viewed as the best possible approach.

### **5.3.9 Section Summary**

The Design Team was conceived to offer practitioners the opportunity to respond to the thesis models and to provide their criticisms. The Evaluation and Questionnaire documents were issued to five of the seven potential respondents; just one was completed and returned. Views of other participants, to balance the ‘negative’ response received, cannot be recorded. The approach of making a rational criticism, to defend the models through the various questions has been taken, in order to provide a sense of counter-argument to the one received completed questionnaire. Whether this has been achieved is for readers to make their judgement.

The essence, from the one completed questionnaire, appears to be that there is room for model design improvement but that they should only address the *initial Relief* stage of a

natural disaster. This is not the design intention. However, while a robust defence has been offered, acknowledgement is made that there is always capacity to develop and improve models, and this is such here. Further questioning and consultation are possible, post-graduation, for approaching the multiple agencies and the United Nations, in offering the proposal herein and the models for their consideration. The point that this project is both for the ‘ideal’ situation and is dealing with the ‘high-level’ situation, which is designed to make the systemic and systematic interventions across time, is to bring together all agencies to work closely together. The caveat is always that some sense of inevitable ‘command and control’ perspective is there, though this has to be a process that is properly and competently managed.

## **5.4 Chapter Summary**

The chapter has examined under close analysis and commentary the primary data and explained how this challenged and influenced the development of the design solution. The three (3) VSM models are given as figures and discussed, as to their activities and attributes within that ‘wholeness’ that a systems’ design should provide. There is an *ideal* solution provided through these three models addressing the thesis Research Question. This, however, required to be tested. A panel of practitioners was established but this did not achieve its full potential; various issues were discussed.

This brings the thesis now to examining and explaining its purpose through the concluding chapter. Herein I set-out the research journey and some pitfalls encountered, along with the elements that ‘fill’ the ‘gap-in-knowledge’. Research points and a recommendation are offered. Two brief sections each offered a reflexive observation of systems studies and of my personal considerations learned on the way.

## **Chapter 6: My Observations, Contribution, and Proposals**

This final chapter provides the conclusion to the thesis. Within these pages is the discussion of how my project has answered the research question. This includes how the question was researched and the findings produced. I also discuss possible future research, following this project, and offer a short reflexive account, plus a concluding summary that brings the thesis to its end. First are some observations.

### **6.1 Observations**

From its genesis some seventeen years ago, this project has migrated from one that sought to look via the ‘lens’ of procurement and logistics, to now in these pages delving via a systematised and complex heterarchical structural schema. This was unexpected but is now welcomed. However, its solidity has always been unambiguously based upon a requirement to show relevance to the needs of disaster-hit communities in developing countries.

Throughout all the world’s continents, developing countries have suffered from, endured and dealt with natural disaster events during the four years of this project. Many of the original reasons why this project began – failures of process, lack of co-ordination, no consultation with communities about what would really help them – continued to be noted. Announcements and reports have been written about improvements and learning from earlier events, but with seemingly little of the rhetoric turned into good and lasting positive action. This project took on as its task to learn about these systemic failures: to understand them and to explore what practical interventions could be made to enable positive change in the future.



The project looked at this whole matter with principally a theoretical approach. It took its focal point as the multiple agencies involved in disaster recovery. The defining intervention point was identified in relation to the concept of co-ordination. However, the co-ordination of multiple agencies alone does not guarantee responsiveness to needs as defined by the relevant communities (rather than the agencies alone). The voice of community members generally appears either ‘very distant’ or ‘indistinct’ in disaster recovery situations; for instance, in regard to women and children plus a conflict zone situation, “... women have little say in the allocation of resources ... this lack of voice may translate into poor representation ...” (BAPPENAS, 2005, p.82). This was eventually framed as being about a need for community engagement. It was the issue that communities in need are often side-lined or ignored in processes of multiple agency decision-making, and this was something important to target through my research. Proposals to address both these perspectives (multi-agency co-ordination and community engagement) were designed and are presented across this thesis (see chapters 4 and 5 in particular).

The project was broadly-based but high-level in its analysis. Evidential data from primary sources is the ideal in a project like this, providing relatively authoritative and independent voices to corroborate the research findings, but these were extremely problematical to obtain. Many individuals were asked; most declined. Data gathering is always experienced the hard way, by doing it in the best way possible but accepting that sometimes what little is gathered has to be what it will be – a ‘snapshot’ of opinion – and a less than ideal data set is arguably better than no data at all. Indeed, this is one of the principles of action research that has been in place ever since the early thinking by Lewin (1952).

Devising illustrative figures or models to strengthen the words on a page can be daunting, especially when the idea is complex or so big that it almost defies the page space. The phrase ‘a picture tells a thousand words’ is apt. As a writer interested in the enormity of space and of the universe (philosophically, if not metaphorically), images of planet Earth (*Gaia*) taken in space and showing the smallness of Earth against a black emptiness suggest that humankind needs to be careful about its ‘home’. The sense of what resilience should be comes into play in relation to this.

Definitions pertaining to the subject matter of this project – about disaster ‘management’, ‘response’, ‘prevention’, ‘recovery’ or ‘resilience’ – have proliferated; there are almost as many as there are organisations or pressure groups or academics. Needing ‘to steer a course’ and define the problem or the situation in focus sometimes means accepting a compromise on the language used for pragmatic ends. Some respondents were forthright about asserting the importance of their own definitions, which occasionally meant facing a lexical puzzle of how to say the right thing on paper. The word ‘compromise’, used above, suggests a possible ‘watering-down’, but I would venture to suggest that fairly representing all the parties’ perspectives has been possible, by focusing on their key concerns about multi-agency working and community engagement, even if I didn’t adopt all their terminologies. The bottom line is that human lives matter, and on this I suggest all my respondents would agree.

## **6.2 Answering the Project’s Research Question**

The Research Question used (reproduced from page 11) was:

*How can multi-agency co-ordination and community engagement be more systemically and effectively integrated in the context of disaster recovery?*

The framing of this question is about integration. This is what the project has researched by situating the inquiry in the area of systems thinking, and by exploring more deeply into the story using Systemic Intervention (SI) and the Viable System Model (VSM). Systemic Intervention comprises three elements: 1) boundary reflections, 2) use of multiple methods as appropriate to the circumstances, and 3) proposals for action. VSM looks at organisational structures and communications: the ‘wholeness’ of organisations, their autonomy and viability to function.

Systemic Intervention was used to explore the boundaries of what my research focus should be in relation to disaster response. Using data from my respondents, I confirmed the focus on multi-agency co-ordination and defined the need for community engagement. These were the areas in which my respondents believed research is needed most. Then, in line with my systemic intervention approach, I moved on to examine which methodologies and methods I should be drawing upon to devise an integrated form of co-ordination and engagement. This is where I focused on the VSM as my primary methodological tool for deriving recommendations for improvement, as the VSM can take the form of a (co-ordinating) meta-organization, and also Beer (1985) makes it clear that environment scanning is a vital activity. Communities affected by disasters are a critical part of the environment, suggesting that community engagement can usefully be situated in the context of a VSM approach. Thus, with the VSM, multi-agency co-ordination and community engagement can be integrated.

My answer to the research question takes the form of the three VSM models (chapter 5, section 5.2): one focused on what a new UN global co-ordinating agency might look like; one, at a lower level of recursion, looking at the structures and communications

necessary for regional offices; and the third showing how community engagement (embedded within the first two) can take the form of a viable system in its own right.

### **6.3 The thesis findings**

This section discusses the contribution to knowledge of this thesis. It also discusses the *Systemic Boundary Analysis* tool (Munday, 2011) and its proposed integration into the Viable System Models (VSMs), see section 5.2 above. This helps to explain the integration of community engagement with multiple agency co-ordination in more detail, as Systemic Boundary Analysis has community engagement as a central theme. The section ends with possible next steps for research.

#### **6.3.1 Contributions to Knowledge**

The Research Question seeks to integrate community engagement and multi-agency working ‘more systemically and effectively’ to meet current needs and support future aspirations. The project has developed two approaches to address this requirement.

#### **6.3.2 UNDR design**

First is the integrated, heterarchical structure of the ‘UNDR’ design, depicted in its three recursive forms. A key contribution here is to show, theoretically, that the ‘UNDR’ can operate as a kind of ‘meta-systemic management’, sitting ‘above’ other, existing agencies to provide co-ordination. Almost all previous VSMs in the literature, when operated in design (rather than diagnosis) mode, have sought to design a new organisation at multiple levels of recursion. As far as I am aware, only one previous study (Midgley *et al.*, 1997b, 1998) has designed an organisation using the VSM

specifically to co-ordinate the activities of other existing organisations, without seeking to restructure the latter. My own design follows this path because it would be unrealistic to ask thousands of NGOs to restructure using a common template (the VSM); before such a thing might be desirable to them, they would need to see it in action via the development of the UNDR. This work goes beyond Midgley et al. (1997, 1998), however, because the latter only had to consider three existing organisations (System 1s), and all of them were located within a single city. The design in the thesis shows that the same logic can apply to a global agency seeking to co-ordinate thousands of System 1s.

