Navigating the complexities of Community Monitoring, Reporting and Verification (CMRV)

By

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Abstract

Under REDD+, the UNFCCC's financial tool for the preservation of the world's tropical forests, the necessity to monitor performance as well as involve local people is made clear in the policy documentation. Community Monitoring Reporting and Verification (CMRV) combines these two policy needs to create a concept that delegates the responsibility of ground-level monitoring to local communities. This is a deeply complicated model to implement, balancing local, national, and international needs, incorporating divergent stakeholder opinions, as well as livelihood issues, political dynamics, natural resource management and systemic change. Within this field, I identified three research areas, namely how CMRV fits into the REDD+ MRV policy context, how local people might engage with social, or 'wellbeing' monitoring, and the sustainability of CMRV as a local and national institution. There are only a handful of CMRV projects occurring throughout the world, building on the foundations created by locally-based monitoring, and I have been involved in facilitating CMRV in the North Rupununi region of Guyana with traditional Makushi Amerindian communities. This provides the study site for a number of the research chapters.

The thesis starts by reviewing how CMRV might synergise with REDD+, particularly looking at the pros and cons of using local people instead of professional scientists for monitoring tasks. The majority opinions lean towards local people being well positioned and capable to fulfil this role, while the additional financial, cultural and empowerment benefits make this approach attractive rather than simply viable.

It then moves on to looking more deeply at the previously unexplored area of locally-based social monitoring, or 'wellbeing' monitoring. In Guyana, I explored the similarities between external and local formulations of the wellbeing concept and its measurement, finding them to be not too dissimilar. However, when investigating how to implement wellbeing monitoring, practitioners face some complex trade-offs, such as subjective vs. objective measures, or internal vs. external validity, and need to be wary of simple quantification.

The final analyses look more generally at CMRV, starting from the observation that after two years of operation, the project in Guyana can neither be said to be particularly empowering or sustainable. The barriers to local participation and associated power dynamics were explored, identifying why the devolution of responsibilities has been lower than expected. Lastly a Systems Thinking approach was taken to reveal counter-intuitive patterns and architectural flaws in the CMRV institutional framework that are leading to inherent unsustainability.

The thesis concludes by looking at three cross-cutting themes: paternalism; hastiness in project work; and balancing different opinions. Drawing from my own journey, bringing personal values (such as of humility, patience and empathy) to bear in these institutional difficulties is a strong approach to navigating CMRV towards betterment. I finish by highlighting the most significant practical output from this work: a decision-making framework that proportions a project's impact on stakeholder wellbeing with their decision-making power.

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Back on home turf, I can thank my quirky canal-boat community for making my apparently unstructured life seem very normal, and thank my family and friends for their undying support through many trials and tribulations. Finally I want to thank my love, Amy, whom I worship, for filling my life with laughter, light and true love, and to thank my Lord, God, for filling my life with glory.

Cause we need to fix out loose connections
out in natural World Wide Web
where humans evolved in three dimensions.

We were tuned in by natural selection
and we need to go online each day
but inside we don't get no reception.

So join the new revolution
to free the battery human.
We were born to be free range.

Stornoway, from Beachcomber's Windowsill, 2010.



Love one another

Jesus of Nazareth, from the Bible, ages ago.

Declaration of originality

This thesis has been written by my own hand and was conceived in my own mind. Wherever necessary, the thoughts and actions of others have been appropriately referenced.

Publication and joint authorship

Chapter 3 was published as:

Palmer Fry, B. (2011), Community forest monitoring in REDD+: the '*M*' *in MRV*?, Environmental Science & Policy 14 (2), 181-7.

Chapter 4 was the product of an interdisciplinary research group. It was conceived and written by Ben Palmer Fry with input from other group members and is currently under review for publication as:

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Acronyms commonly used

CBM	Community-based Monitoring
CMRV	Community Monitoring Reporting and Verification
COP	Conference of the Parties to the UNFCCC
FCPF	Forest Carbon Partnership Facility of the World Bank
GFC	Guyana Foresty Commission
GCP	Global Canopy Programme
GHGs	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
LCDS	Low Carbon Development Strategy
MRV	Monitoring, Reporting, and Verification
NGO	Non-Governmental Organisation
NRDDB	North Rupununi District Development Board
REDD+	Reduced Emissions from Deforestation and Forest Degradation
R-PIN	Readiness Plan Idea Note
R-PP	Readiness Preparation Plan/Proposal
SBSTA	Subsidiary Body for Scientific and Technological Advice
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on REDD+

1 Introduction

1.1 Forests, climate change and conservation

He scratches deeply into the dry earth with his chieftain's stick, his exasperation nearing the surface, and crumbles a handful of desiccated soil into my own palm. His fingers trace the groove in the ground where only a decade ago he could have shown me the subsurface moisture that would have seen his farming community through the dry season. We squat together under one of the few remaining Mahoganies in Eastern Uganda, upstanding more because of its function as a village courtroom than as a thing of magnificent beauty, and he recounts the changes he and the other Iteso people have been experiencing over the past years. The long rains that used to begin in March with robotic regularity now splutter into life in mid April, almost halving the length of the wet season and leading to food scarcity and water shortages. "Most of the villagers eat only once a day. They eat their cassava before they sleep because it means they have energy in the morning to go out and dig their farms". He also tells me his wife spends the majority of her day collecting firewood for cooking and walks further and further afield each week - a consequence of the expanding population - in a region that was previously covered by a cool, dense forest. He knows the climate is changing but can't quite explain why. He understands that more cooking fires mean more wood collection but doesn't have a solution to this problem. To explain that my own country's historic insistence on burning things for energy is directly (though not wholly) responsible for his people's now pressing hunger is not a prospect to savour. Climate change and conservation, from the capital conference halls to the village courtrooms, makes for some awkward conversations.

The experience of the Ugandan chief is one that hinges on forests, both locally and globally. Plants and trees have played and continue to play an integral role in our world. They provided our ape-like ancestors with an arboreal home before we took to the savannas. They were also the first to colonise the land and, by taking in carbon dioxide and pumping out oxygen, trees radically changed the atmospheric balance into one sympathetic to animal life. Now they not only continue to maintain this delicate balance but also provide humanity with a plethora of other services. These 'ecosystem services' include provision of clean water, prevention of flooding, nurturing plant and animal biodiversity (from which many of our domestic crops and pharmaceuticals have come), maintenance of soil fertility, and many other aesthetic, spiritual and educational benefits (MEA, 2005). In short, forests are essential for the existence of human beings. Despite this, deforestation of primary forest continues at a global rate of over 130,000km^2 per year, an area roughly the size of

England (Denton 2009; EC, 2014) and occurs primarily in tropical countries to clear land for agriculture and plantations, while also feeding the international timber trade.

The impact on our delicate atmospheric balance is widely considered as the most significant global effect of deforestation (IPCC, 2007). The clearance and burning of forests critically leads to an imbalance in the carbon cycle, with too much carbon being released into the atmosphere in the form of carbon dioxide (the burning of fossil fuels in industry and transport also contributes to this imbalance). This anthropogenic climate change exacerbates any natural climate trends we may be experiencing as a result of the Earth's orbital variations, and may be experienced as prolonged periods of drought (like the example of Eastern Uganda), sea level rise, or increased frequency of extreme weather events, such as hurricanes. All of these will significantly affect the welfare of people worldwide. Poignantly though, it is the poorest who will suffer most from these changes as they tend to live on marginal lands and more directly depend on precariously changing natural systems for their livelihoods. Herein lies the central injustice of climate change: the poorest emerging countries of the world are suffering the climatic consequences of two hundred years of industrial activity in the developed world. Of the anthropogenic contribution to greenhouse gas levels, deforestation accounts for one fifth of all carbon dioxide emissions (Figure 1.1), equivocal to all the emissions from planes, shipping and road vehicles put together. Considering this, finding ways to halt such rapid forest loss is of paramount importance, not just to the forested countries but to the entire global community.

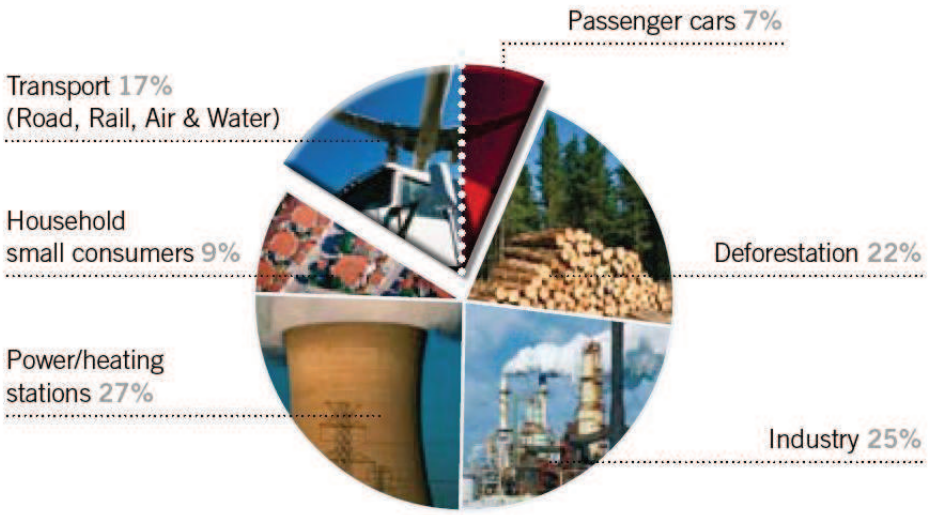


Figure 1.1: Global carbon dioxide emissions by sector
Source: IPCC, 2007

Although conservation is widely considered to be a discipline which aims to reduce biodiversity loss (Sutherland, 2000), I consider any environment-focussed actions which conserve crucial bio-diverse landscapes to be part of the conservation effort. REDD+ is one such creditable action, designed to slow the deforestation of naturally rich tropical areas.

1.2 REDD+ and monitoring

First officially proposed to the UN Framework Convention for Climate Change (UNFCCC) in 2005, REDD+ is a financial mechanism whereby developed countries compensate developing countries for not clearing or degrading their forest resources, in so doing sharing the management burden for the local forest resources that provide global ecosystem services such as carbon storage. It stands for Reducing Emissions from Deforestation and forest Degradation (the '+' alluding to additional benefits from REDD projects, such as biodiversity conservation and improving local livelihoods), and is part of the wider climate change negotiations occurring in the UNFCCC. The REDD+ forum has become the rallying point for debate and participation in solutions to tropical forest loss (Fordham et al. 2012). Although momentum has been somewhat lost in the UNFCCC context due to the persistent absence of a legally binding international treaty on greenhouse gas emissions, partner countries and NGOs have been moving ahead with individual schemes using REDD+ as a guiding principle.

In order for this financial mechanism to work, the external investors in REDD+ (be they governmental or private) need proof that the forests they are investing in are in stable existence, hence the need for Monitoring, Reporting and Verification (MRV). Within the current REDD+ framework, MRV is made up of three key elements: the satellite monitoring of the canopy cover; the ground-level verification of the forest condition (and therefore the carbon stock; Gibbs et al., 2009); and the additional monitoring of co-benefits (biodiversity, ecosystem services and social welfare; CCBA, 2008; UNFCCC, 2009a). The co-benefits have become known as 'safeguards' as they safeguard the functionality of forests by preserving the variety of ecosystem services as well as ensuring the livelihoods and culture of the resident population. Importantly, given the fact that REDD+ payments are based on the carbon stocks, intensive carbon monitoring will be required whereas the demand for detailed information on the co-benefits is anticipated to be less rigorous (Holmgren, 2010). Alongside the scientists analysing the satellite imagery, local people can potentially do the ground-level monitoring as they are best positioned to collect and relay information about their immediate surroundings. However, most of the current focus on local people in the UNFCCC policy is ensuring consent is given (known as Free, Prior and Informed Consent, or FPIC) to conduct REDD+ activities on

indigenous lands. Local communities are key stakeholders in REDD+ and their involvement, not just their consent, is important if REDD+ is to have any staying power.

1.3 Research niche and objectives

The central theme of this thesis is to explore the option of involving local people in REDD+ MRV. Scientific knowledge and traditional/indigenous knowledge often shows different characteristics (Tidemann and Gosler, 2010) and so arranging policy architecture that allows for the contribution of local people to international policy processes is not straightforward. Simply, the 'output format' of these different knowledge types is very different. One approach has been to train local people to be scientists through rigorous instruction (such as on Project Fauna in Guyana; Read et al., 2012) so that they can readily contribute to western environmental monitoring systems. However, this can draw people away from essential livelihoods and isn't necessarily respectful of existing traditions, which the UN and civil society have called for REDD+ to be (UNFCCC, 2010; UNAM, 2011). A different approach is to alter the expectations of the western policy system by being open minded to other types of information. A more sensitive and culturally relevant approach to monitoring which can yield both scientific and anecdotal information has become known as 'locally-based' or 'community-based' monitoring, or within REDD+, Community Monitoring Reporting and Verification (CMRV).

Until recently, natural resource policy makers have relied on information gathered 'professionally' by scientists (Angelsen et al., 2009), but there is a small but growing field supporting the accuracy, reliability, cost effectiveness and relevance of locally-based monitoring (e.g. Jones et al., 2008; Danielsen et al., 2011). Previous studies have looked at individual monitoring elements, such as biodiversity *or* carbon *or* livelihoods, rather than all of the elements being monitored together, as is proposed under REDD+ (and therefore CMRV). If policy makers encourage locally-based monitoring, local people will have to play the role of the carbon stock analyst, ecologist, hydrologist, and sociologist. It is this latter role that caught my attention insofar as there was little to no literature on locally-based monitoring of human wellbeing, an essential but almost entirely unknown quantity for CMRV. In addition to perceived problems associated with data quality, other potential obstacles to the implementation of locally-based monitoring schemes are the power struggles between the various levels of governance and conflict over what indicators to monitor.

Thus the main aim of this thesis is to elucidate how CMRV may work within REDD+, focussing on the particularly difficult or untested aspects, in order to assess what it can achieve, at the international,

national and local levels as a 'value-added' information system. The specific research objectives are to:

1. Examine the strengths and weaknesses of locally-based monitoring from the existing literature, in so doing assessing its suitability to be used in REDD+ MRV.

2. Explore the implications of using the wellbeing approach to shape the social monitoring in CMRV, by: investigating what practical tradeoffs need to be made during the design of wellbeing monitoring systems; and comparing locally-based monitoring of wellbeing next to 'expert' monitoring of wellbeing.

3. Investigate the fundamental topics of local participation and sustainability in CMRV, and determine methodological best practice for both.

If locally-based monitoring is to be operationalised, rigorous explorations of the above questions are needed now as REDD+ policy is still being shaped and tested. There are already positive signs internationally as nationwide locally-based monitoring programmes have been established in Ghana, the Philippines, Tanzania and Namibia.

The objectives of this thesis are addressed by using a case study of a REDD+ CMRV project. This project is located in the North Rupununi sub-region of Guyana, is currently operational, and is run by a UK-based NGO called the Global Canopy Programme.

1.4 Thesis structure

The three research objectives will be met through a desk-based review (chapter 3), an opinion piece (chapter 4), and three data chapters (chapters 5, 6 and 7), prefaced by a background chapter (chapter 2) and concluding with a discussion that picks out what I feel are the unique contributions to knowledge (chapter 8). In terms of a narrative, the thesis begins broadly, by reviewing CMRV and the use of the wellbeing concept in conservation, before focussing very specifically on locally-based monitoring of wellbeing using the Guyanese case study. The thesis then stays focussed on the case study in order to practically engage with the more far-reaching topics of local participation and project sustainability. The structural arrangement of these chapters in relation to REDD+ and monitoring is shown in figure 1.2.

Chapter 2 outlines the wider context of CMRV at the international, national and local level, respectively looking at REDD+ policy, the factors that shape the Guyanese nation, and the socio-cultural situation of the Makushi Amerindians in the North Rupununi. The information included provided me with my framework of factual understanding that then underpinned (alongside my own personal positions) the subsequent analyses, assessments and opinions.

Chapter 3 explores the role that locally-based monitoring may have in REDD+, reviewing the literature to pick out common themes and key messages from the various practitioners in the field. It critically analyses locally-based monitoring next to professional monitoring (by scientists), looking at the strengths and weaknesses of each before hypothesising the part that CMRV could play in multi-faceted REDD+ monitoring. This chapter is published as:
Palmer Fry, B. (2011), Community forest monitoring in REDD+: the '*M*' *in MRV*?, Environmental Science & Policy 14 (2), 181-7.

Locally-based monitoring of biodiversity and carbon has already received a fair amount of attention (e.g. Danielsen et al., 2005; Skutsch et al., 2008). Social monitoring, at the time this thesis was being conceived, had received little to no attention in this context, so **chapter 4** opens up the contemporary and practically untested subject of monitoring holistic wellbeing in conservation interventions (such as REDD+). Before engaging with the locally-based monitoring of wellbeing, it was essential to first explore how this relatively modern conception is being understood. The chapter, a product of a series of multi-disciplinary expert focus groups, weighs up the practical trade-offs that conservation practitioners and policy makers must consider when using the wellbeing concept in social monitoring. It also looks at how different stakeholders have explicit and hidden agendas which can lead to conflict and the marginalisation of the weaker actors. A version of this chapter is under revision as:
Palmer Fry, B; Agarwala, M; Atkinson, G; Clements, T; Homewood, K.; Mourato, S.; Rowcliffe, M.; Wallace, G.; Milner-Gulland, E.J. (2014), Monitoring local wellbeing in environmental interventions: a consideration of practical trade-offs, Oryx (under review).

Having established some of the practical theory of wellbeing monitoring, it then followed to explore its practical application given the fairly sparse literature on the subject. Drawing on the local vs. professional dialog from chapter 3 and the wellbeing discourse of chapter 4, **chapter 5** is a field study which compares my own conceptualisation and implementation of wellbeing monitoring with that of a group of Makushi Amerindians. I assess the differences and synergies between the two

approaches in the context of designing and implementing a CMRV project, while also engaging with the themes of expertise and bias.

The previous chapters highlight the importance of the breadth and depth of local people's involvement in conservation projects and monitoring programmes. With some debate over how local people are to actually participate in REDD+ projects, and my observing of the word 'participation' to be used very vaguely in the CMRV project and further afield, **chapter 6** looks at the meaning of 'locally-based' monitoring. It suggests the need for additional depth in existing typologies of participation, and establishes the level of participation the CMRV project in Guyana has attained thus far. The chapter then continues the discourse on power (started in chapter 4) by exploring power plays made by dominant stakeholders, as well as more general barriers that may have reduced local participation in the CMRV project. Using the shared experience of CMRV practitioners in other parts of the world, practical techniques to 'scale' these barriers are also suggested.

Chapter 7, the final substantive chapter, an evaluative study, addresses an even broader issue which encompasses the subject of participation; project sustainability (or lack thereof) in the CMRV project. In order to make sense of the seemingly unfathomable complexity of the problems encountered in the CMRV project over its lifespan, the paper uses a systems dynamics methodology to create a systems model of the CMRV project, showing the interconnections between the numerous elements. With this model it becomes possible to discern vicious and virtuous cycles within the CMRV system as well as points of high leverage. This methodical approach allowed the identification of root problems and therefore effective solutions to promote CMRV sustainability.

Chapter 8 closes the thesis by taking a selection of the previous conclusions alongside some of my personal reflections and discusses their potential influence on locally-based monitoring and conservation more generally. Areas for further work are identified as well as the technical aspects that I perceive to be poignant contributions to my field of study.

In terms of chapter structure, each one was written to stand alone, to hold its logic and argument within itself, rather than follow the 'big book' thesis style of a single flowing piece. This 'research paper' style is a practical solution to a thesis that covers many different subjects, literatures and methodologies, but also aims to facilitate the future sharing of the findings of this thesis. It is in line with the pragmatic approach I share with my supervisor, recognising that the thesis only exists

because it is useful to inform and hopefully influence the behaviour of those engaged in community monitoring, conservation and REDD+. It is important to note that the chapters are nonetheless thesis chapters, simply written in the style of research papers.

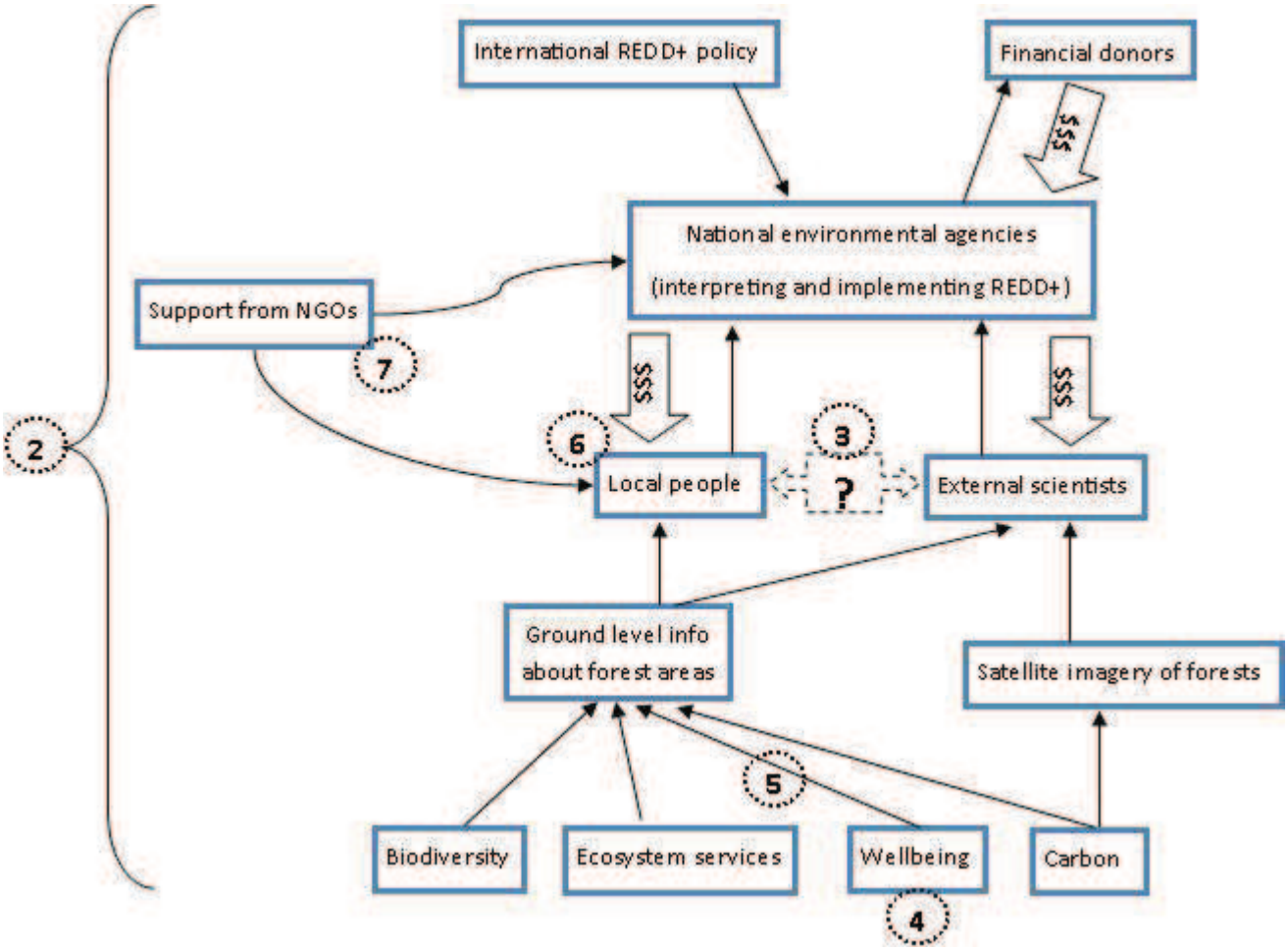


Figure 1.2: Structural framework showing where the thesis chapters are located in the general REDD+ monitoring schema.
Key: Black arrows represent information flow; box arrows represent financial flow; boxes represent actors and information types; circles represent chapters.

1.5 Methodologies

All the research chapters in this thesis focus on policy and the local implementation of projects, ubiquitously looking at the contrasting perspectives of different groups of people. As a result the different studies herein concern human-conceived approaches, responses and experiences, which are best explored, Holloway (1997) explains, using diverse qualitative methods, rather than positivist, quantitative methods. Having been trained in natural sciences and conservation, fields rooted in the positivist approach, it took the first year of my PhD to accept an alternative approach to research, to accept that theories can be shaped as research unfolds rather than specifically

defined and tested, to embrace the holism of mixed qualitative methods rather than pursue controlled, objective experimentation (a continuing journey that has been assisted by Savin-Baden and Major, 2013). The particular suite of mixed methods that I eventually utilised during this study was strongly influenced by the anthropological field of ethnography. In fact the interviews, document analyses, participant observations, anecdotal analyses and stories that litter this thesis are the distinctive features of ethnographical research (Hammersley and Atkinson, 1995). Although ethnography is primarily used to describe cultures and the meaning of social life, it is marked by the intensity of the relationship between the researcher and the people he/she is studying (Alasuutari et al., 2008). This resonates with the research I've produced from five years living and working with the Makushi Amerindians in Guyana, though doesn't characterise it; this is a conservation thesis that draws frequently, if subtly, on anthropological approaches.