Reason (1988) argues that, for action researchers (and most systems methodologies are operationalised in action research mode), that the generation of useful, context-specific knowledge is just as important as the production of so-called ‘general’ knowledge. My VSM design itself can therefore also be counted as a contribution to knowledge, which has the potential to be picked up and implemented by the UN (or adapted by another global agency). A caveat here, however, is that maintaining the engagement of my Design Team throughout the project was highly problematic, due to the fact that all the members became engaged in front-line disaster management during the lifetime of my research; by the end, only one member responded to provide feedback on my VSM designs. Therefore, the robust testing of my proposals for practicality, which was an intention in the research, proved impossible. As a result, I can only claim that my organisational design is a *theoretical* contribution to knowledge.

Here is what this contribution involves. The proposed UNDR can utilise extant regional and national scientific (data). The essential point is not to create a monolithic and cumbersome (new) organisation, but to bring streamlining, order and speed into disaster

recovery management intervention. There is, additionally, the concept that learning must be achieved through activity across the 'UNDR'; this is a post-disaster and between-disasters task, to promote the learning of practitioners and work to improve policies for future disaster recovery management.

The three recursive forms of the VSM are as follows. First, the UNDR, to be established at United Nations' headquarters in New York, provides links with scientific data streams (inbound) to assist with decision-making processes (outbound); it also interacts with the UN General Assembly and Security Council, thus connecting with UN Member States, and provides the back-bone for a 'learning library' (in the cloud) for practitioner praxis and development. Second, UNDR regional/continental units cover geographic locations 'of like areas' across the world – the area of South Asia has been used in this thesis as the example for illustrative purposes (section 5.2.3, p.266ff). This provides the point of reference for co-ordinating multiple agencies through networking activities, and establishes praxis routines to be operationalised when a natural disaster occurs. Such units provide the key workers who can liaise between communities and multiple agencies, providing the interaction of engagement. Third, the Community Engagement model identifies the framework of engagement between parties, with the key worker using the Systemic Boundary Analysis tool to examine the multiple bounded issues that each disaster raises. In the recovery stage following a disaster, the key worker's activities bring the community voice to the fore and he or she communicates to the multiple agencies to inform better and more appropriate interventions. These communications might include what buildings to build in which location, how the community sees its future, and so on.

The overall design is to support multi-agencies in their contributions to sought-after recovery and (improved post-disaster) resiliency. The multiple agencies can be co-ordinated in their activities, with the voice of the disaster-hit community in mind. So the pattern here is not hierarchical; it is, rather, of a *lean structure*<sup>3</sup> to facilitate self-organisation and self-management, conforming to a common, community-responsive recovery agenda.

My final contribution is to integrate use of my ‘Systemic Boundary Analysis’ tool into my VSM design. This tool is used by the key worker mentioned above, working within the disaster zone, to inform analysis of the multiple issues raised by the community (in particular) and also personnel from the multiple agencies. This tool asks the practitioner to consider four different boundaries when thinking about possible disaster responses; boundaries defining infrastructure, organisations, communities and ecosystems. It is necessary because many agencies and individuals have biases towards just one or two of these boundaries, and therefore significant aspects of the problematic situation may be ignored (Munday, 2011). Boundary critique (reflection on boundaries without any pre-set examples) alone is insufficient because, if these biases are really entrenched (e.g., through groupthink; see Appendix A06), people may fail to appreciate that alternative boundary judgements are possible, even if they take time to reflect and enter into dialogue with others. Use of the Systemic Boundary Analysis tool principally resides within the Community Engagement (third VSM) model. The integration of Systemic Boundary Analysis with the VSM is a contribution, not only to knowledge about what a co-ordinating organisation might look like, but also to the systems literature on methodological pluralism, given that this is a novel combination of methods, never before proposed.

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<sup>3</sup> ‘A lean structure’ is defined here as being the removal of unnecessary multiple agency activities, and the co-ordination of the remaining ones, within the context of a community empowerment agenda.

## **6.4 Future Research**

There are some future research proposals that can be developed following this research project. Each draws from the researched matter, is linked with the outcomes to date, and is offered as part of the continuum of academic systems studies research. This is viewed as an aspect of the transition from theory into practice. To develop this project's research further, and to build on its foundation, additional consultation, then implementation, is required.

### **6.4.1 Design Team Response**

First, building on the foundation of what is presently outlined in this thesis, further research is needed on the single Design Team response to my VSMs. My respondent was essentially 'negative' to the idea of the UNDR as outlined. The crux of her argument appears to be based upon that respondent's view that the focus of improving disaster response should be on micro-aid projects, rather than the macro-level of co-ordinating multiple agencies. In this, she disagreed with the majority of my earlier interviewees who guided me in my focus on multi-agency co-ordination. It would be worth looking at the different perspectives informing whether a micro- or macro-approach is taken. It may be that I have missed following up an important issue here, given that it only surfaced at the last minute in my research, or it could be that a dual focus at the macro- and micro-levels would be productive.

### **6.4.2 UNDR Models and Practitioners**

Second, it will be important to take the three UNDR models and then re-present them to an audience of disaster response practitioners for critical analysis. This will allow for



the robust testing for practicality that was impossible to achieve within the time constraints of the PhD (and within the constraints of the Design Team members' availability). Assuming that practitioners give positive feedback, their engagement will also allow further reflection on how my designs might be promoted, and then advanced towards implementation.

### **6.4.3 Researching Relational Intervention**

The third opportunity for new research is to further develop and explore the concept of 'relational intervention', which appears to be of interest across the VSM community, as discussed with my 2<sup>nd</sup> supervisor, Angela Espinosa. It is possible that the Systemic Intervention approach and the use of my own Systemic Boundary Analysis tool could point the way to a new 'relational' methodology for using the VSM.

### **6.5 A Final Reflexive Account**

There is a certain style of starkness about the research question that I posed in this thesis; it needs a methodological and analytical resolution. However, it also energises the feelings of a human person doing the work (me), and carries emotionality into the cauldron of complexity. This project concerns human suffering, due to events that are usually uncontrollable by the ordinary man, woman or child. Millions of people live in developing countries, many of whom seek to live life honourably; some to seek improvement for their own lives; others to find improvement to give their wider communities a chance. I have seen this first hand, living in and visiting Ghana for sixteen years, and this is one of the reasons it has been particularly meaningful to me to focus on developing countries.

It seems to me that everyone across the globe wonders *why?*, or *what if?*, or *how was that done?*, etc. To a greater or lesser extent (depending on how inquisitive people are and how they deploy their intellectual capabilities), this is the natural inclination of human beings: we have cognitive processes, which examine phenomena and want to know more about them. More than this, the human mind wants to delve into the interior of phenomena, finding out how they work – and, in the case of human service systems, whether they can be made better, to function differently or more effectively, and so on. In my case, I entered my PhD with a burning question about why disaster recovery is so problematic in developing countries; even when humanitarian aid is available, why is it so often inappropriate, and why is its effective distribution so often frustrated? Why aren't all those donated food items, water, medical supplies, building materials, clothing, toys and educational materials being handed out to the people who need these most? And beyond this, I wanted to know what can be done to improve the situation. In the course of refining my research question, I came to realise that this was an impossibly broad topic for a three year research degree, and refined my focus, to look at recovery (rather than initial relief or longer-term resilience), and what to do about multi-agency co-ordination and community engagement in particular.

My research journey has been laced with numerous 'red herrings', 'dead-ends', and some interesting tangents; one of these being the psychological concept of Groupthink. This phenomenon crops up occasionally across this thesis, and its existence is the principle reason why I felt the need to develop my Systemic Boundary Analysis tool in 2011. Appendix 06 outlines my reflections on Groupthink and some of its features in relation to this project. Groupthink is, I believe, an interesting concept that might merit attention as part of the further research discussed earlier, particularly as it relates to what happens in the headquarters and board rooms of NGOs, when senior managers

formulate policies that appear relatively divorced from the ‘realities’ of front-line staff and communities. Groupthink could be a threat to effective community engagement and multi-agency co-ordination.

Reading various published reports during my research, it became clear that there is significant inertia amongst international aid agencies: various practitioners over the years have diagnosed problems in disaster response systems, and have suggested solutions, but experiences of inadequate help for communities seem to repeat themselves, making me wonder about the pace of change. When a University of Hull PhD student recently asked me to come to his country to help when a natural disaster struck, this deepened my concern even further, as he told stories of uncoordinated aid efforts and a lack of community involvement that seemed dreadfully familiar from my forays into the literature and interviews with my respondents.