Each chapter specifically details the methodologies employed and justifies why those approaches have been chosen for that particular study. The research design was underpinned by previous experience in the region – I had been living and working on a community project in Guyana with the Makushi for a year before the research began for this PhD – making ethnographic research possible and appropriate given the 'acquaintance stage' (deMunck and Sobo, 1998) I had reached with the communities I was working with. In line with Bernard (1994) and Lincoln and Guba (1994)'s recommendations, I gained permission and personal entry, vetted the social standing of my host families, and built a good rapport and trust with them having, to mention only a few aspects: willingly taken part in village activities; learned some Makushi language (though the first language was English); and engaged in reciprocity. Their offers of hospitality, dialogue and social inclusion were loosely matched by my offers of a strong back for the farm, deliveries on my bicycle, advocacy with the regional government, and 'unobtainable' items such quality head torches, heavy fish hooks and elasticated underpants from the UK. These developing friendships with my 'informants' facilitated the reliability and relevance of my research planning and positioned me well as a participant observer throughout the study period, a process comprehensively laid out by Shensul et al. (1999).

The thread of ethnography that runs through the thesis is the practice of participant observation (Kawulich, 2005). I kept a detailed field diary of my observations during my time with the Makushi and would follow up on interesting subjects (to me) with focussed conversations. This was an ongoing process but the presentation of these descriptions is beyond the academic scope and ethical bounds of this thesis. In an attempt to simplify the methodological aspects of the subsequent

chapters, the details of my participant observation are not always included. However, I often reference the "author's experience" in lieu when explaining planning or analytical conclusions.

More specifically, in bringing my personal experiences into the analyses and anchoring these among existing research, I engaged actively in the practice of auto-ethnography, a mixture of autobiography and ethnography (Ellis et al., 2011). Autobiography has at times been used at the start of chapters and sections to draw in the reader and facilitate personal engagement with what can be quite emotive subjects (e.g. the introduction to the thesis and climate change, section 1.1, and the introduction to the indigenous people who are often the protagonists of this thesis, section 2.5.1). They reveal some of the epiphanies I had during my experiences in Guyana and further afield, revealing aspects of my subjective experience which have shaped my interpretations. Occasional references to auto-ethnographic practice can be seen in the substantive chapters of the thesis: narrative ethnographies in chapters 2 and 6; layered accounts being used in chapters 5 and 6; and interactive interviews in chapters 2, 5, 6 and 7. But none more so than in the concluding chapter, Chapter 8, where I attempt to evocatively bring together the richness of my experiences among indigenous and NGO cultures, retrospectively witnessing patterns of behaviour (my own as well as others) in order to try to "change us and the world we live in for the better" (Holman-Jones, 2005, p763).

1.6 My view of the world

To make this genre of research credible, I need to be revealing of my own positionality, of my world view, of my mental filters and associated paradigm(s), and how I may be perceived by others. An author's subjective writings can only be objectively useful if they explicitly realise and acknowledge their biases, assumptions, prejudices, opinions and values (Bernard, 1994). Social theorists call this 'framing', frames being "organising principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world" (Reese et al., 2001; p8).

I very much fit the traditionally dominant researcher profile; white, masculine, middle-class, heterosexual, Christian, able-bodied. As such, Ellis et al. (2011) postulate that to step out of the conventions associated with my profile may be a challenge and that I would most commonly discount other less traditional or mainstream perspectives as unsatisfactory. This has been a challenge but I have already described a departure from my normality in my journey away from positivist experimental approaches towards qualitative exploration. Furthermore, the use of autoethnography has broadened my perspective on the world, and helped me reject rigid

characterisations of knowledge (e.g. Adams, 2005). Although I can't truthfully say that I am outside the traditional researcher stereotype, I will claim to not now fit comfortably into this category. Positionality has actually repelled some social researchers from engaging in fieldwork within foreign cultures (Sultana, 2007) but as long as there is awareness of our own limitations and our focus remains politically engaging, materially grounded and institutionally sensitive, our work can be productive and illuminating (Nagar, 2002). Although it is fruitless to try and describe my own biases or prejudices, to accurately describe the lenses through which I see the world, I can nonetheless write directly and reflexively about what I feel has shaped my view of the world and also how others seem to perceive me. As is the case with personal narratives, I then leave it to you, the reader, to infer for yourself where my actual biases may lie which in turn may help you interpret my findings. I will first tell some stories of my youth, my professional life, my emotional and my spiritual journey, before turning to my time in Guyana:

1

I was brought up in a low-income, middle class, strongly Christian family in central London. As a child I led a dual existence of navigating the perilous backstreets of Brixton on my way to school while also romping through the forests and fields of my father's beloved Dorset at weekends. It was a blessed childhood. Waifs and strays (animal, vegetable and human) were always rolling in and out of my marvellously open home. I had devoted friends and loving, encouraging parents as well as two older brothers who, when they weren't dealing drugs and generally exploring the underbelly of our city, spent a great deal of time playing football with me in the street outside our house. They were tougher than me, embracing the 'hit back harder' principle that shone through my father's deprived working class childhood. I listened instead to my mother who advocated 'run at the first sign of danger' and so became a shake-in-your-boots type. Diminutive for my age, intense dread, that I still fight, would precede approaches from my school bullies or from the racist gangs who stalked my home neighbourhood. Rarely would anyone stand up for me and I remember feelings of genuine helplessness as I had my teeth knocked out on the bus home. However, I emerged from this as a positive, encouraging and boldly affable character that draws outsiders into experience or conversation while being very quick to defend the weak or persecuted. My passion can often be seen before my reason has a chance to catch up.

2

Having been a distinctly average student throughout school, I somehow found myself studying zoology at Cambridge University and immediately afterwards teaching biology at the country's top private school. I think I was placed on this earth to be a teacher. Even so, the passion for the natural world can be traced back to a primary school homework where I dreamt to be a 'frogologist' when I

grew up, which is still a bit true. Finding the classroom too restrictive, I followed my grandmother's missionary footsteps to Argentina, sailing there to spend a year meeting her still living contemporaries among the Toba Amerindians and working with disenfranchised ranch workers in the Andean foothills. My ancestral desire for exploration and rich friendship runs deep as my short legs have taken me to over forty different counties, rarely departing for the sake of adventure alone and always staying put to hang out with local people, understand their values and share in their joys. An offer of a funded MSc and PhD at Imperial drew me back only for me to carve out fieldwork opportunities in East Africa and the Amazon. The communications side of foreign conservation and development work - workshops, training, writing engaging reports and sometimes children's stories - has always been a joy, though my presence on distant shores has become increasingly difficult for me to rationalise. The obvious excitement of such work is tempered by an acknowledgment that I am most effective bringing about betterment on my home shores where I better understand the nuances of society.

3

Enjoying academic success and an abundance of exotic professional opportunities came at somewhat of a personal cost. Friends and family never knew whether I was in the rainforest or home in my canal boat so times in England became increasingly isolated. This served to increase the already high value I placed on true friendships. But moreover, the personal confidence that came from a strong sense of self (further nurtured by my psychotherapist parents) was slightly perverted by the radical intellectual pursuits of Cambridge and St Pauls School, insofar as I became assured to the point of pride in my own positions, logic and rhetoric. This was impacting my treasured relationships until my brothers took me aside and lovingly forced me to face this growing ugliness. I now try to appreciate the validity of the behaviour of others rather than see it as simply conflicting with my own excellent opinions. I no longer think that I know best and don't consider myself to be an expert, even if I know a few things about some niche subjects.

4

This rather post-modern revelation has most poignantly been played out in my spiritual life. Being raised with a monotheistic perspective I also adopted an evangelical Christian view of reality where the Bible reveals the truth of Jesus and anything that challenges that either precedes this key story or perverts it. Beginning with exposure to other worldviews through visiting numerous foreign relatives as a child, my conception of spiritual fact was further questioned while I was exploring the concept of scientific fact during a history and philosophy of science course, particularly the writings of Thomas Kuhn. The scientific results we produce now are no more 'factual' than those produced during Newton's time, we're just in a different, possibly more advanced, paradigm of understanding,

which will inevitably shift again in the future. The way we understand 'fact' is shaped by our time and our culture, and my view of how mysticism functions and what underpins our morality or deeper existence has come directly from my upbringing as a protestant Christian. If I grew up in Iran I'm sure I would have been a devoted but liberal Muslim, or if I was a Parisian there's a great likelihood that I'd be of a more secular persuasion. Fortunately faith and certainty are not the same things, the former relating to more to trust, so I'm happy to make a leap of faith and maintain that human life flourishes when we love eachother and that Jesus was a wonderful, divine model of that. But that's only what I believe at the moment, and I'm very wary of individuals who claim to uniquely profess to hold the truth, scientists and shamans alike.

5

You might glean a few little gems about the mental filters I've collected during my life, about my potential prejudices, biases or values. You will have gained some idea of how I see the world but in relating my time with the Makushi you might also get a glimpse of how they see me, a potentially more revealing pre-requisite for reading this thesis. When I first touched down on the red earth of the Annai airstrip and made my way through the surrounding Amerindian village, the first thing that struck me was the type of attention I attracted. It was not the voyeuristic wonder of people unused to strange white skin or indeed the slight disgust of people tired of exploitation or poverty tourism. Instead it was a very normal welcome, tinged with some novelty but seemingly uncomplicated. Over the first few stays with my new Makushi friends I found a description for this strange benevolence, strange insofar as Guyana is an ex British colony and I'm clearly English. There was never any master - slave relationships between the British colonists and the local Amerindians. This was a savannah land only suitable for cattle ranching and so the Makushi were employed as ranch hands rather than tied into oppressive plantation regimes. The cowboys were Indians, so to speak, and the modern relational dynamics of mutual respect and cooperation look very different to the coastal, afro-Caribbean dominated areas. With this as well as sharing a common language, it was fairly easy to forge friendships and take part in society although my 'otherness' clearly affected the way people treated me. I was considered to be physically weak and incapable of proper traditional activities (hunting, fishing, farming) while being respected and 'superior' as an academically educated person with potential influence in regional governance. This status was both a help and a hindrance, as some locals would be more willing to confide in someone who is outside their social sphere, though what I observed and heard was only ever affected by my presence. It was only through continued insistence on a traditional diet, daily involvement in household chores, vulnerability in conversations, and wholehearted partaking in the village sports that I was gradually accepted by the villages and families I stayed with. Many of the community members would be happily surprised to

see me in one of the creeks, net fishing with my hosts, all naked as the day we were born, or indeed cycling off towards the neighbouring villages 40km away down a rainforest track. From stories I heard and people I met, the majority of foreign visitors have been fairly extractive or purely observational in their approach to research or tourism, very few taking the time to participate in village life. It was mercifully only on my final trip when I was asked to take part in village governance in one of my 'home' communities. From an ethnography point of view, this is on the verge of going 'native' i.e. getting too deeply involved to step back and analyse observations (Kawulich, 2005). As a researcher it was the correct time to leave but as a friend and advocate, I hope to return soon.

The results of my studies will only ever be biased and incomplete. However, they may also recount stories or issues that might otherwise not be recounted at all.

1.7 A final note on language

Before we launch into the thesis proper, I want to make two notes on language, one specific and one general. Firstly, over the course of the thesis the name 'locally-based' monitoring has gradually been replaced in the literature by the name 'community-based' monitoring (aka CBM). In the earlier chapters the term 'locally-based' is used as this reflects the use in the cited literature. In the later chapters 'community-based' is more commonly used for the same reason. They refer to the same type of monitoring. Secondly, throughout the thesis I endeavour to use simple language. Some of the greatest academics write almost colloquially in order to effectively communicate their findings or musings to all readers (such as Donella Meadows in Systems Thinking and E.O. Wilson in evolutionary theory). This is a generous writing style rather than a right that must be earned, a standard which they set which we should follow. If it was possible to explain something using common language rather than specialist jargon, then I have chosen the more accessible vocabulary. As such the reader may at times feel the language I use is a little casual or colloquial, but as long as it leaves you feeling more informed and not more ignorant, then I have succeeded in imitating greatness, even if only in style. Here's wishing you happy, and hopefully easy reading.

2 Socio-cultural, political and environmental context of CMRV

2.1 Introduction

This chapter is made up of background information that provides an important source of context for the thesis in general. It has been included as this information helped frame the author's investigations over the past four years. The key background for each chapter is included in the chapters themselves whereas this section is additional, including detail on subjects that are relevant but didn't easily fit into any of the individual chapters. This is not an exhaustive background but focuses on the relevant detail that underpins CMRV at each spatial scale, detail which varies in genre depending on whether we're examining the international, national or local level. At the international level, the context of CMRV is primarily political, so we focus on REDD+ as a policy instrument and the UNFCCC as a forum for negotiating REDD+. At the national level, the socio-cultural and physical profile of Guyana comes in to play, while we also describe Guyana's political agreement with the Government of Norway to conserve their rainforest resource and be compensated accordingly. Locally, at the village level, there is little operational policy relating to environmental management and REDD+, therefore we focus more on the socio-cultural context of the North Rupununi communities.

The majority of the information for this section comes from the author's participant observation in Guyana and further afield, working as a community advisor on the CMRV project as well as a REDD+ policy advisor for WWF. A variety of academic and non-academic sources are also used to enhance and verify these observations and experiences.

2.1.1 Drawing info-graphics

To aid engagement with the institutional and relational context at each level, the author also constructed info-graphics for each spatial scale. The process of creating each diagram required significant amounts of detailed enquiry and so encouraged the author towards a deeper level of understanding. The software package Vensim PLE (Ventana Systems Inc., 2007; also used chapter 7) was selected to draw the info-graphics based on its versatility, lack of 2D size restrictions and the author's existing familiarity with the program. Each info-graphic was first sketched by hand but then translated onto the program, edited, and then verified by specified relevant stakeholders.

2.1.1.1 Drawing the international level map

The broad details of this international REDD+ framework (Figure 2.1) were drawn up from the author's direct experience as a WWF policy advisor before, during and after the 15th annual Conference of the Parties (COP-15) in Copenhagen in December 2010. Additional institutional details and relationships were gleaned from UNFCCC publications (UNFCCC, 2012), the Government of Norway's Climate and Forests Initiative (Government of Norway, 2012), the archive of UN-REDD newsletters (UN-REDD, 2012), the Forest Carbon Partnership Facility (FCPF, 2012), and the International Institute for the Environment and Development (IIED, 2012). Further to the state-led UNFCCC policy, the websites of numerous international civil society organisations that are facilitating ground level REDD+ implementation were explored. This was to help determine what direction the 'tide' of civil society opinion was running but also, more importantly, to establish which organisations were more active and relevant in the subject area of REDD+ MRV. It was verified by the senior REDD+ policy analyst at the WWF.

2.1.1.2 Drawing the national level map

The arrangement between Norway and Guyana is summarised well by Hardcastle et al. (2010), but there are no available documents describing the institutional and relational framework for REDD+ within Guyana. Thus in order to define which government and national bodies were relevant and participating in the building of a REDD+ system, an unstructured interview with the policy advisor for Conservation International Guyana was conducted on 14/03/2011. After together drafting the info-graphic (Figure 2.4), additional consultation was carried out with the Iwokrama International Centre, the Guyana Forestry Commission and Volunteer Services Overseas (VSO) Guyana.

2.1.1.3 Drawing the local level map

The local info-graphic (Figure 2.6) focuses primarily on the community scale while also including some relevant regional bodies that don't have national representation. We focussed on a single village which although not perfectly representative of the North Rupununi, displays an institutional and relational structure common to most communities. The primary source of information about the local environmental frameworks in the village of Surama was ethnographic knowledge acquired by the author from living and functioning in the village for 12 months, spread over the course of 3 years. This knowledge was organised in a community survey document that was adapted from the UK-based NGO, Tearfund (Wiggins and Wiggins, 2009) then verified and added to by a number of older village members. The document can be found in Appendix A. A community appraisal from the

Iwokrama International Centre was also used to supplement the information on the village institutional arrangements (Forte et al., 1999). Finally a survey document examining the 'who/what/when/where/how/why of monitoring and environmental management in the North Rupununi' was prepared by the author and sent to a number of local experts to complete (Appendix B). Much of this region-wide information applied to the village of Surama and the info-graphic was verified by two Surama residents and a visiting researcher with knowledge of the community.

2.2 International Context: Climate change and REDD+

The 'paradox of value' presents the contradiction that water is less valuable than diamond in terms of market value, even though water is more valuable than diamond in terms of survival value (Smith 1776). This seems to be an absurdity, but the history of markets tells another story, showing the necessity of an abstract value system, or 'currency' (Allis 2008). Although this paradox is influenced by the rarity of the resource and can thus be rebutted by the theory of marginalism (Přibram 1983) it can also be simply solved by increasing the value of water to reflect its survival value. Forests have a similar survival value to human beings as water at a macro scale in terms of the multiple essential services they provide, and the challenge is the same. How can we enhance the market value of forests so that it is more accurately aligned with their survival value to us? This is the challenge that REDD+ is addressing - how forests can become more valuable as living, breathing ecosystems that ensure our existence, than as timber stacked up in a lumber yard – and carbon is being used as the currency for transactions relating to climate change and forests.

Although Conservation International (2012) asserts that local change is the key to all conservation success, movements in international conservation opinion remain crucially important due to them representing a high level source of substantial funding streams. As REDD+ is a proposal under the UN, the REDD+ working policy must be closely followed by national and local conservation implementers who intend to access REDD+ funds (or equivalent PES funds) in the future.

2.2.1 A short history of REDD+

The International Panel on Climate Change (IPCC) was set up in 1988 by the UN Environment Program (UNEP) and the World Meteorological Organisation (WMO) in order to establish a scientific consensus on the controversial subject of climate change. Numerous projections of future climate have been produced, but the key figures the IPCC have encouraged the international community to

take heed of are 2^0C and 450ppm (atmospheric parts per million) (IPCC, 2007). If we can limit the global atmospheric level of carbon dioxide to under 450ppm, the global average temperature rise will be limited to under 2^0C, thus avoiding what has come to be known as 'dangerous climate change' – the scenario where climate change occurs faster than natural ecosystems, food production, and economic development can adapt to, potentially leading to multiple global crises (Schneider and Lane, 2006). The 5th and most recent IPCC report states that it is "extremely likely" that man is the cause of at least 50% of the surface temperature increases we are currently experiencing (IPCC, 2013; p17), and also gives details of the likely impacts of this on forests.

The first substantial step towards tackling dangerous climate change was the 1997 Kyoto Protocol (UNFCCC, 1998), a legally binding international protocol that was agreed at the 3rd Conference of the Parties (COP-3) of the UNFCCC in Kyoto, Japan. The UNFCCC is the overarching organisation that attempts to bring everyone together on climate change issues. At Kyoto specific emissions reduction targets were devised for developed countries for the period up until 2012, and various ways of achieving those targets were negotiated and put in place. Initially discussed (but ultimately rejected) during Kyoto, the concept of REDD+ was formed proper by a collection of countries called the Coalition of Rainforest Nations in 2005. It was then formerly proposed to the UNFCCC COP-11 at Montreal later in 2005. In principle REDD+ is a way of minimising climate change by reducing deforestation, and is focussing on the 'front line', the rich tropical and subtropical forests found mostly within the borders of emerging countries. Over the recent years REDD+ has gained momentum, the concept being shaped and refined by economists, scientists, policy makers and development experts. It was officially adopted as a separate negotiation stream at COP-13 in Bali, December 2007, where it was included in the Bali Action Plan, a roadmap for post 2012 climate change mitigation (see Figure 2.1). At COP-15 in Copenhagen, December 2010, REDD+ very much took a central position, often being referred to as an example of genuine progress in the negotiation process. Copenhagen was originally billed as the key opportunity to finalise the post-2012 climate change agreement i.e. establishing a successor to or adaptation of the Kyoto Protocol. However, as no legally binding international agreement on emissions reductions was produced or signed, and the Copenhagen Accord (UNFCCC, 2009b) contained no genuine commitments from the parties, the negotiations on REDD+ have continued through COP-16 in Cancun, COP-17 in Durban, COP-18 in Doha and COP-19 in Warsaw in 2013. The most recent of these produced the Warsaw REDD+ Framework which contains some methodological guidance that some analysts see as a starting point for the implementation of REDD+ (Lodge, 2013) while others view the document as insubstantial and avoiding concrete decisions (Bateman and Packham, 2013).

Over the course of its short life, REDD+ has evolved as the policy content of the mechanism has broadened. Initially it had the simple name: RED – Reducing Emissions from Deforestation. As discussions continued, the policy net was cast wider and it became known as REDD – Reducing Emissions from Deforestation and Degradation. The most up to date concept also includes the conservation, social benefits and enhancement of existing carbon stocks, so is called REDD+. The priorities are recognised to be ordered in the same way as the concept has been developed, most important being deforestation, then degradation, then enhancement.

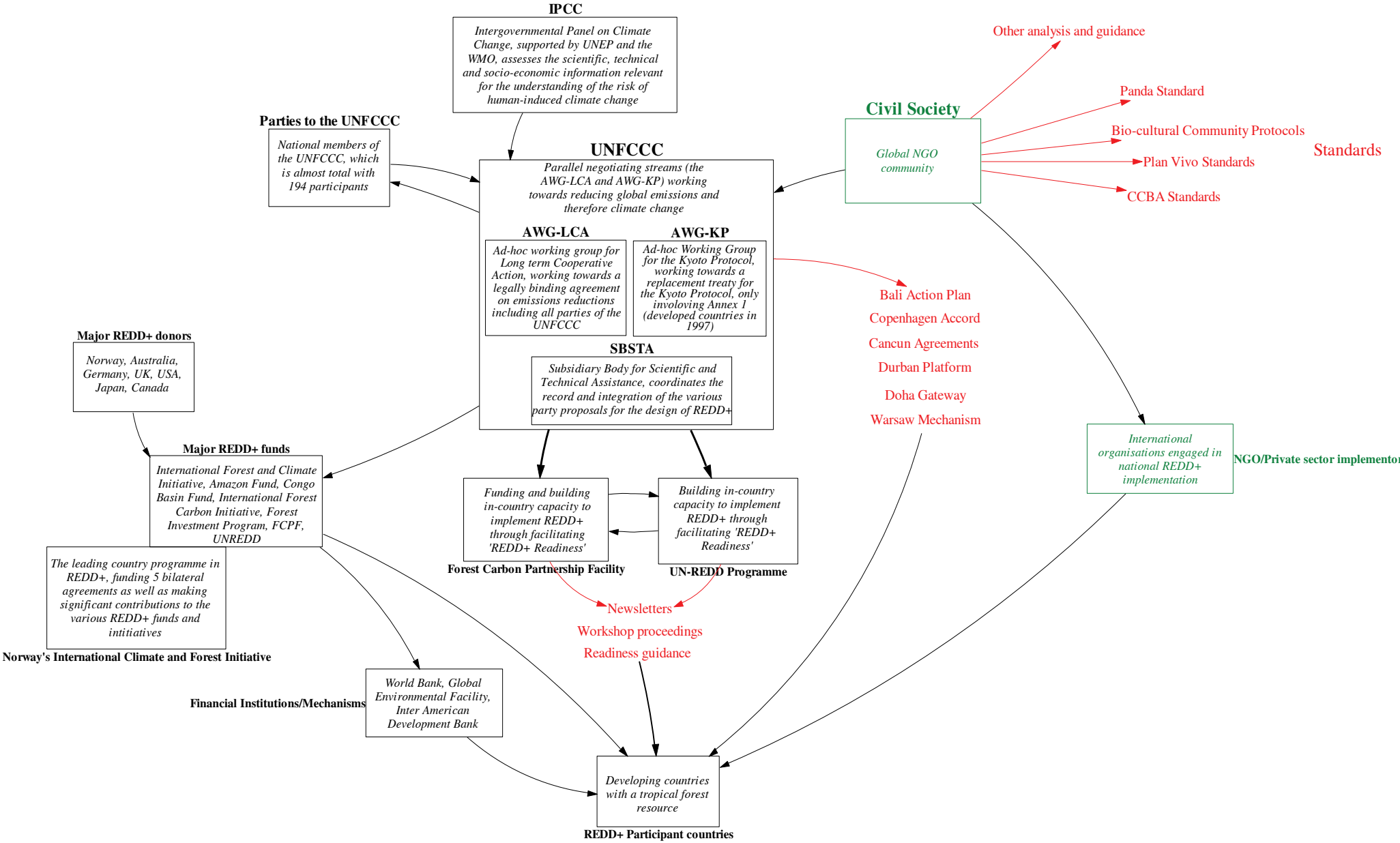


Figure 2.1: An info-graphic showing the institutional setting of REDD+ at the international level, with a particular focus on MRV.

Key: Black boxes: institutions/bodies/organisations; Heavy black arrows: governance; Light black arrows: advice/guidance/finance; Green boxes: NGOs; Red text: legislation/policy documents; Red arrows: authorship

2.2.2 Conceptual details of REDD+

As can reasonably be anticipated, REDD+ is a complicated subject. Forest conservation and management is not a new topic, but making intact forests 'pay for themselves' on a global scale is a challenge that has only been addressed in recent years. With mounting international pressure from actors from vulnerable countries (such as the Maldives, Bangladesh and those in the Sahel region), from the scientific community, from a multitude of NGOs, from the media, as well as from the relatively new carbon markets, there now exist both political drivers and potential financial incentives for including forests in the attempts to tackle anthropogenic climate change.