What I discovered along the way, however, as my studies deepened, was the *naivety* of my approach to the topic when I started: I came to realise that there are many complexities and confusions that form the challenging picture of disaster response policy and intervention, giving rise to the inertia. But, having engaged with the literature on the theory and practice of systems thinking over the course of the last four years, I still believe it is possible to do something about this. Certainly my starting point in coming to Hull, before I learned about systems thinking – that efficient logistics should be the priority – is now clearly inadequate in retrospect: efficient supply chains are a good thing, but if communities are not consulted on what they need, and the supply chains deliver goods that do not ‘fit together’ to deal with the full range of those needs, then the disaster response will fall short. A systems approach is needed.

Ultimately what this project has endeavoured to offer, through the VSMs and the provision of my Systemic Boundary Analysis tool, is a clearer pathway towards giving disaster-hit communities what they need while still ensuring that the multiple agencies continue to have autonomy, but within a new conceptual framework of co-operation. That co-operation is, however, framed in relation to community engagement, so it is co-operation to deliver what communities need and value *from their perspectives*.

## **6.6 Chapter and Thesis Summary**

This chapter has been focused on how my findings addressed the research question, and what possibilities there might be for future research. It ended with some reflections on how the project began, and how some of my own early, naive assumptions were challenged during the research. Even though the business of disaster response is much more complex than I originally imagined, and there is real inertia in the human systems developed to bring it about, I am still optimistic that the best chance for improvement lies with taking a systems approach. My own future interests continue to lie in improving disaster response systems in developing countries. This is because of the simple recognition that there are both ‘haves’ and ‘have nots’ in our international community, all living in our eco-system called ‘Gaia’, and it is the ‘have nots’ who are generally most in need when a natural disaster hits, as their nations have insufficient resources on their own to deliver all that is required.

This thesis research journey is one that brings a possible change-for-the-good. It has been about community engagement, multiple agency co-ordination, and about their integration in a ‘greater whole’, as defined through systemic thinking. There has been a beginning, the middle and an end for this project. But (drawing upon a steam train as a

*Deo Gratia*

## **Appendices Index**

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## A01: UoH HUBS Ethical Procedures Declaration

### DECLARATION

I, Peter Graham Munday, do confirm that I have followed the ethical procedures for research and a research ethics pro forma has been completed for this piece of research. Approval was granted by an authorised member of the University of Hull Business School on 14/02/13.

A specimen Consent Form:

  
**UNIVERSITY OF Hull**  
Business School

**RESEARCH ETHICS COMMITTEE**  
**CONSENT FORM: Semi-Structured Exploratory Interview**

---

I, **X** [name] of **X** [organisation]

**Hereby agree** to participate in this study to be undertaken

By Peter G Munday – PhD Student Researcher

And I understand that the purpose of the research is looking at how community engagement is formed with multi-agencies (the co-ordination aspect) in context of a natural disaster. The purpose is to offer focused thinking on the strengths and weaknesses of a disaster response, to ask what sorts of initiatives would/could be useful to disaster recovery practitioners, be the starting point for developing ideas, and by allowing some 'blue sky thinking' that will guide and direct the project.

**I understand that**

1. Upon receipt, my Semi-Structured Exploratory Interview data will be made anonymous with my name, address, place of employment, and Email Account Address kept separately from it.
2. Any information that I provide will not be made public in any form that could reveal my identity to an outside party i.e. that I will remain fully anonymous.
3. Single or Aggregated comments will be used for research purposes and may be reported in scientific and academic journals (including online publications).
4. Individual comments **will not** be released to any person except at my request and on my authorisation.
5. That I am free to withdraw my consent at any time during the study in which event my participation in the research study will immediately cease and any information obtained from me will not be used.
6. The Exploratory Interview I give **will be recorded digitally** for later transcription, be analysed anonymously, and **will be archived digitally**; only **anonymised text** will be used within the PhD dissertation and any following research publication.

Signature: **X** [insert here your Email Address]

Date: **X** [insert here the date you Email to [Email Address]]

The contact details of the Student Researcher are:  
University of Hull  
Hull University Business School (HUBS)  
Peter G Munday, PhD Management  
Email: [Email Address]

The contact details of the HUBS Research Ethics Committee are:  
University of Hull  
Hull University Business School (HUBS)  
FAO: Any Cowling, Secretary to the HUBS Research Ethics Committee  
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Hull, HU6 7RX UK  
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Telephone: +44 (0) 1482 463410

**Notice to Participant:** please complete this Consent Form electronically and save it on your own computer. Please then attach this Consent Form to the Email Address shown as "Student Researcher" above. Consent Form completion **with its electronic transmission** will comprise your acceptance and consent.

## A02: Exploratory Interviews, with list of its questions

### Anonymised Interviewee data

Ref	Work Environment	Work Job	Work Interest
01	University	Academic	Humanitarian
02	Non-governmental Organisation	Office & Field work	Disaster recovery
03	Non-governmental Organisation	Office & Field work	Initial relief
04	Non-governmental Organisation	Office & Field work	Faith-based relief
05	UK Government	Parliamentarian	Development
06	UK Government	Parliamentarian	Development
07	United Nations	Academic	Aid projects
08	UK Local Government	Disaster management	Flood risks
09	University	Academic	Disaster resilience
10	University	Academic	Risk vulnerability
11	Enterprise: Disaster Resources	Office & Field work	Disaster recovery
12	Non-governmental Organisation	Field work	Disaster relief
13	Non-governmental Organisation	Field work	Humanitarian
14	Other Government	Parliamentarian	Development

Note: the initial research for potential interviewees used various research documents and the Internet to begin a list of candidates; the list developed by a process of inquiry and careful targeting of appropriate disaster arenas. These individuals are all United Kingdom (UK) based, that is from the office of their employer.

### Exploratory Interviews' Questions

Preamble: My research project chiefly addresses the response phase of a natural disaster. This is the stage after immediate relief has been delivered into the disaster zone, about rebuilding, the bringing together again. And it is about 'community engagement' and 'multi-agency co-ordination', particularly of how developing nations respond to natural disasters. The Briefing Case Study offered a variety of different disaster scenes, raising many questions, and this interview is drawn from that Study.



My first question is:

01. When you are informed of a significant (natural) disaster, and are asked to get involved, what roles do you usually have in responding to that event?

02. I hope you have been able to read the Briefing Case Study. Taking its focus, I wonder what your general viewpoint is of ‘current natural disaster responses’.

03. Thinking particularly of recent international disaster responses, what issues does the Case Study raise for you by explaining a couple of your points for me?

04. In the Haiti 2010 Earthquake, by various reports, up to ten thousand non-governmental organisations (NGOs) arrived to offer help. For you, what are the implications of this?

05. Taking ‘multi-agency’ to include NGOs, the UN and Governments etc., I would like to consider about issues of their co-ordination. These bodies have money, equipment, rebuilding expertise, and recovery planners. What views do you hold about improving multi-agencies’ co-ordination for disaster recovery work?

06. In a disaster with no forewarning, such as a tsunami or major earthquake, community infrastructure typically is decimated. In the recovery stage of such a disaster, how do you think community engagement and conversations with multi-agency bodies for recovery should be made, and why so?

07. By contrast, other disasters like HIV/AIDS, malaria or enduring poverty are more gradual or long-term. How do you think such disasters should be addressed to do both community engagement and multi-agency co-ordination together?

08. I want my PhD to make a positive contribution to dealing with some of the issues you have raised. If I could develop something useful for agencies involved in disaster recovery, what might it be?

And my final question is:

09. Is there anything else you would like to say, perhaps for a question I've not raised?

x-X-x-

### A03: Advisory Group, with list of its questions

#### Anonymised Respondent data

Ref	Country	Work	Job	Interest
01	India	NGO	Disaster Field worker	Humanitarian
02	India	NGO	Head of NGO	Humanitarian
03	Columbia & UK	University	Academic	Systems
04	Indonesia	NGO	Chair	Community
05	China & USA	University Research	Academic Researcher	Health
06	Africa, Central	International NGO	Researcher Officer	Community
07	UK-based	International NGO	Head of Supply Chain	Health
08	Africa, Southern	International Government	Region Director	Health
09	Middle East	Government	Civil Servant	Governance
10	Africa, West	Government	Civil Servant	Seismic control
11	Asia, South	Commerce	Strategic Planner	Disaster planning
12	Europe	International NGO	Academic Researcher	Health
13	New Zealand	University	Group Director	Disaster resilience
14	Africa, West	University	Academic Researcher	Climate changes
15	UK-based	University	Academic	African health
16	America, South	University	Academic	Systems – Justice
17	America, South	University	Academic	Systems – Logistics
18	Europe	International NGO	Academic Researcher	Health
19	Europe	International NGO	Academic Researcher	Health
20	America, South	University	Academic Research	Community issues
21	America, Central	NGO	Systems worker	Community issues

Note: the initial research for potential interviewees used various research documents and the Internet to begin a list of candidates; the list developed by a process of inquiry and careful targeting of appropriate disaster arenas. These individuals are variously based in named countries around the world, or are peripatetic to disaster-hit countries.

Observation: specific criteria for potential participants were not surveyed on the following basis, to exclude: 1) developed world country/countries; 2) where language might be an issue; and 3) where communication facilities were potentially insufficient.