To explain in more idealistic detail than is shown in Figure 2.1, a REDD+ mechanism might function as follows:

- Significant funds are sourced from the developed world, using a combination of carbon markets and a voluntary international fund. The developed world stands to benefit from carbon offsetting and the profitability of the carbon market business.
- This money is managed by an independent UN financial body that operates according to an agreed global framework outlined by the parties to the UNFCCC.
- The funds are then channelled from the developed world, which is historically responsible for the currently elevated levels of greenhouse gases, to the developing world that has the majority of threatened tropical and sub-tropical forest, according to the performance of countries in reducing deforestation rates and the amount of carbon that is sequestered in their forests. Funds will be transferred when satellite imagery is provided as proof of avoided deforestation, alongside ground-level monitoring data as proof of avoided degradation and performance in maintaining important local co-benefits such as biodiversity and human wellbeing.
- Governments and national NGOs use some of the funds for policy development and enforcement, while also ensuring that the revenue is equitably distributed to local governments and forest dependent people as compensation for not deforesting.
- The emerging economies significantly benefit through financing local infrastructure, service development, and livelihood diversification, whilst also enabling them to invest in so called 'low carbon' technology, such as renewable energy.

Thus the major components of a REDD+ mechanism will be: a system for carbon accounting; a payment mechanism that utilises existing institutional arrangements; policy 'safeguards' that ensure

equitable benefit distribution as well as the preservation of other ecosystem services and human wellbeing; and guidance for a monitoring, reporting and verification system (MRV), covering satellite and ground-level monitoring, to feedback information on the state of the forests.

2.2.3 The main design issues

REDD+ remains an idea. In the designing of REDD+, the UNFCCC sent out a call for policy makers, forest managers, and think tanks alike to submit proposals on how REDD+ might function. Over the course of recent years, these proposals have accumulated and been modified, providing the basis of the REDD+ negotiations within the UNFCCC. The original group of these are summarised succinctly in the Little REDD+ Book, a publication by the Global Canopy Program (Parker et al. 2009). But over the course of REDD+ history, three main policy issues have fuelled debate amongst the parties to the UNFCCC.

2.2.3.1 Finance

Estimates of the amount of money that is required to support REDD+ range from 5 billion USD per year (Stern, 2006) up to 35 billion USD per year (Eliasch, 2008). These figures have been produced using the target of halving deforestation by 2020. The central disagreement is the use of a market mechanism or a fund-based mechanism. The former approach links tonnes of carbon held in forests to carbon credits that are tradable on international markets in order to meet emissions reductions obligations, i.e. used in offsetting carbon emissions from developed countries. The market approach has the potential to fulfil the large financial requirements of REDD+ and function quickly (as an example, the Clean Development Mechanism used this approach and generated significant funds very rapidly). There are, however, concerns over offsetting, critics saying that it unhelpfully provides industry with the opportunity to continue 'business as usual' (BAU). The fund-based mechanism proposes the establishment of an international fund that all developed countries voluntarily contribute to (much like Official Development Assistance, 'ODA') from which emerging forested countries can be compensated. The fund could be built from fuel taxes, or from taxes on carbon-related financial transactions. This is likely to take a longer period to establish given the dependence on voluntary donations, and there are doubts that it would be able to generate sufficient finance. It would however be a more stable source of funds than a market mechanism. It is likely that the finances used for REDD+ will be a combination of both these approaches. As debate over finance continues, interim financial solutions have been floated to maintain the momentum for REDD+, such as the Emergency Package for Tropical Rainforests (Prince's Rainforest Project, 2009) which resulted

in the REDD+ Partnership Agreement (or the 'Paris-Oslo Process'), a consortium of 50 countries pledging 4.5 billion USD towards halting deforestation and degradation from 2010-2012 (WRI, 2010). More recently, at COP-16 in Cancun, the Green Climate Fund was established; an independent body that operates to manage the financial resources pledged to UNFCCC processes. This was further strengthened in Warsaw and will help provide the institutional arrangements for the high-level management of funds, but doesn't change the main issue of where the funds will actually come from.

2.2.3.2 Baselines and Scale

Consensus on the type of baseline to use was eventually reached at COP-19 in Warsaw, where parties agreed to use historical-adjusted baselines (which take the historical baselines and add a basic development adjustment factor (DAF) based on the current development trajectories of the countries) to inform performance-based payments for REDD+, rather than use simplistic historical baselines or highly complicated projected baselines. However, the institutional scale of these baselines or reference levels is still a point of contention. The original REDD+ concept operated at a national level, keeping the system relatively simple (each country receiving payments for avoided deforestation, weighed against a national baseline) and also preventing domestic 'leakage', where deforesting activity is simply diverted from the REDD+ area to other unprotected areas. Leaving REDD+ totally in the control of the central government does however raise questions over equitable benefit distribution, local consent and participation, and the potential involvement of the private sector. Sub-national scale REDD+ was more recently proposed as a more practical and efficient system, each region having its own baseline and accounting system (O'Sullivan, 2009). Although being vulnerable to domestic leakage, this approach benefits from being more pragmatic at the local level, offering more direct benefits to local stakeholders, the option of focussing on particular deforestation hotspots, and appeals to those countries without full control of their territory (a country will not be penalised for deforestation that happens within insurgent-controlled areas inside its border). This last point is important, as national accounting is broadly regarded as the best way forward, whereas it is unlikely to receive backing from the countries with boundary disputes or incomplete control of their territories. One of the decisions made at COP-17 (AWG-LCA/Decision 12/CP.17) in Durban 2011 recommended that sub-national accounting be utilised as a transitional phase towards the implementation of national level accounting.

2.2.3.3 MRV

Monitoring, reporting and verification became more central to the debate from COP-17 in Durban onwards, with parties turning to how they will prove their performance at reducing deforestation and degradation to the UNFCCC in order to qualify for REDD+ payments. The debates on carbon accounting were short-lived with most parties agreeing to adhere to IPCC regulations. However, the issues of safeguards and verification have been significantly more difficult. The type of information and reporting required to show the impact of REDD+ projects on safeguards (including biodiversity, other ecosystem services and human wellbeing) is as yet undecided. The only responsibility that parties have is to provide voluntary summary reports on the impacts of REDD+ activities on these safeguards, with no guidance on what is an acceptable or unacceptable level of harm (a decision from COP-18, Doha, in 2012). Furthermore, independent verification, a necessity for performance-based systems, has been resisted by a number of countries, particularly Brazil during COP-18 (Dooley, 2013). This has been due to concerns over the influence developed country parties might have in this process. As such, after being drafted in 2012, a detailed decision was adopted in the Warsaw REDD+ Framework (UNFCCC, 2013) which specifies that verification should be carried out by combined teams of international experts from developed and developing world parties. However there remain many unspecified details which have been delegated to a different process – a 'REDD+ platform' managed by the Subsidiary Body for Scientific and Technical Advice (SBSTA) for ongoing production of REDD+ guidance. The issue of who will conduct the ground-level monitoring (i.e. professional scientists or local people) that will complement satellite data has not come into the negotiations, although a number of organisations have made the link between the need to involve local people in REDD+ and the need for ground-level monitoring information, thus birthing the concept of community MRV, a type of community monitoring (e.g. Skutsch et al., 2009; GCP, 2012).

2.2.3.4 Other difficulties

With such an ambitious, wide-reaching proposal such as REDD+, there of course exist numerous stumbling blocks where the concept, if brought into reality, could bring more harm than good, either socially, environmentally, or economically. Requiring more debate, these have received a significant amount of attention from NGOs such as Friends of the Earth (Hall, 2008) and Global Witness (Global Witness, 2009c). Some have already been mentioned above, such as international leakage and the need for an overarching climate treaty. Land grabbing is also an issue, where the forest is made more valuable by REDD+ only to be usurped by governments or more powerful organisations at the expense of local people (e.g. Papua New Guinea; Lang, 2010). Losing natural forests has also been a problem for policy makers as they try to close semantic loopholes on plantations, such as palm oil

which maintain the canopy cover (Carrere, 2003), as well as 'sustainable forest management' which can include industrial scale deforestation (Braatz, 2009).

2.2.4 REDD+ Readiness

To be 'ready' for REDD+, as defined by the World Bank's FCPF and the UN-REDD program, a country needs: existing forest laws and policies which are coherent with other sectors; a secure land tenure system and administration; functional forest management practices; adequate forest law enforcement; a transparent and accountable forest monitoring system; and a system in place for revenue distribution and benefit sharing (FCPF, 2010). At the 18th Commonwealth Forestry Conference in Edinburgh, James Mayers of the International Institute of Environment and Development (IIED) said that REDD+ Readiness "is a prime opportunity to address the old problems of land tenure, reduced capacity and isolated work. Transformation is possible" (Mayers, 2010). Working on REDD Readiness is seen by some as a unique chance to facilitate the improvement of accountability and forest governance at a global scale.

The World Bank launched the FCPF at COP-13 in Bali, 2007 (see Figure 2.1), to bring developing countries together to demonstrate activities that reduce greenhouse gas emissions from deforestation and forest degradation. It contains two programs: a Readiness Mechanism that assists REDD+ candidate countries develop the 'readiness' components mentioned above; and a Carbon Finance Mechanism which will pilot emissions reduction payments in countries which have successfully taken part in the Readiness Mechanism. Currently there are 36 countries participating in the Readiness mechanism and 300 million USD is allocated each year to assist preparation and development of a REDD+ system in these countries. Eight additional countries are in the process of joining. The process entails the submission of a Readiness Plan Idea Note (R-PIN), which is a general survey of the readiness components specified above with some indication of REDD+ plans. Once this is accepted, a more detailed Readiness Preparation Proposal (R-PP) is drafted, including strategy, consultation and participation plans, MRV details, and budgeting information. The R-PIN will have highlighted areas for improvement and the Readiness Mechanism facilitates the policy and institutional development. Once the R-PP is of a satisfactory quality, it is accepted by the FCPF and preparation for participation in the Carbon Finance Mechanism can begin. The UN-REDD program, a combination of the FAO, UNEP and UNDP, has a similar set up, where countries develop a National Strategy for approval. The readiness activities are very similar and as expected there is significant knowledge sharing and cooperation between these two bodies, both also fostering 'south-south' discussion between the participant countries. Overall, 52 countries are participating in REDD+

Readiness activities and these are shown in Figure 2.2. Almost all participant countries are receiving financial and institutional support, the extent of which depends on their progress through the process, with 17 countries already being in receipt of full FCPF grants or are in the UN-REDD implementation phase (Kojwang and Ulloa, 2012).



Figure 2.2: The 52 countries participating in REDD+ Readiness activities
Source: http://www.un-redd.org

Readiness is of paramount importance as REDD+ has the potential to channel significant funds into otherwise financially constrained countries. The potential for positive transformation is high, but the potential for dysfunction is also high, as exemplified by Papua New Guinea (Lang, 2010). The success or failure of REDD+ operationalisation depends on this readiness phase.

2.2.5 Future Prospects for REDD+

Even with the Warsaw REDD+ Framework allegedly providing all the guidance necessary to operationalise REDD+ (Lodge, 2013) and the progress of FCPF and UN-REDD work on country readiness, sceptics still assert that REDD+ will never be fully realised as an international consensus under the mandate of the UNFCCC is too ambitious, there being too many conflicting agendas encompassed in an excessively broad goal for global GHG emissions reductions (Garcia, 2010). One particular concern is the clear disparity between the finances being pledged and those being deposited (Nakhooda et al., 2011) which continues to fuel existing criticisms that the negotiation process is nothing more than political grandstanding (Al Jazeera, 2012). With secure funding from developed countries, many developing world parties who have previously been antagonistic in negotiations would be more willing to take part in an international, legally binding protocol on GHG emissions (Huq et al., 2010). But despite the disappointing progress with the high level policy in the

UNFCCC negotiations, REDD+ has already taken form with some countries using the principles of REDD+ to establish bi-lateral agreements, rather than waiting for an overarching multi-lateral treaty. We suggest that the specific pairing of individual developed and developing countries is likely to be the future trajectory of REDD+ and one such bi-lateral agreement exists between Norway and Guyana, providing the focus of the next section.