## Exploratory Interviews' Questions

### Questionnaire Preamble:

My research project chiefly addresses the response phase of a natural disaster. This is the stage after immediate relief has been delivered into the disaster zone, about rebuilding, the bringing together again. The following stage is of resilience. And it is about 'community engagement' and 'multi-agency co-ordination', particularly of how developing nations respond to natural disasters.

### Questions:

1. When you hear news of a natural disaster in your country or one to which you may be sent as part of your job, please explain the first main task that you do in responding to that news?
2. Please give a list of the types of (natural) disaster you have helped at, or which your work has been concerned about.
3. Your work may be actively humanitarian in the disaster, or doing a back-office job, or is another support role. With a short list and brief explanation, which countries or areas of your own country has your work taken you to, when dealing with a natural disaster?
4. Please write a short paragraph on your experiences and feelings about the last natural disaster you were involved with.

5. In general terms, what is your opinion of international responses to any (regional/country) natural disaster?
6. National and Regional Governments, the United Nations, and Non-governmental Organisations (NGOs), respond to a natural disaster in different ways. What do you think about the sorts of response that they offer? Write about a particular (but not naming it) organisation if you wish.
7. Your own National Government and various Regional Governments (such as the European Union or the African Union), all provide various types and forms of disaster relief and response assistance. In general terms (without specified criticism), how well do you consider that such Governments deal with natural disasters?
8. Across the various ‘divisions’ of the United Nations (UN) – particularly those concerned with humanitarian support, how well do you consider the UN addresses natural disaster?
9. Please write about any concerns you have for the United Nations’ ‘divisions’ in working together with other agencies responding to future significant natural disasters.
10. There are many NGOs [non-governmental organisations] that offer humanitarian assistance at the time of a natural disaster. How well do you think these NGOs do their job in helping a disaster-hit community?
11. Of your own country’s NGOs that deal with humanitarian need (without specified criticism), by how relevant is the size of them (i.e. financial, people-

complement, capacity, scope, etc.) when they contribute into a significant regional natural disaster hitting a Developing Country?

12. How well do you think the United Nations, Governments, and Non-governmental Organisations work together at times of a natural disaster? Please outline two or three points that you consider work well, and two or three points you consider pose problems.

13. What do you think a National Government (particularly of a Developing Country) might consider should be done – in terms of legislation etc., to improve access for international disaster organisations and the equipment etc. they bring in to deal with a natural disaster?

14. It is the community hit by the natural disaster that matters, by being offered assistance and comfort to eventually help those people return again to their normal life. What do you think are useful strategies and tools for a community to use in dealing with a natural disaster? Please briefly discuss your thoughts.

15. In a disaster that you have good knowledge about, please list and briefly discuss the principle organisations that were involved with responding to the disaster-hit community.

16. As a natural disaster often has its formation earlier than the damaging impact itself, what would you consider to be good ‘preparation tools’ for the community? [This question allows for anything to be discussed that you think matters in helping the community against the threat of or potential of a disaster occurring.]

17. In terms of a community expressing its own corporate needs and wants, how well do you think the multi-agencies listen? Please explain your argument.

18. In some natural disasters – for instance, Haiti’s earthquake in January 2010, it is not the disaster that is the significant problem, recognising here though the loss of life, injuries, and the physical damage for those Haitian People. There is a wider, systemic (i.e. universal, general) problem about enduring poverty, of health matters, and of fragile governance, lying at the root of some disasters for some Developing Nations. What would you consider the international community, by responding to the disaster event itself, might also work on for such Nations? Please briefly outline two or three aspects.

19. For tackling most natural disasters, there is a basic framework of relief and responses to provide to disaster-hit people – safety, water, sanitation, shelter, food, and so on. Generally and in broad terms, each agency deals with just one particular contribution alone for such a list. But the community needs to have an entire list provided and supported all at one and the same time. What suggestions have you to make about how these separate units of disaster multi-agencies’ activities, may make uniform (e.g. standardise or synchronise) the support and help they give and deliver in dealing with the community’s needs at that time?

20. For this PhD research project to have a practical result and an application that addresses the points you have made, what are the one or two ‘things’ that don’t yet happen or exist, which you think will make the difference for the disaster-hit community in future?

21. There might be something else you wish to write about, not dealt with in these questions above. Please use this final space to have your say. Thank you.

This is the end of the Questionnaire. There are twenty one (21) questions.

-x-X-x-



## A04: Design Team, with list of its questions

### Anonymised Participant data

Ref	Work Environment	Work Job	Work Interest
01	Enterprise: Disaster Resources	Office & Field work	Disaster recovery
02	Consultant	Office	Development
03	Non-governmental Organisation	Office & Field work	Faith-based relief
04	University	Academic	Disaster resilience
05	Commerce	Strategic Planner	Disaster planning
06	Consultant	Office	Development
07	University	Academic	Risk vulnerability

Note: the catchment arena for potential participants used two criteria: a) field practitioners who had responded to earlier data-gathering exercises and had indicated continuing interest in this research project, and b) other academic or consultant individuals who hold particular knowledge about the Viable System Model (VSM) and would address issues of its validity of this within a Systems Thinking engagement.

### Exploratory Interviews' Questions

#### Questionnaire Preamble:

Please read the Design Team Evaluation document that accompanies this questionnaire before embarking on the latter. The purpose of this questionnaire is to gather feedback on the contents of that document, which constitute an overview of my recommendations for improving multi-agency co-ordination and community engagement in the context of disaster recovery. Thank you.

The questions follow next...

Questions:

1. Having read through the Design Team Evaluation document and considered the models, what are your initial thoughts about this proposal to translate ‘theory into practice’?
2. Model 1. Earlier respondents in my research indicated that “someone” should have “management control” across a natural disaster event. How well do you think the “UNDR” might meet that purpose, based on the Evaluation you’ve read?
3. Model 2. This represents all Continental/Regional bodies: its purpose is to organise its area’s NGOs and collate other data and information through local area networking activities. The ‘key person’ also comes from these bodies, as co-ordinator between community leadership and multiple agencies on the ground in the disaster area. What is your view about setting up regional bodies, such as these, as single “go to” points of contact?
4. Model 3. The Community is often provided with ‘a standard, off-the-shelf solution’ to aid its recovery, post-disaster. Model 3 offers an organisational means to engage communities so their specific needs can be identified and responded to. What is your view of this?
5. Please compare and contrast my proposals in the Design Team Evaluation document with either what is already done in the field or what the literature says should be done (or both). For you, which is better and why? What are the strengths and weaknesses of the different options that we should pay attention to?

6. Scientific opinion indicates that natural disasters will become a) more frequent and b) more intense. The world community currently reacts positively, though fairly ad-hoc, to natural disasters. How well do you think that implementing these models would improve the situation?

7. [optional question]

If you think the VSM is strong enough to implement, how do you suggest this is put on the agenda of the multiple agencies, such as the Red Cross or the UK Government's Department for International Development (DfID) and/or the United Nations?

8. [optional question]

There might be something else you wish to write about, not dealt with in these questions above. Please use this final space to have your say. Thank you.

-x-X-x-

## **A05: Abduction (Deduction and Induction), a brief discussion**

It is necessary, but although briefly, to explain why this project took the exploratory inferential journey it has, rather than of why not to take one of two other potential research inferences. The three possible routes – modes of inference, are ‘abductive’, ‘deductive’, and ‘inductive’, in terms of the inquiring philosophical ‘research journey’ to be made. The choice of ‘abductive’ for this project should become clear through this Appendix, and explain why the other two were not selected. I also pass an observation concerning my own ‘researcher personality’ as a constructivist, and of how the philosophy of abductionism is part of how I think and therefore conduct my research.

### Introduction

Within a project that firstly is of potentially global influence, which discusses actions instigated by forces that essentially cannot be managed by human beings, and is about events of often immense scale, and then secondly is a project of which every person will hold an opinion concerning management of such a disaster, so tackling a natural disaster in a developing world country as a research project and in seeking any intervention, is perplexing. Many commentators have opined about disaster causes, berated responders, lambasted authorities, and commiserated sufferers. There are textbooks, reports, and reviews about the multitude of aspects and perspectives that constitute a natural disaster; many such documents gather proverbial dust on bookshelves or disappear ‘into electronic clouds’. Numerous research methodologies may be deployed; a spectrum of potential solutions might be uncovered; but finding the truth, a truth, of its entirety and within its complexity from of a natural disaster, is often hard to achieve. Thus, to make appropriate or justifiable assertions that will meet the disaster-hit community’s wants and needs for community-based implementation can be that veritable minefield.