2.3 Deciding the regional focus

In order to address the objectives of the thesis, a specific study site was necessary. As there are numerous developing countries with REDD+ programmes in various states, a number of criteria were defined in order to assist selecting the most appropriate area for the study site:

- A locally based monitoring scheme must be in the process of being set up (which necessitates the presence of forest-dependent communities);
- The country must be classified as having a high forest cover ('HF'), as defined by Angelsen (2007), ensuring there is 'substrate' for applying a locally based forest monitoring scheme, i.e. there is actual forest widely available to monitor;
- Rural population density must be reasonably low as if there is a heavy pressure on the forest resource from local livelihood demands, conservation schemes that involve the reduction of extractive activities will be met very negatively and also need significant livelihood replacement options, something that early REDD+ project design is not sufficiently addressing;
- The country must be engaged in REDD Readiness (preparation activities under the World Bank and the United Nations) so that the prospect of future external investment under REDD+ is real. Without this, the research would raise unreasonable expectations;
- Local land tenure must be secure and legally defined (Sommerville, 2011). In its absence the impacts of continued destructive activity within the forested areas will not be felt so acutely by the local people, so the incentives for participation in such a conservation scheme will be reduced. Also, if governments legally centralise control of the forests, the local communities are likely to be marginalised and a loss of livelihoods is likely to occur;
- The governance structure must be discernable in order to practically navigate the bureaucracy of foreign field work;
- Reliable in-country contacts must be available.

After testing a number of different countries (Guatemala, Costa Rica, Uganda), Guyana, on the north coast of South America, was chosen as a study site.

On a national scale, Guyana is a country with 'high' forest cover and a 'low' deforestation rate; an 'HFLD' country. It has submitted a Readiness Preparation Plan (R-PP) to the World Bank FCPF which has been accepted. It also has a number of functional national forest policies in place, primarily administered by the Guyana Forestry Commission and the Environmental Protection Agency, but is a high risk country with respect to governance and economics (COFACE, 2011). Due to the highly advanced nature of Guyana's REDD Readiness, it is positioned to benefit from any forthcoming REDD+ funds (Johns and Johnson, 2009).

On a local and regional scale, the sparsely populated interior, specifically the North Rupununi study site, is the location of the CMRV Project (GCP, 2012), a locally-based monitoring system that is being developed by the Global Canopy Program (a UK-based charity). Through previously working with this organisation the author had fostered a good relationship with the Guyanese national bodies involved as well as the local communities. These local communities are forest-dependent Makushi Amerindian villages with exclusive resource rights and land tenure, some having greater technological, scientific and touristic exposure than others as a result of being closer to the one road that runs through the interior of Guyana (Watkins, 2011).

2.4 National context: Guyana

2.4.1 A troubled country: a reflection from the author

Nothing gives you perspective quite like staring down the barrel of a gun. After the sixth trip to Guyana I was beginning to get a handle on what Georgetown was all about, starting to understand its beauty as well as its troubles. On the surface the city looks to be in poor shape, with poor infrastructure, few amenities, obvious social depravity and a charming if rather basic retail industry. One Thursday evening I found myself eating a curry out on the terrace of a reputable Indo-guyanese restaurant in a reputable neighbourhood with reputable friends having recently landed at the Cheddi Jagan International airport. I was still slightly buzzing from the excitement of a high-octane taxi ride into a foreign city at dusk. With some Dutch development workers, I was musing that Georgetown wasn't as bad as the reports, or indeed as bad as it seems on the surface, that although not exactly topping the standings for personal safety or economic opportunities, the capital was moving forward; you just had to know your way around. Not five minutes later we were handing over our

belongings to an Afro-Guyanese teenager wildly brandishing a revolver. He promptly disappeared into the darkness of an alleyway, poetically running down the side of the dilapidated police station opposite the restaurant. Since then I have obviously been more wary in that city but also more intrigued by the social complexities that indirectly led to the curry house encounter. Guyana has a very eventful history centring on colonialism, sugar cane and slavery, much like that of other Caribbean countries, but has yet to settle enough to find its way into the mind of the globalised public. Guyana is a land most people think is in West Africa…

Before we focus on Guyana's forest resource, an asset which has seen it rise from relative obscurity and may yet see it become a high profile exemplar of low-carbon development, we will take a brief look at the mottled history and diverse profile of the country.

2.4.2 A whistle-stop tour of Guyanese socio-political history

(Bibliographic sources: Daly, 1975; Spinner, 1984; Hope, 1986; BBC, 2012)

Indigenous people. After stochastic periods of early human settlement, the Arawaks, a relatively peaceful people from the South American interior who practiced both nomadic hunter-gathering as well as fixed agriculture, began the current period of human occupation 3,500 years ago (Watkins, 2011). European records document the displacement of the Arawaks by the more aggressive Carib Indians, also from the Interior, in the 15th century. They drove the Arawaks north into the Lesser Antilles, where the colonising Dutch, English and French encountered them on the Caribbean Islands (Davis and Goodwin 1990). At the time of first European settlement in the early 17th century, there was a residual population of Arawaks on the Guyanese coast with the Caribs predominantly found in the interior.

Early colonial times. The Dutch were the first to arrive, with the Dutch West Indian Company setting up a trading post on the Essequibo River in 1615 and administering the growing colony over the next 170 years. Sugarcane plantations were the backbone of the colonial activities but labour shortages led to the importation of African slaves in the 1660's. The growth of European influence and the afro-guyanese population led the majority of the Amerindians to retreat to the Guyanese hinterland by the end of the 17th century. In 1746, in order to improve the economy of the colony, the Dutch opened up Guyana to British immigrants. Many plantation owners were attracted to Guyana from the Lesser Antilles due to the relatively fertile soils, and by 1786, the internal affairs of the country were effectively run by the British 'plantocracy'. During the late 18th and early 19th century, the

colony changed hands a number of times between the Dutch and the British, both passively and aggressively, until 1814 when the conclusion of the Napoleonic wars led to both parties signing the London Convention, officially ceding control to the British. The country was then called British Guiana.

British rule and social diversification. Even though the British Empire formally abolished slavery in 1807, it took until 1838 for total emancipation to occur, during which time the African slaves, frustrated by their continued captivity, started the unsuccessful Demerera Rebellion in 1823, the first of many large scale civil tremors that would characterise the 19th and 20th centuries. With no African workers for the plantations, Guyana's sugar industry was once again short of labourers. Not insignificant numbers of Portuguese and Chinese were brought in to fill this labour gap, but none would settle and these groups quickly diverted their efforts into small trade. As a result, the British imported large numbers of East Indian indentured workers. Between 1846 and 1917, 250,000 Indians arrived at the port in Georgetown, significantly changing the social and cultural dynamic of the coast. By the start of the 20th century Guyana was very diverse and not necessarily harmonious: the European planters dominated the government and economy; the freed slaves made up an emerging afro-guyanese middle class with the Portuguese and Chinese merchants; and the working class primarily constituted the indentured workers from the Indian subcontinent. The Amerindians continued to exist independently of the rest of the country, inhabiting the interior and playing no part in the national affairs of the coastal plains.

Extreme social and political changes: the 20th century. The dissatisfaction of the lower classes with their wages and living standards came to a head in December 1905, where the violent Ruimveldt Riots rocked the country. The British sent troops into Georgetown to quell the uprising, and although the workers were eventually dispersed, an early trade union movement was born. Severe political and social instability would continue for almost the entire century. To further add to the complicated social fabric of the time, many of the afro-Guyanese who were drafted in to fight with the British in World War 1 returned to form an elite community, while Indian indentured service was also ended in the inter-war era. The increasingly powerful lower echelons, who ran the growing rice and bauxite industries, resented the influence that the plantation owners still possessed in the colonial administration, and despite further constitutional reforms by the British in 1928, unemployment and dissatisfaction led to violence and widened social rifts during the 30's. After Word War 2, the colony's political system was made more inclusive, providing room for the first Guyanese political parties, and the economy received a temporary boost as bauxite demand increased.

Early Guyanese politics and Independence. The People's Progressive Party (PPP) was founded in 1950 by Cheddi Jagan, an Indo-Guyanese from humble beginnings but the recipient of a high quality US education. He was a proclaimed socialist which worried the British protectorate. Linden Forbes Burnham was an Afro-Guyanese from the educated middle class who was brought into the party by Jagan to draw Afro-Guyanese support. The first Guyanese government was formed by the PPP in 1953 under Jagan's leadership, but lasted all of five months as the British quickly suspended the constitution following a number of left wing proposals, such as to enhance the power of the trade unions in the government. 1957 saw Jagan voted in again and his first suite of policies was so clearly dominated by Indo-Guyanese interests (benefitting the rice and sugar industries and ensuring Indo-Guyanese government positions) that Burnham split from the PPP, forming the People's National Congress (PNC). For almost a decade, the PPP and PNC jostled for power in a perpetually unstable environment, with dubious elections being held, Indo-Guyanese biased laws being passed, more constitutional reforms, and violent riots and strikes commonplace. The elections in 1964 were won by the PNC and Burnham was installed as Prime Minister. Two years later, in 1966, Guyana was granted full independence by the British. In the year leading up to independence there were significant emigrations to London and New York where large Guyanese populations flourish today.

The Burnham years. The advent of independence gave a short period of peace, during which President Burnham cut Jagan's ties with communist regimes such as Cuba, and the new right wing attitudes were encouraging external investment and internal resource development. But again due to the great socio-cultural diversity, these developmental steps were not welcomed by everyone. The Amerindian population had been growing frustrated with their total anonymity in national proceedings, and the sudden expansion of resource exploitation on their interior lands led to a cooperative rebellion against the government with a handful of British cattle ranching families (with additional political motives); the so-called Rupununi Rebellion of 1969. This was defeated by government troops and effectively destroyed a ranch culture that was thriving in the Rupununi savannahs, where the cowboys *were* the indians. Around this time, President Burnham veered back towards left-wing views and totalitarian actions, curbing foreign investment, and switched his approach to one of heavy handed oppression of Indo-Guyanese opposition. He created a fearful atmosphere and plunging the country back into turmoil and recession, worsened by the global economic crisis of the early 1980's, until Burnham died suddenly in 1985.

Modern Guyana. The then prime minister, an Afro-Guyanese named Desmond Hoyte, succeeded Burnham as president, and worked concertedly to revitalise the country. A former home affairs, education and finance minister of the PNC, President Hoyte unblocked foreign investment, banned the highly dubious practice of overseas voting and encouraged journalistic freedom. His 8 years in power culminated in 1992 in the first internationally credible elections since 1964, which saw Cheddi Jagan, the erstwhile Indo-Guyanese prime minister of the first Guyanese government, voted back in with the PPP. In an effort to consolidate racial reconciliation, Afro-Guyanese Samuel Hinds joined Jagan in government as prime minister, a position which he still holds today. After Jagan's death, the presidential baton was handed to finance minister Bharat Jagdeo in 1999. Although rising crime and slow economic recovery plagued his early administration, powerful moves from the Office of the President helped improve education, health and infrastructural development. As a commentary on the political integrity of President Jagdeo, one of his first actions as President was to sign a two-term presidential limit into the constitution. He was re-elected in 2006 and during his second term the country saw its fifth successive year of strong economic growth which helped halve external debt compared to 2006 levels. Challenges during his tenure were catastrophic flooding of the productive coastal regions in 2005, continued internal racial tensions and external border disputes with Suriname and Venezuela, the emigration of young educated people (the 'brain drain'), and the implementation of an environmentally centred national development plan, the Low Carbon Development Strategy or 'LCDS' (Office of the President, 2010). It is for this last policy drive that Jagdeo was awarded the UN 'Champion of the Earth' award in 2010, and the LCDS has become the focal point for environmental actions in Guyana. In late 2011, long standing PPP member and party General Secretary Donald Ramotar was elected as President, though to a parliament in which a coalition of the two opposing parties (the Alliance for Political Unity, APNU, a multi-cultural party which has assimilated the PNC, and The Alliance for Change, AFC) hold a majority. He has continued in much the same vein as Jagdeo, contending with strong criticism of the integrity of his administration as well as endeavouring to create an environment conducive to foreign investment.

2.4.3 An environmental profile

Physical. The land in Guyana can be split into five distinct regions (Figure 2.3). 5% is coastal plain, a narrow belt of alluvial deposits driven west from the Amazon mouth by ocean currents. It has mostly been cleared of its original mangroves and lowland vegetation for sugar and rice plantations and is where the Dutch and early British built flood defences and many drainage/irrigation canals in the 18th century. Most of the population live and work in this area. Heading inland, we find a belt of white sand hills, about 150km wide and making up 20% of Guyana's area, where dense hardwood

forests grow. This area is where the majority of Guyana's bauxite, gold and diamond deposits are located and is also called the Pre-Cambrian Lowland Region. The largest two areas, making up a combined 50% of Guyana's land mass, are the interior highlands (The Pakaraima Highlands and the Southern Upland Region) where the majority of the Amerindian population reside. These are made up of rainforest covered uplands, steep ancient mountains and limestone plateaus. In the Southwest, 15% of the country's area is an expanse of gravel-based savannahs which flood extensively in the wet season. The name 'Guyana', means land of many waters, and true to this name, the country is characterised by numerous rivers flowing north to the Atlantic coastline, such as the Essequibo, Berbice and Demerara. The watersheds of these rivers, plus the Orinoque in Venezuela, the Correntyne, Suriname and Maroni in Suriname, and the Approuague and Oyapok in French Guiana, more or less mark the boundary of the Guiana Shield, a tectonic plate that includes parts of Colombia, Venezuela and Brazil and has a biome very similar to that of the Amazon Basin. Lying near the Equator, Guyana is a tropical country which experiences high temperatures (averaging around 30 Celsius year round) and high humidity (about 60-70%). It has two distinct wet seasons, short rains from mid November to the end of January, and long rains from the end of April until mid August. The coastal regions receive more precipitation (approximate average 2500mm/yr) than the interior (approximate average 1700mm/yr).



Figure 2.3: Guyana, showing the geographical regions, the rivers and the urban centres.
Source: www.forestry.gov.gy

Biological. With 18.4 million hectares of natural canopy cover, Guyana has one of the largest expanses of tropical rainforest in the world (GFC and Poyry, 2011) and is also one of the Earth's most bio-diverse regions with 1,200 species of vertebrates and over 6000 species of plants (ITTO, 2005) living in the mangroves, mudflats, rainforests, montane regions and savannahs. More specifically Guyana is fondly referred to the 'Land of the Giants' by its nascent eco-tourism industry, insofar as it is home to a number of flagship species that are also the largest in their genera or families. Among these eye-catching flora and fauna are: the giant river otter and the anaconda, both the biggest of their type in the world; the jaguar, harpy eagle, black caiman, and goliath bird-eating spider, some of the most powerful and iconic predators in the Americas; the giant lily and the arapaima fish, giants that are biologically and aesthetically reminiscent of pre-historic creatures; the giant ant-eater; the

giant river turtle; the red howler monkey; the giant armadillo; the capybara; the silk cotton tree; the tapir and many others. Many of the native flora and fauna are of daily importance to those still practicing traditional livelihoods in Guyana, such as the labba (large rodent), powys (large bird), bush hog and tortoise for bushmeat, and the bulletwood tree and ite palm for house building. A number of the indigenous organisms are on the IUCN Red list of endangered species (IUCN, 2014), with Guyana having a total of 68 species classified as threatened, primarily due to historic hunting and the wildlife trade (e.g. the black caiman).

2.4.4 A social profile

People. Guyana has a small population or approximately 738,000, and given its size being equivalent to Great Britain, the population density is very low (3.5/km^2). It nonetheless has a rich social diversity which mimics its rich biodiversity. The two largest people groups are the Afro-Guyanese and Indo-Guyanese (making up around 45% and 30% respectively, with there being 15% or mixed race), both brought over by British colonialists to labour on sugar cane plantations. The vast majority of these two groups live in the coastal areas, around the urban population centres of Georgetown, New Amsterdam, Berbice and Linden (Figure 2.3). Although in a continuous, prejudiced and often violent power struggle, both people groups partially occupy the middle class space of professional vocations, the Indo-Guyanese have dominated the retail industry and large-scale agriculture as well as the majority of political positions in recent times, while the Afro-Guyanese predominantly run the amenities, services, and small scale farming operations. The Amerindian population mostly lives in the interior, isolated from the conflict, politics and development of the coastal region. T*here are nine tribes (three coastal – Warau,* Kalihna, Lokono; and six in the interior - Akawaio, Arekuna, Patamona, Waiwai, Makushi and Wapishana) making up approximately 10% of the total population. They almost ubiquitously practice the traditional livelihoods of hunting, fishing and farming, having clothing and buildings that range from the indigenous customary to the international contemporary, though occasionally members of these communities will face the significant discrimination of the other Guyanese and venture out of their lands to seek employment in other more affluent fields such as mining or trading. There is a small (<1%) population of Chinese-Guyanese and Portuguese-Guyanese who dominate the upper echelons of the trading industry, and it is also possible to occasionally find a descendent of some the British colonial families among the expat and development workers in the country.

Culture. This potpourri makes the definition of Guyanese culture rather nebulous, much like that of modern day Britain. This is never more evident than in the technicolor celebration of Mashramani; a

national carnival that celebrates the Guyanese people from all corners of the country. Due to this diversity, the Guyanese workers enjoy a significant number of national holidays, with the national commemorations combining with the entire suite of Christian (Christmas and Easter), Hindu (Divali and Phagwah) and Muslim (Eid) festivals. These mainstream monotheistic religions are closely associated with but not limited to the people groups of the colonial-era immigrations while the Amerindian population maintains a certain amount of animistic spirituality. Because of this long standing mixture, faith can sometimes be found to have hybridised in a somewhat post-modern fashion. In terms of music and the arts, the most dominant influence has been from Afro-Caribbean culture and more recently from Brazil through the Amerindian border town of Lethem. Most traditional Amerindian music and art (with the exception of some practical craft skills) has been usurped by these more dominant mainstreams, as have been the traditional languages as centralised education has brought the national language of English into the rural parts of the country over the past few decades (Chung Tiam Fook, 2011).

2.4.5 An economic and development profile

Guyana's main financial revenues and largest potential environmental impacts come from agriculture, mining and forestry, with livestock, fishing, and manufacturing also contributing (Guyana Bureau of Statistics, 2013). The agriculture industry is the largest employer and is based on small scale independent rice farming and large scale nationalised sugar cane production (Atkins, 2006). This primarily takes place on the fertile coastal plains, alongside the generally more artisanal production of fruits and vegetables. Mining is an even more polarised industry with a highly industrialised bauxite extraction sector contrasting with an almost totally unregulated small scale gold mining industry which has been likened to the lawless frontier during the colonisation of the USA by a number of the author's Guyanese acquaintances. The gold mining sector is the largest formal contributor to Guyanese GDP and has shown the largest growth over the past eight years, although if the informal parts of this sector were included it would be substantially larger. The sugar production and forestry contributions have declined over the same period (Guyana Bureau of Statistics, 2013). The forestry sector, although showing a decrease in gross production of timber, has become increasingly privatised and subject to incredulity in the timber trade as it has spread, often without appropriate or legally justifiable consultation, from the lowland forests bordering the coastal region into the southern and western areas where most of the Amerindian territories are found (REDD-monitor, 2012). The timber industry is very diverse, although greenheart trees are the most sought after in terms of international markets (ITTO, 2005). It is also arguably the most controversial industry as the forest is the largest tourist draw to Guyana. With a very degraded or

absent forest, there would be no prospect of a profitable eco-tourism industry like that of Costa Rica, and this apparent short-sightedness seems to be a consequence of the disconnect between the dominant coastal people and the relatively wild interior.

With the recent economic stability of the previous two decades and the consequent growth of centralised government, the national programs of infrastructure development, health and education have expanded into much of rural Guyana (UNDP, 2010). Although there is still no appropriate waste disposal site in the country or indeed many paved roads outside the urban centres, almost every community in Guyana is served by a primary school and a medical centre, as well as a yearly financial provision for public works administered by the local governing body (in most cases the village council). Many NGOs have active capacity building programs throughout the country, such as VSO working with Guyanese professionals in natural resource management, advocacy and education.

2.4.6 Environmental policy and institutions

Now moving to focus specifically on national arrangements as they relate to REDD+, the legislative and institutional framework for the environmental sector was considered, by an EU report, to be quite strong even before former president Bharrat Jagdeo introduced the LCDS in 2009 to replace the National Development Strategy (Atkins, 2006). The key issue that the report identified was that the capacity for implementation and enforcement was significantly lacking. This continues to be true of the forestry sector (e.g. Tropical Forest Foundation, 2008; REDD-monitor, 2014) as well as others (e.g. the mining sector; Gutman and Patterson, 2010).

Arguably the most significant environmental milestone for Guyana was the Environmental Protection Act of 1996, establishing the Environmental Protection Agency to manage, conserve, protect and improve the environment. Even so its position within the newly established Ministry of National Resources (MNRE, 2014), housed amongst the Geology and Mines Commission (GGMC), the Lands and Surveys Commission (GLSC), the Foresty Commission (GFC), the Gold Board, the National Parks Commission and the Protected Areas Commission has made its agenda somewhat difficult to be heard by the single governing minister. The other long standing environmentally-focussed body in Guyana is the Iwokrama International Centre for Rainforest Conservation and Development (IIC or 'Iwokrama'), an NGO which manages the Iwokrama Forest National Park in the North Rupununi (see Figure 2.5). With its Georgetown office, Iwokrama has been advising the government (more recently alongside Conservation International Guyana) on forest and conservation related matters since its establishment in 1996. The Iwokrama Field Station is a well-

equipped facility which allows Iwokrama to host international researchers and implement sustainable development programmes with the Makushi people living in and around the Iwokrama Forest.

With the LCDS, REDD+ has become a focus for some of the agencies within the MNRE. Being a multi-faceted policy instrument, REDD+, and by default the LCDS, have been drawing on expertise from a number of different government bodies and NGOs whose identity and various contributions are shown in Figure 2.4. This does not show the MNRE as it is an umbrella body whose actual institutional role is as yet unclear. An obvious issue, identifiable from the info-graphic, is the lack of communication between the different bodies. The absence of dialogue between the agencies has been evident throughout the author's work in Guyana, with strategic overlap and redundant policy work commonplace.

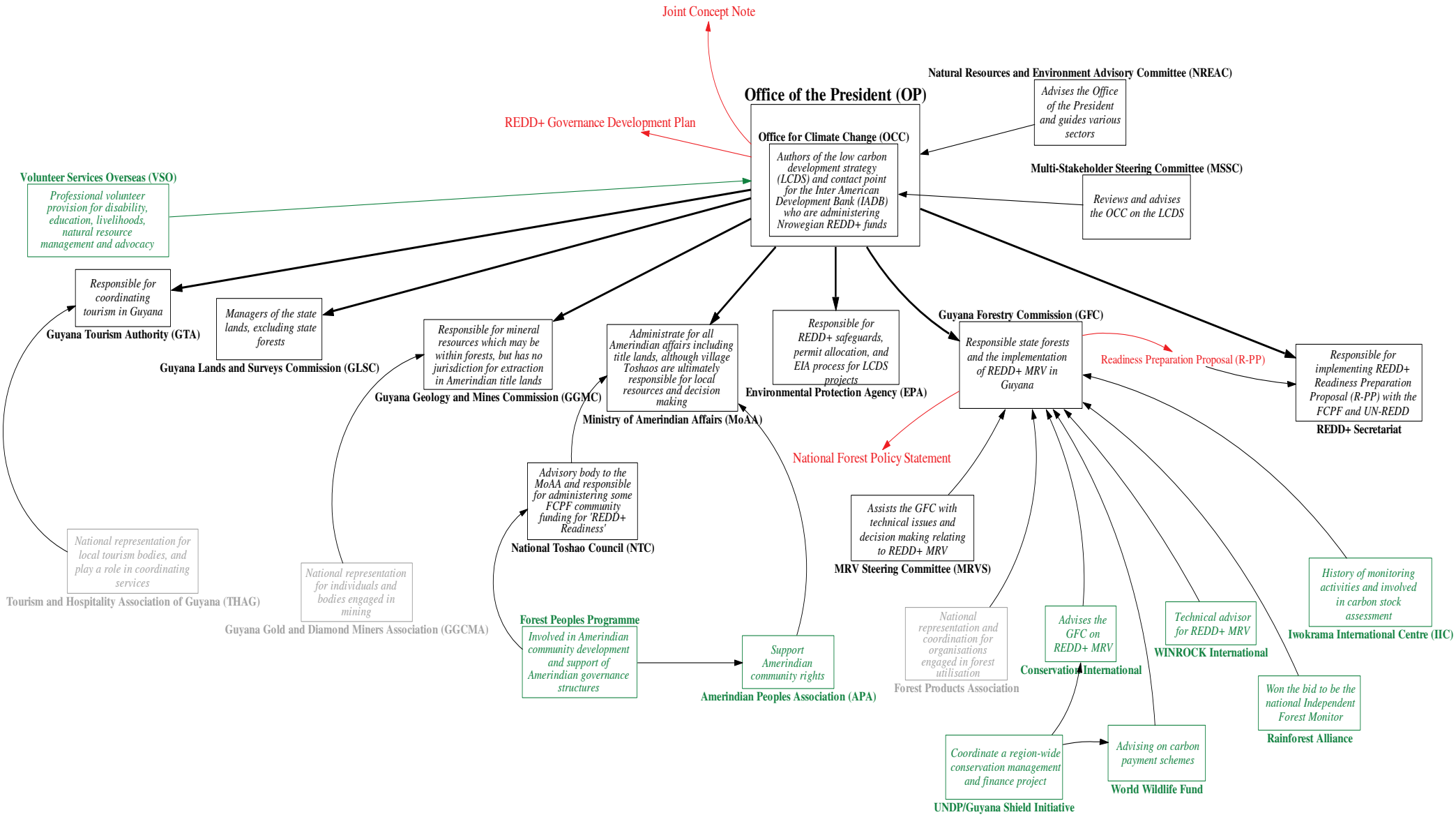


Figure 2.4: Info-graphic showing the institutional setting of REDD+ at the Guyanese national level.
Key: Black boxes: institutions/bodies/organisations; Heavy black arrows: governance; Light black arrows: advice/guidance/finance; Green boxes: NGOs; Red text: legislation/policy documents; Red arrows: authorship; Grey boxes: private sector organisations.