Whether to decide on a ‘teasing-out’ (abductive) or a ‘testing-out’ (deductive) or a ‘testing-of’ (inductive) approach perhaps defines more about the researcher and his/her philosophical approach, but there is also much to be examined through the *context* of the research topic and research matter. I have taken the approach of *abduction* because this project focuses on what practitioners do through *creating context-specific theory*. So in this project there is no *per se* hypothesis, though there is provided the exploratory proposition that helps to structure the reader’s processing and framing of understanding: but such ‘is not offered for testing’. I am, rather, endeavouring to work backwards, therefore abductively, by looking at the problem situation, researching for what others have previously written, grounded this with strong systemic foundations, in the direction of *uncovering* the theory (proposition) as happenstance; work then proceeds forwards towards potential interventions for implementation and later follow-up.

Following, I give an explanation for each of ‘abduction’, ‘deduction’ and ‘induction’ such that pertains to systems thinking and to this project; a few notes of criticisms, particularly of abduction; and, to explain how the philosophy of abduction is the right choice for this research project. Then, to conclude, I express how my research philosophy brings abduction within my ‘personality’ of constructivist application. A short summary brings these principle issues together.

### Abduction

Abduction – as its philosophical use here, is less used by many people as a word of regular vocabulary. A useful lay explanation of ‘abduction’ comes from John Gray:

“The type of reasoning [that the sleuth, Sherlock] Holmes uses is of another, more conjectural kind – sometimes called abductive reasoning – that can’t offer certainty or any precise assessment of probability, only the best available

account of events. Importantly, this kind of reasoning can't be practised simply by following rules" (2012).

Having then noted about both 'deduction' and 'induction', Gray then highlights of the different style ascribed to the logic that 'abduction' is: the point being that the subject matter itself is less structured and less defined; it requires a different approach towards uncovering the undoubted truths that lie buried within the research problem. Gray is supported in his discussion that Sherlock Holmes used abductive reasoning:

"From the vantage point of the interrogative approach, [Charles Sanders] Peirce's terminology can be claimed merely to follow ordinary usage when he calls an interrogatively interpreted abductive step an inference. The reasoning of the likes of Sherlock Holmes or Nero Wolfe [an American TV show sleuth] is not deductive, nor does it conform to any known forms of 'inductive inference'. The 'deductions' of great detectives are in fact best thought of as question-answer sequences interspersed with deductive inferences (I have argued)" (Hintikka, 1998, p.527).

Sherlock Holmes, however, always brought the offender to justice.

The formal approach and definition begins with Charles Sanders Peirce [1839-1914] who wrote of *retroduction* in a philosophical article defending the reality of God: Peirce writes about building up an argument and of how such should be defended. As part of this process, Peirce introduces the reader to the logic performed as a "characteristic formula of reasoning I term Retroduction, *i.e.* reasoning from consequent to antecedent" (1909, pp.100-101). This is that, in essence, there is an idea, which is supported with other sources, and comes back to a 'theory', which may be tested. Around this idea, Peirce writes how the formula has to be examined, suggesting about "all sorts of conditional experiential consequences which would follow from its truth" (1909, p.101).

In other words, to explain what is happening, the process of logical inference is of description back to theory to describe the evidence found. The word ‘abduction’, and its functional action, “suffers a flight of fanciful names from hypothesis, through presumption and suggestion, to retroduction” (Awbrey and Awbrey, 1995): for convenience, I use ‘abduction’.

Awbrey and Awbrey take Peirce’s argument and describe the research process with,

“The first functional stage of inquiry is abduction, which involves ‘pondering these phenomena in all their aspects’, allowing a conjecture to arise ‘that furnishes a possible Explanation’, regarding the conjecture with ‘favour’ and holding it to be ‘Plausible’ [...] Peirce’s second stage of inquiry, deduction, is the testing of the hypothesis” [...] and] “Finally, in the third stage, induction, the inquirer ascertains” (Awbrey and Awbrey, 1995, no pagination) his understanding of whether the ‘reasoning from consequent to antecedent’ shows the theory is provable or not.

Ultimately, for the researcher, and also for Awbrey & Awbrey, is the notion of inquiry – in the sense of investigation or examination or analysis of a particular matter. This is about uncovering the truth, perhaps of contributing to a (perceived or otherwise) ‘gap in the knowledge base’ across academia, or potentially towards building and implementing an intervention for some disclosed need. Behind the easier-to-comprehend quotation above lies something relatively more complex but logically rational: a formula.

Peirce himself provides this following explanation and formula concerning abduction:

“189. Long before I first classed abduction as an inference it was recognized by logicians that the operation of adopting an explanatory hypothesis — which is just what abduction is — was subject to certain conditions. Namely, the

hypothesis cannot be admitted, even as a hypothesis, unless it be supposed that it would account for the facts or some of them. The form of inference, therefore, is this:

*The surprising fact, C, is observed;*

*But if A were true, C would be a matter of course,*

*Hence, there is reason to suspect that A is true.*

Thus, A cannot be abductively inferred, or if you prefer the expression, cannot be abductively conjectured until its entire content is already present in the premiss, »If A were true, C would be a matter of course«” (1931, no pagination; my italics).

This helps me on two counts: 1) to explain the research process I have taken, and 2) in defining how I have used my project’s *exploratory proposition* as a descriptive statement that aids the reader rather than being something to be tested. It should be clear that I was unable to proffer a theory for testing when the ‘facts’ are extremely obvious. There are inferences made within the project, though these are addressed in those discussions.

### Deduction and Induction

Both deduction and induction are different from abduction as these both have something more concrete about their formula and processing, and therefore of their results. Deduction speaks of true general matters through a process of reasoning towards the conclusion that something *is true*; so it is much more certain within its context. Gray explains deduction thus: “... we move with logical certainty from general principles to a particular conclusion, as in ‘all swans are white, this is a swan, so this must be white’” (2012). By contrast, induction is much more probabilistic within its context; so, there is probably a likelihood of (say) truth behind the premise being examined but the



conclusion *is less certain*. “Induction, [is] where we move from particular observations to general principles, as in ‘all the swans that have ever been seen are white, so all swans are white’” (2012). [But black swans do exist too.] For the research environment, deductive research involves “the testing of a theoretical proposition by the employment of a research strategy specifically designed for the purpose of its testing”; and of inductive research, it is “the development of a theory as a result of the observation of empirical data” (Saunders *et al.*, 1997, p.590; p.593).

So deductive research concerns testing a theory for which the research approach should ascertain its validity (or otherwise); inductive research is about developing the theory that meets the understood extant data; whereas abductive research ‘sees’ the reality of the situation, and then infers backwards through data to offering an opinion through a then-formed exploratory proposition that something is the best explanation available for the researched matter. This has been the situation for this project.

#### Use of Abduction in this Project

This project is ultimately about the disaster-hit people of a community in a developing world country, who face extreme multiple neediness and loss of social infrastructure through an event entirely outside their control, and for which their own national government is unable to fully meet that community’s needs at the time of crisis in a timely and complete manner. Over time, nations and organisations have developed plans, obtained goods, and provided expertise, which are offered to a government of a country where a natural disaster has occurred: this is part of the moral imperative within the sense of globalisation existing today. My observation was of complexities and confusion about the delivery of services; particularly, the imposition or inertia against good logistical delivery, being earlier noted – whereby the situation was seen as

awaiting providers' preconceived solutions for imposition on the community: the intervention is well-intended but its attributes may be questioned. There are two senses of a question resulting from that position, firstly that what was delivered was not necessarily right for the situation, and suffered delays in delivery to the disaster-front (e.g., Stourton, 2011); but secondly of what questions were asked of the community about their own perception for their future. This second aspect lies at the root of how abductive reasoning and research allowed this project to develop its exploratory route.

### Criticisms

There is criticism of the abductive reasoning approach. Paavola discusses *criticisms* (etc.) of abduction with this opening sentence: "Abductive inference is nowadays a controversial issue, despite its application in a variety of fields" (2004, p.246), and then proceeds to detail a variety of arguments. An initial criticism the author expresses is that "...it is not a viable mode of inference, especially if abduction is presented as a logic of *discovery*" (*ibid*, original italics), and questions "what *kind* of criteria should be applied to abduction (in contrast to deduction and induction)" (*ibid*, p.255; original italics). Further, Paavola wonders, "But if abduction gives only suggestions, it is open to the criticism that it is not very useful. One basic criticism against abduction has been that it leaves room for 'wild' hypotheses" (p.259). Finally, the author draws conclusions, among which is: "There is not just one 'right' version of abduction waiting to be discovered, but different versions can enlighten various aspects of related phenomena" (*ibid*, p.266). It could be argued that, as a logical and rational process, abduction can only adhere strictly to its formula to elucidate its results; conversely, abduction might also be portrayed as a process of inquiry with moveable boundaries. It is also noted that boundaries are part of the Systemic Intervention approach used and are a necessary element of the *Systemic Boundary Analysis* tool used in the project.

McKaughan suggests that, of Charles Sanders Peirce's abductive concept, some Peirce scholars hold a poor sense of what Pierce expressed, and that some likewise lack "a clear and consistent picture of what is to be inferred in an abduction" (2008, p.447). A criticism of abductive reasoning itself, to its "formalization ... is still an open question: there is no general agreement on the boundary of some basic concepts ..." (Mayer and Pirri, 1993, Abstract). Whether it is fully argued that abduction is viable, it appears to operate satisfactorily within the research methodology of this project, allowing me to explore the issues differently and not to be required to adhere to a formula that might not entirely uncover the truth being sought. The process of research necessarily needs to have a methodology that achieves its purpose and to assist with the ultimate task of the research question: I believe abduction does achieve its purpose for this project.

#### Abduction and Constructivism

With *abduction* broadly outlined as a logical inferential rationality that looks at what is, to allowing a hypothesis (for this project, the exploratory proposition) thus to form an understanding that is the best account of the researched matter, so – for me – that rationality contributes to my research personality as a *constructivist*. I give two explanations of 'constructivism'. Firstly, the role is explained to be, "learning is an active, contextualised process in which learners construct knowledge through social negotiation" (Barros-Castro *et al.*, 2014, p.268). This expresses the notion that – as a human being – I am constantly learning (even outside expected learning facilities, such as a university), and that this is achieved through a process such as in conversations, by forming questions and through hearing answers. Secondly, as "social reality is not separate from us", the 'social human being' acts in concert with other 'social human beings', because "social realities and ourselves are intimately interwoven as each shapes and is shaped by the other in everyday interactions" (Cunliffe, 2008, p.124). This

‘constructs’ the social-ness of human beings, of their interactions through language, art, presence, and so on, but also intimates that ‘my’ learning is ‘mine’ – built up from and upon through many experiences throughout ‘my’ life. Life is a constant journey of education, and of learning.

The foundation of life’s experience, of learning, starts at birth; the learning process is formalised through childhood into early adulthood in educational facilities; social interactions in family, leisure, employment, and with social activities further develop the adult’s knowledge-base; this is accomplished through ‘my’ individual learning but is acquired via ‘wider-group’ interactions. Therefore, and again in broad terms, constructivism is the sense ‘of building upon what is already known’ by the individual concerned; thus, by extension, what everyone sees, hear, comprehends, interprets, is their own experience, and there will always be subtle differences in understanding between people about the same thing. Barros *et al.*, write: “It becomes essential to let children [*and adults too, to*] explore different structures of the physical world and [to] construct abstractions to use them later on to guide their future thinking and acting” (2014, p.268; my added words and italics). This, for me, gives the linking between abduction and constructivism, the theory that how I see and sense the world around me is built-upon through drawing from something extant to build my own ‘best account’ of what I see going on.

The starting-point for this project and its research matter was years of seeing television news reports of natural disasters, of reading newspaper accounts, and sensing that something was not right in delivery so that disaster-hit communities recovered in a timely manner. I saw an aspect of the world that troubled me, made enquiries to build-on the social interactions I made, and then began a more formal rational approach to

learning more, build an exploratory proposition, and then work towards an intervention that may begin to address the original point that frustrated me those years before.

### Summary

This Appendix has defined abduction, looked at (social) constructivism, and brought together the two perspectives to explain why these work as part of the project's methodology. Deduction and induction are briefly observed; these processes would not fulfil the exploratory nature of the project, as they are infinitely more formal processes of inquiry than is abduction.

-x-X-x-

## **A06: Groupthink: a brief overview and commentary pertaining to this project**

The impression of a psychological bias pervading, particularly, headquarters' staffs of (International) Non-governmental Organisations ((I) NGOs) has been of some concern within this research project. Following discussions with my Supervisor, and the writing-up of a draft chapter about the matter, I decided to place instead a shorter exposition as an Appendix. However, that 'psychological bias', I refer to *groupthink*, remains an issue to be explored, being still a contextual matter I have concerns about herein. I need to do further research – now outside this project, to nuance the connections I believe are extant and so be the subject of some future publication.

### Overview – Groupthink

The Oxford Dictionary (2005) defines *groupthink* thus: “the practice of thinking or making decisions as a group, resulting typically in unchallenged, poor-quality decision-making” and “originating in the late 20<sup>th</sup> Century” – “on the pattern of *doublethink*”. Doublethink holds a comparable philosophical formation of its concept: “the acceptance of contrary opinions or beliefs *at the same time* [i.e. concurrently], especially as a result of political indoctrination” (Oxford Dictionary, 2005, my italics; *cf.*, Orwell, 1949, pp.40-41). The essence is a group building its decision based on someone else's or on a 'flawed' belief, and without the benefit of (good) analytical inquiry. There is the sense of acquiescence [i.e., compliance, or of a submissive stance], driven by an imperative of 'not to rock the (corporate) boat', or 'not to be seen as being divergent' to the norm. This state might occur in conditions where rapid decisions are required but which – if or when implemented, hold far broader penalties. Consequences may not be foreseen, either via pre-planning, pre-thinking, or as contextualised in decision-making meetings.

The earliest reference I came across was in a *Fortune* magazine article, reprinted fifty years from its original publication; the magazine Editor claimed its right to have ‘coined’ the word (Whyte, 1952). Whyte’s working definition observes of “a rationalised conformity” of this groupthink notion. There is also an almost-veiled but much larger suggestion that groupthink is intricate with, or maybe becomes overlaid by, “the system they abide by – be it an Army camp, a business office, or a small-town environment – shown as [being] more benevolent” (*ibid*, no pagination). That ‘hint’ surely indicates an immense or greater-sized organisational hierarchy – a ‘big brother’ entity, where the evolved working ethos has *developed with time* to decision-making based on the corporate consensual viewpoint. This may then lead a thinker to reflect as well upon Orwell’s *Nineteen-Eighty Four*, of what ‘Big Brother’ (read, ‘system’) could direct and do: as Whyte wrote, “in some cases the system itself becomes the *deus ex machina* [“an unexpected power or event, saving a seemingly hopeless situation” (Oxford Dictionary, 2005)] that solves the problem” (1952, no pagination). I suspect it is akin to this last explanation that I have drawn my own suspicions of this (I) NGOs’ *groupthink position*.

Janis, in his 1972 *Victims of Groupthink*, uses ‘groupthink’

“[As] a quick and easy way to refer to a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ strivings for unanimity override their motivation to realistically appraise alternative courses of action” (p.9).

He demonstrates the notion, that “any small cohesive group tend to maintain *esprit de corps* by unconsciously developing a number of shared illusions and related norms that interfere with critical thinking and reality testing” (p.35, original italics). This is based on the idea about avoiding “being too harsh in their judgements of their leaders’ or their

colleagues' ideas ... a soft line of criticism, even in their own thinking ... [and not wanting] bickering or conflict to spoil the cosy, "we-feeling" atmosphere" (Janis, 1971, no pagination). This philosophy is suggestive of discerning 'the leader' as being omniscient, of 'lower ranks' being subservient. Janis puts this down to a problem of "powerful psychological pressures ... when [decision-makers] work closely together, [sharing] the same set of values and, above all, [facing] *a crisis situation that puts everyone under intense stress*" (*ibid*, no pagination, my italics). Janis was discussing conflicts concerned with politics, place, and war; I am discussing multi-agencies concerned with relief, response, and resiliency in the aftermath of natural disaster. These two scenarios are different but have qualities and attributes similar to the other, and of how understanding groupthink seems to matter in my project. Other researchers and authors have looked at the matter of how groupthink is defined.

Elster interprets Janis' *groupthink* as "mutually reinforcing bias" (1997, p.15). Elster writes of a "cognitive analogy suggests that the rationality of beliefs may be positively as well as negatively affected by interaction" (*ibid*) [he was concerned with matters *political*]. However, that contextualised point also holds sufficiently-well to my natural disaster context: the NGO headquarters comprises a hierarchy of extremely-focused individuals who have a task to undertake and one which demands resolution; where decision-making can be life-or-death and so has to have, needs-must, rapid consensus agreement. Drawing from Janis once more, Janis explains this phenomenon to have "characteristic manifestations of group euphoria" (1982, p.35), whereby the sense of achieving something 'good' brings about corporate well-being; in the natural disaster scene, this would be successful completion of 'survival, re-institution, and decent future prospects' for a community. Janis continues that 'the group' ...



“[S]hare a sense of belonging to a powerful, protective group ... [which opens] up new potentials for each of them [i.e. each group member]. [... That once] this euphoric phase takes hold, decision-making for everyday activities, as well as long-range planning, is likely to be seriously impaired” (*ibid*, p.36).

This raises queries in my mind.

Here is the juncture where I sense that the psychological ‘bias’ *groupthink* becomes the point-of-research for me. My proposition rests on two perspectives. Firstly, that NGOs, especially those world-wide, internationally-functional ones, which are necessarily vast organisations and organisationally hierarchical, are ‘too big’ and ‘too far removed’ between the disaster-front and the necessary (financial, procurement, empowering) headquarters; they require great consensus ‘to get things done’. And secondly, with the ‘size’ issue to mind and that many NGOs receive monies from or act as agent of or for a government department, and also collect gifts and money donations from ‘the general public’ (occasionally via national or international media appeals), they have to act as businesses. In this regard, NGOs *have to comply* with numerous laws, regulations, investigations, ‘officialdom’, media and general public scrutiny, plus legal reporting, and *have to behave* according to certain or prescribed conditions.

Thus, I contend, there comes a two-fold ‘need’ to comply with the sense of ‘political correctness’ that pervades (invades) such commercial activities, and also by driving the NGO in certain publically-viewed directions so that NGO reputation is not tarnished. This, I sense, is driven by ‘groupthink’ mentality, acquired across the development of NGOs through the decades as they have (necessarily, one might suggest) expanded their functionality as ‘businesses’. NGOs have needed to address their mission statements of intent – helping the needy person, here out of a natural disaster, with one eye ‘to other

*aspects* of its business’. This theme forms a future research project for me. By way of an observation here, I have stated ‘NGO’ herein: this should also, in my proposition for research, be read as ‘multi-agency’ in the sense that I have defined it for my project.

### Groupthink as psychology

Janis gives an interesting psychological perspective on the cohort of people to whom he ascribes the bias *groupthink*. The paragraph reads:

“The main principle of groupthink, which I offer in the spirit of Parkinson’s Law, is this: *The more amiability and esprit de corps there is among the members of a policy-making ingroup, the greater the danger that independent critical thinking will be replaced by groupthink, which is likely to result in irrational and dehumanizing actions directed against outgroups*”

(1971, no pagination).

I find this a deeply thought-provoking ‘principle’ from Janis. The essence for me comes from the idea that each individual wants to be independent [i.e. seen as important and valued] but feels the compelling necessity to be *part of the group*, to be ‘enveloped’ in the ‘zeitgeist’ [i.e. accepted as participating of the spirit or mood at that moment]. The effect, in making the decision, is more vital ‘locally’ than is the impact ‘globally’ due to the deep-set need of the individual to harmonise, rather than to put up arguments for possible alternatives – which may or may not have been available anyway.

There are two threads to my thinking as to why I sense groupthink is a psychological perspective within multi-agencies, of how the phenomenon affects essential decision-making to the detriment of communities being assisted in and around a natural disaster event. The first concerns influences that affect ‘how’ the organisation functions and of the ‘who’ makes it face such pressure *to act* in a certain fashion; this is perhaps in the

sense of managerial framework. The second, is where there is appropriate topic discussion (among decision-makers) but an *inability* to address the issues concerned, set against the backdrop of the organisational task with the capacity (subjective term here) to challenge or to oppose. These two points are now briefly articulated.

#### First – Who influences and coerces

A significant task of decision-makers, at strategic and tactical levels within NGOs, is scanning (analysing) the environment that the NGO operates of and functions within: specifically here, I highlight those NGOs (multi-agencies) working for the relief, response and resilience of communities hit by a natural disaster event. In the Janis Groupthink Model [not provided here], three antecedents are noted: ‘Group Cohesiveness’, ‘Structural Organisational Faults’, and ‘Provocative Situational Context’. Within the latter two antecedents are a number of ‘conditions’ [not further identified here]. It is the full interaction of all these attributes, labelled by Janis in his Groupthink Model as “Concurrence-seeking (Groupthink tendency)” which first causes and then elicits this psychological phenomenon. From Hart (1990, p.9), in his flow chart, is “Structural aspects of the organisation” at this same point of ‘the model’. For me, this is probably part of the cause for why I see *groupthink* featuring in this project, and brings the theory of Systems Thinking into the scenario – a systematic failure.

Decision-makers need to understand the ‘who’ influences and coerces, both internally and externally of their organisation. This is achieved through *environmental scanning* or *analysis*; this is linked to my project, illustrated through my text and denoted in the various Viable System Models (VSMs) as “System 4: [‘Environmental scanning’]” (*cf.*, Viable System Model – Peter G Munday, 2013 (above)). Environmental scanning / analysis is defined to be, the monitoring and evaluation of internal and external

environments for opportunities and threats, and possible or probable effects of external forces and conditions that could (radically) change its present stability (Business Dictionary, 2014). This is what VSM 'System 4' is charged with through its duties, to understanding the 'outside' of the NGO itself.

The sense of groupthink imposition comes from Janis' described trait "Observable Consequences: 1. Illusion of invulnerability" (1982, p.244, Figure 10.1 Theoretical Analysis of Groupthink); or otherwise, "... but (less strong) *a lack of awareness of vulnerabilities, and a lack of knowledge* of how these could be exposed" (Midgley, 2014, my italics). My perspective here is that the decision-makers are focussed on their task of managing the environment. This is so that they (individually and/or collectively) are not 'undone' by media or other critical negativity, rather than adjusting perspectives in decision-making. The benefit of environmental scanning / analysis is to give disaster front-line workers the 'all' they require for undertaking their task at hand. My point is that 'front-line' is deeply engaged in the matter at hand with the focus that such tasks require; the headquarters' staff, while needing to supply the front-line, are dealing with issues 'of the environment', which – it seems to me – offer the distraction from the task.

The 'environmental scanning / analysis' gathers in *too much* detail, is honed by leaders' power-holding, therefore detracting decision-makers, making them (collectively, as the body) vulnerable – I surmise this to be part of the psychological bias. Needing to manage the good reputation of the NGO, to undertake the disaster-front tasks, and to keep 'politically correct' – and all at the same time, pushing decision-making into the long-evolved corporately-held 'safeness' zone. The 'safeness zone' is the arena that groupthink psychologically presents to decision-makers. The 'dominant' individual or

philosophy claims precedence within the decision-making 'place', based on evolved needs (i.e. compliance, etc.). The syndrome is: 'fit the keyhole', don't be 'the square plug for the round hole'. Peoples' sense of insecurity is based on inbound environmental signals, though continuing to miss impending doom, which equals an inability to move, thus waiting for the inevitable (crash) to occur. This is what Heller outlines: "An organisation's environment affects people's behaviour by rewarding desired behaviour and correcting undesired behaviour" (2002, p.208). Having given my outline of the problem, how may I begin to address this with an intervention?

### Second – Addressing external issues internally

There are probably two thrusts to deal with: 1) the interpretative environmental scanning / analysis taken by one NGO (an agency), and 2) the need to bring NGOs (multiple agencies) towards a logical (unified) framework. Such a framework would address the psychological bias, observed as groupthink. The framework, for working together, is the intervention mode. Throughout, the focus remains with the disaster-hit community, against the interventions that all multi-agencies provide to give relief, response and resiliency to a community.

To begin to address point 1) above, such research stems from the "Symptoms of Defective Decision-Making" (Janis, 1982, p.244, Figure 10.1 Theoretical Analysis of Groupthink) set of attributes; these are obtained as the result of the NGO's environmental scanning / analysis interpretation. These include concepts like: insufficient research, diffident interpretations, and flawed cognitive planning. The link to generic or specific natural disaster events where the groupthink phenomena is observed is found. The gap is discovered, for an intervention to be designed for testing. This would be achieved via a representative (anonymised) cohort of NGOs and would

encompass viewing how the Janis “Antecedent Conditions” (1982, p.244) may be addressed internally, to facilitate stronger external activity.

Addressing point 2) above, thus as my project’s research objective seeks, the concept becomes significantly larger – global, in line with the philosophy of this project’s themes. Having tackled localised issues [point 1) above], the same groupthink analytical model is used to tackle the issues of exterior pressures to the agency, the issues of co-ordinated activities with all multiple agencies, and the pressures of events met at the natural disaster front-line. Here the purpose is matching groupthink attributes (in Janis’ Model) with events existing in disaster scenarios. This begins to tie together the researched topic in the main body of my thesis with this more specific groupthink bias: it is a complicated matter and requires more scrutiny than is possible to provide at this point of writing.

An intervention to this groupthink-based notion is specific, whereas my entire research project is much broader and seeks a different intervention; they are mutually compatible. I now present the matter of why groupthink appears in these decision-making agencies, with the theory of bounded rationality [though I also use the phrase ‘*boundary* rationality’, as this holds implications to the issues across this project, and is discussed within thesis chapter 2 above.

### Groupthink and Bounded Rationality

With *groupthink* about how people make collective decisions without significance of thought that produces a poor outcome, the theory of bounded rationality holds something more precise for this project. An early definition of bounded rationality concerns people being *unable to agree* at ‘global goal level’ due to incomplete

information but *are able to agree* at some ‘tangible sub-goal level’ due to alternatives (choices, variations) being available at the moment of decision-making (Simon, 1978, p.353-354). This then was developed, containing “the need to search for decision alternatives, the replacement of optimisation by targets and satisficing [*a decision-making strategy*] goals, and mechanisms of learning and adaptation” (*ibid*, p.366) as the notions of bounded rationality. The most useable clarification I am able to presently uncover is, “Bounded rationality is the idea that in decision-making, rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make a decision” (wikipedia.org, 2014). As Simon (1978, p.356) writes, “Rationality is bounded when it falls short of omniscience”, which encapsulates the above Wikipedia explanation. Bounded (Boundary) rationality is about human beings – decision-makers, who hold knowledge with capacity to decide but may not / do not have perfect information.

The basis of *bounded rationality* stems from both the understanding about how human beings make decisions and of the processes each decision-maker uses to obtain each decision. This is, for Simon (1957), about “boundedly rational agents [experiencing] limits in formulating and solving complex problems and in processing (receiving, storing, retrieving, transmitting) information” (*source*: Williamson, 1981, p.553). And in many ways, that short sentence begins to sum-up this project by expressing the components of agent, boundaries, problems, decision-making, and ‘the need for *rational* thinking’ as I view the demands sought within a natural disaster-hit community. The notion of bounded [boundary] rationality fits well with the psychological bias that groupthink is demonstrated to be, so that decision-makers may not needlessly ‘follow-the-leader’ but seek and use alternatives where available to make decisions.

I am interested in more recent research that takes forward Simon's bounded rationality but should read much more before making detailed comments. However, Kahneman (2003) highlights relevant points for this project, such as, "The study of biases is compatible with a view of intuitive thinking and decision making as generally skilled and successful" (p.697, Abstract); this shows decision-makers are flawed human beings. Janis summarizes his 1971 article by noting the three heuristics used in "making judgements under uncertainty: (i) representativeness [...] (ii) availability of instances or scenarios [...], and (iii) adjustment from an anchor" [... that these] are highly economical and usually effective, but they lead to systematic and predictable errors" (no pagination). Multi-agencies have, today, become vast business operations, containing the required commercial conditionality that makes each function within a legal framework and are 'testable' through public opinion, scrutiny, and veracity.

### Summary

I have superficially introduced the psychological concept of groupthink with a number of definitions, including that by Janis who evolved the idea through a number of pertinent case studies in the 1970s. I discussed two situations pertinent to the multi-agencies defined in this project: a) external influences, and b) not seeing 'a need' to be able to react to it. I perceive these matters relevant to this project but which do require significantly more in-depth research: this would lead the project sufficiently askew to change it from my current exploratory proposition. Within my research concept this whole notion requires examination. I have briefly introduced the notion of bounded rationality, where decisions are made through a process of incomplete but acceptable alternatives. Therefore the ideas are introduced here for my future research and later publications.



## **A07: Systems (Thinking and) Practice: Chasm-crossing**

Philosophy and praxis, their connection, have been a strong thesis theme. In particular, is that theory should produce the worthwhile contribution for in-the-field application. This appendix is apart from but integral to the project's goal, identifying that bridge.

Overview: much of this thesis is theoretical, it is about 'systems thinking', but the direction was in finding some practical application – 'systems practice'. The thrust of this section is putting 'thinking into practise' by discussing plurality. This is worked through three pointers: one, systems thinking as crossing boundaries (*see*: Hieronymi, 2013); two, movement from 'fixed-hard' to pluralistic approaches (*see*: Midgley and Wilby, 2000); and three, wider systems application of practice (*see*: Midgley, 2000, Section III Practice) which promote the project's purpose. A brief summary concludes.

Crossing boundaries: Hieronymi (2013) uses 'boundary', suggesting researchers are not extending enough outside their own discipline to bring in other features or applications. The capacity of Systemic Intervention (Midgley, 2000) is to 'widen the scheme' for a stronger intervention. Werner Ulrich researched 'boundary' and particularly 'systemic boundary critique' (Ulrich, 2000a, 2003a). In *Critically Systemic Discourse*, Ulrich (2000a, p.11) illustrates 'boundaries' with a model of concentric circles and shows 'an intersecting point': this is a marque of 'boundary crossing' where information or dialogue is exchanged. Ulrich defines this as the "realm of public articulation of locally suppressed knowledge(s) and concerns" (*ibid*). It is this point of 'intersect' that brings together my community and multi-agency to start communication. In Australia, where natural disasters are of significant scale and political conversation, Yates observes two notes pertinent here: 1) "how do institutions and policy making process adjust to" boundaries and 2) that boundaries are "likely to expand as a larger range of issues"

become known (2012, p.120). Awareness of fragility, of vulnerability, across the disaster-hit community, deepens the level of focal point.

Coming to pluralism: the perspective here is of transition from a ‘dogged fixation’, through conceptualism towards accepting change, into taking the capability for plurality as possible. Midgley & Wilby (2000, p.4) note of a ‘Meta-Synthesis approach’ and of a capability for adjustment. Writing of China, Midgley & Wilby explore the notion, from the sense of ‘fixed-hard’, that a pluralistic approach becomes conceivable shows that boundaries are, at least, mutable. Mingers & Brocklesby use ‘multimethodology’, being defined as “beyond using a single (or, on occasions, more than one) methodology to generally combining several methodologies, in whole or in part, and possibly from different paradigms” (1997, p.489-490). I take this to be ‘pluralistic’. Mingers and Brocklesby address the matter from three positions: philosophically in terms of paradigm incommensurability, theoretically by fitting methodologies together, and practically of practitioners’ knowledge, skills and flexibility (*ibid*, p.490). Their conclusion is valuable: “Multimethodology ... has the potential to provide a more complete way of dealing with the richness of the real world ... [and] assist throughout the various stages through which interventions typically proceed” (*ibid*, p.506). Midgley published *Systemic Intervention* (2000) providing the substantial support to the concept of a multi-methodological approach, which similarly assists agents to seek good interventions. This introduces Critical Systems Thinking (CST), explained to be ‘critical awareness’, ‘improvement’, and ‘methodological pluralism’ (*cf.*, Midgley, 1996; Kagan *et al.*, 2005, Introduction). Thus it leads towards the systemic interventionist position I hold: it allows opportunity to thoroughly check postulations, to consider where change has potential, and to evaluate appropriate research methods to meet the situation. The crucial perspective concerns opportunity to bring about change,

and pluralism produces capacity to effect the right change; this is praxis. It concerns improvements, interventions performed, with the community in need.

Application of practice: where the ‘art’ of systems thinking may be termed as, “seeing *through* complexity to the underlying structures generating change” (Senge, 1990, p.128, original italics), so the ‘art’ of systems practice is that which brings philosophical ideas and theories – research, into ‘the real world’ [Weltanschauung, i.e. ‘world view’] where practice is applied, tried, and tested. A fundamental point of practice concerns ‘doing something’ that makes a change; being a systemic intervention (Midgley, 2000), undertaken by the agent reflecting about boundaries and situation and theory (methods). Ulrich outlines that, for a good intervention, participants should know it is feasible and to feel it is inclusive (1988, p.146). Ison adds that contemporary systems practice is “a form of practice that facilitates changes in understanding, practice and situations”, an activity being “conversation [where engagement in] systems thinking and practice is a choice we can make” (2008, pp.143 & 152). It is achieved by knowing “there are some constants that should be observed in every inquiry” (Stowell and Welch, 2012, p.35); from the researcher’s perspective, this would be of information- or knowledge-gathering to frame the project. Drawing from the systemic intervention approach, Midgley’s three core elements help develop consideration of the situation: understand and critique boundaries, choose from various methods and theories, and desire to achieve improvement (2000, p.129-130), and what Stowell & Welch term as “situation of interest ... boundary and environment” (2012, p.35), who question from ‘whose point of view’ about boundaries selected being acceptable or not to the client. This aspect works in my own *Systemic Boundary Analysis* tool (Munday, 2011). The essence of ‘systems practice’ is an enquiry process, where components are deployed, i.e. framing the situation (boundary), selecting the theory (methodology), and achieving the result

(intervention). Stowell & Welch explain, "... that a methodology is not a recipe to be followed slavishly, nor [to be seen as] a guarantor of success ..." (2012, p.69). Systems practice must be both theoretical and practical for a good intervention. Midgley writes, "... engagement *in* practice (intervention for particular purposes)" but does also need "discourses *about* practice" (2000, p.271, original italics).

Bridging for interventions: Midgley's approach, *Systemic Intervention* (2000), is used in this thesis to contextualise the 'bridging' of systems thinking and systems practice. 'Systems thinking' is defined to be theory and 'systems practice' to be the application of theory; systemic intervention concerns both, and is of bringing about 'a change' (for the better). Walsh and Hostick write of complexity (within mental healthcare) dealing with a 'small' discipline within a vastly larger whole organisation: there are "multiple stakeholders, multiple purposes and multiple outcomes" (2005, p.200). The natural disaster, for community and multiple agencies is equally as complex. There is capacity for change and for improvement.

Summary: Therefore 'intervention' becomes the interface between systems thinking and systems practice. It is in the form of a bridge, linking two sides of a river gorge to cross the savage rapids flowing beneath. Ulrich writes: "building a bridge between systems philosophy and practical philosophy" (1988, p.139). This thesis sees 'the bridge' already constructed – as *Systemic Intervention* (Midgley, 2000). As discussed within the thesis, the implementable 'intervention' approach or tool is the 'UNDR' model plus the 'Systemic Boundary Analysis' tool, effecting better and lasting change.

-x-X-x-

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