2.4.7 Norway and the LCDS

Many of the subtleties of REDD+ implementation in Guyana have been revealed through the submission of REDD+ proposals to the UNFCCC over the past years (Parker et al., 2009), as well as the REDD+ Preparation Proposal completed for the Forest Carbon Partnership Facility (GFC, 2010). Some of these Guyana specific institutional details can be seen in Figure 2.4, such as different bodies being responsible for the implementation of the Preparation Proposal, the respecting of safeguards, and the operationalisation of MRV.

The government of Norway has been one of the leaders in supporting tropical forest conservation, setting up the International Climate and Forest Initiative in 2007 to "*take early action to achieve cost-effective and verifiable reductions in greenhouse gas emissions, to promote the conservation of natural forests to maintain their carbon storage capacity, and to work towards the inclusion of emissions from deforestation and forest degradation in a new international climate regime*" (Government of Norway, 2012; online). They have been a major source of funding for the UN-REDD and World Bank's FCPF work on national 'REDD+ Readiness' as well as more specific initiatives such as the Congo Basin Forest Fund, and bilateral agreements with Brazil, Tanzania, DRC, Indonesia, and Guyana. This last agreement was struck in 2009, binding Norway to financially aid Guyana with $250 million for its Low Carbon Development Strategy (LCDS; Government of Guyana, 2010) over a five year period while also ascribing verified emissions reductions to Norway in an arrangement akin to an international CSR exercise. The central theme of the LCDS is avoiding deforestation and degradation as well as improving forest management; Guyana has extensive primary forest cover (9m ha) and a very low historical deforestation rate (0.5%/yr). The other components of the LCDS are: creating a low-carbon energy and communications infrastructure; low-carbon agricultural reform; and enhanced support for local forest guardians i.e. Amerindian communities. Forest-centred activities have progressed, with a full carbon stock assessment and reference level analysis underway (FCPF, 2013), as have communication developments, with fibre-optic internet cabling as well as mobile network masts having been constructed along the length of the country (KNews, 2014). Furthermore, there are specific provisions and comments within the primary LCDS agreement - the Joint Concept Note (Government of Guyana and Government of Norway, 2011) - and in the most recent update report from NORAD (Hardcastle et al., 2010) on how REDD+ payments may be distributed to the rural communities.

There has, however, been some friction between the two nations as Norway was reticent to release the second $45M portion of the $250M because of the Guyanese not adequately reporting on the

use of funds, not practicing suitable consultation and respect of indigenous peoples, and not sufficiently addressing drivers of forest degradation (Donovan et al., 2012). The payment was made in December 2012, with the Norwegian Government being satisfied that the Guyanese had made sufficient progress on issues that the original audit revealed. Since then, little progress has been made. A significant setback has been the abandonment, by the private international consortium, of the hydo-electric dam that was planned at Amaila Falls in the Pakaraima Highlands (AHP, 2013), for reasons of internal political discord between the parliamentary parties. Also, as much as there is language referring to the development of benefit-sharing mechanisms, the language that alludes to communities only states the need to develop plans, with no progress made towards implementation. The only structure in place at the moment that can distribute monies from central government to other bodies is an application process for medium to large scale low-carbon infrastructure projects. The governance of REDD+ has not received much attention in terms of strategic and detailed policy advice; looking at the institutional arrangement in Figure 2.4, we can see that it is far from ideal in Guyana. The central decision-making role in all affairs is occupied by the Office of the President, with very few LCDS related responsibilities delegated to lower bodies. Even though the Multi-Stakeholder Steering Committee exists to provide a voice for all relevant parties, the autocratic style continues, with the Guyana Forestry Commission (GFC), more specifically the Commissioner himself, being the sole arbiter of REDD+ related affairs, despite the official responsibilities of the REDD+ Secretariat and the EPA. The top-down nature of this structure has caused national and international NGOs to question the capacity of this system to distribute benefits to the local communities who actually steward the forests (e.g. La Rose et al., 2013).

2.4.8 Amerindian policies and the LCDS

Amerindians are represented at the highest level, through the Ministry of Amerindian Affairs (MoAA, see Figure 2.4), the first minister having been appointed in 1992 by the former president Cheddi Jagan. The Ministry's mission statement states that the minister is responsible for formulating and implementing policies and programs that facilitate Amerindian development, equity and advancement of rights (MoAA, 2009). Although the MoAA is advised by the National Toshao's Council (NTC, a forum where the leader of every Amerindian community meets), the minister is not elected by this group but is instead more classically elected as part of the main party political process. As such, with the historical marginalisation of Amerindian communities, the incumbent ministers have not always been regarded very favourably, being criticised for toeing their Indo/Afro-Guyanese party lines and not truly progressing with Amerindian issues. Even so, the MoAA provides for the appointment of Community Development Officers and District Development Officers, again

through the party system, who help further the MoAA's mission. Perhaps the most important legislation to the Amerindian people of Guyana is the Amerindian Act, first promulgated in 1951 by the British and updated a number of times, most recently in 2006 (Amerindian Act, 2006). This policy, also enshrined in law, critically details the demarcation of Amerindian title lands as well as recognising the role of village councils in local governance.. Currently 96 of Guyana's 169 Amerindian communities have been through the state-funded process of demarcation and are now the legal owners of their community lands (MoAA, 2009). These lands are, for the most part, not overseen by the government ministries, for example the GFC has no jurisdiction over forests on Amerindian title lands. There are however some concerning loopholes that enable the central government to retain control of resources in Amerindian territories, such as the veto power that community leaders have over small or medium scale gold mining proposals which crucially does not apply to large scale proposals (GINA, 2013). In terms of governance, the Amerindian village councils are self-governing but receive government funds each year through the MoAA. They engaging in dialogue wit, but are not accountability to the Regional Democratic Councils. Non-indigenous communities have Local Democratic Councils who answer to these regional bodies.

In relation to REDD+ and the LCDS, the Government of Guyana has primarily concerned itself with establishing the carbon finance mechanisms at a national level, such as the carbon stock assessment and establishing deforestation reference levels, high-level strategic plans, forestry sector policy improvements, and the body to administer the Norwegian funds. Ground-level operational work is yet to be started, with the exception of the professionally run stock assessments, and as such issues such as how co-benefits (safeguards such as biodiversity, ecosystem services and human wellbeing) and community involvement will be addressed are lagging behind in policy formulation and operational detail (FCPF, 2013). Both have been recognised as important but the only provision for co-benefits is that more "exploration, for incorporation" is needed (FCPF, 2013; p3). There is still no mention of community involvement; only that 'free, prior and informed consent' will be sought from Amerindian communities, an important but preliminary phase to any functional ground-level work, and that the titling of remaining Amerindian land is an implementation priority. Over the past years there has been mention of an LCDS 'opt-in' mechanism for Amerindian communities, where financial benefits will be distributed based on the performance of communities in their efforts to reduce deforestation and degradation (Narine, 2013), but there is as yet no detail to any of these plans, particularly with regards to how communities will actively contribute to the process.

2.4.9 The CMRV project and partnership

It was in this context that the Community Monitoring Reporting and Verification (CMRV) project was proposed in 2010 (GCP, 2012). The Global Canopy Programme (GCP), a think tank that focuses on forests and climate change, identified the link between a need for ground-level monitoring (in complement to satellite monitoring) and the need to involve local people in REDD+; local people can be trained to provide this information and become community monitors. Using links already established in Guyana through other projects, they established a partnership with two Guyanese organisations to work together to develop and implement the CMRV project*:* the North Rupununi District Development Board (NRDDB, an indigenous NGO) and Iwokrama. As a partnership they secured funding from NORAD, the Norwegian development agency, with the GCP as the project lead, to run the project in the North Rupununi sub-region, the study site in the centre of Guyana shown in Figure 2.4 and 2.5. The aim of the CMRV project was twofold: i) to equip the communities in the North Rupununi to participate in the LCDS (and potentially in other future PES schemes) by training them to provide the government with ground-level carbon data; and ii) to enhance their local resource and community management in the face of growing outside pressures by facilitating their production and use of more formalised information and data (e.g. World Bank, 2004).

The first phase of the project (2010-2013) worked to establish links with the national MRV system, with the GFC actually asking the project to trial and advise them on whether community monitoring is an effective way of engaging communities in the REDD+, as well as help them improve understanding of local drivers of deforestation . The first phase also involved the establishment of the ground-level monitoring system. At the community level, CMRV trained and employed members of all the participating Amerindian communities to monitor aspects of their local environment. A local project management team (PMT) of five Makushi was employed to run the project on the ground and 32 community residents were selected by their Village Councils to be Community Resource and Environmental Workers (CREWs, the community monitors). Village leaders have also been involved in the project alongside the PMT and CREWs, together being called the 'local participants'. The concept of participation was entwined in the project, with project design and responsibilities being delegated to the local participants as much as possible. There have been six specific work streams running for the two year duration of the project which have been: biomass monitoring; wellbeing monitoring; natural resource monitoring; community mapping; farm surveys and a ground-truthing exercise. In order to carry out these tasks, the project has been through the phases of visioning, assigning leadership, design of methods, data collection, database management, data analysis and presentation, and finally data use. Lastly, the CMRV project has rationalised the

use of smart phone and cloud technology to base the monitoring system upon, capitalising on the relative short data transfer process (downloads into prepared databases in comparison paper-based transcriptions) and the multi-media potential of these technologies. The project is now in the second phase (2014-2015) which aims to consolidate the existing monitoring activities in the North Rupununi and note the lessons learned for future projects.

2.5 Local Context: Amerindians and The North Rupununi

(Bibliographic sources: Berardi et al., 2012; Chung Tiam Fook, 2011; Watkins, 2011; Mistry et al., 2010; Read et al., 2010)

2.5.1 The isolation of the Amerindians

As the dazzling orb of the sun begins to kiss the reaching canopy of the bordering rainforest, a cooling breeze visits the savannas of the North Rupununi. In Surama village, a modest but progressive Amerindian settlement of around two hundred Makushi people, I take tea with Ron, whose father, Sydney, has become the region's leader. Ron is Makushi through and through, but has an edge that I haven't seen in other more acquiescent Amerindians. If he was in a western city, his opinions and attitudes would lead to immediate analogies with Friends of the Earth or Greenpeace. He is well educated in global perspectives, having been meticulously trained as one of the first intake of park rangers in the Iwokrama Forest just to the north of where we reside in the grassland. We converse in mutually well-formed English, his marvellous Guyanese, or Caribbean lilt, contrasting with my private school pronunciation. My host keeps a simple but relatively affluent existence in his brick-built, solar powered house, the legacy of his prestige and ability, but his dreams don't wander any further than his home ranges. We talk of forests, his knowledge of wildlife, potential adventures and recent changes in the Rupununi. His discerning eye and love of the Guyana heartland give him the edge I mention. He doesn't accept the western views of 'least-developed', is proud of his robust culture and traditions much like the Maasai of Kenya, and views the sustainable forestry activity going on further north with significant scepticism. Over a cup of Twinings earl grey, he makes a memorable observation about the non-indigenous forestry managers in Iwokrama:
"dey go home to Georgetown when dey're finished, wid der full bank accounts. But dey don't have to come back to de fores'. I do, so I care what it's like."

Ron's statement encapsulates and crystallises two of Guyana's persistent contemporary issues: the isolation of the Amerindians from the coastal dominance of the Afro- and Indo-Guyanese; and the newly threatened natural resource base as the economy climbs out of its post-colonial state of permanent recession. These problems are rooted in the tumultuous modern history which gave rise to the multi-cultural Guyanese society we see today, or more accurately, *don't* see today – Guyana, as we've already mentioned is a country mostly devoid of tourists and international attention. This makes the institutional isolation of the Amerindian communities and consequent lack of agency at a national level even more acute.

We've seen how the international and national contexts relate to the local level and how REDD+ policy is being translated by the Guyanese into local level actions in the North Rupununi. We now look at the North Rupununi and the Makushi who reside there, finally building a coherent picture of the subject people of the study site.

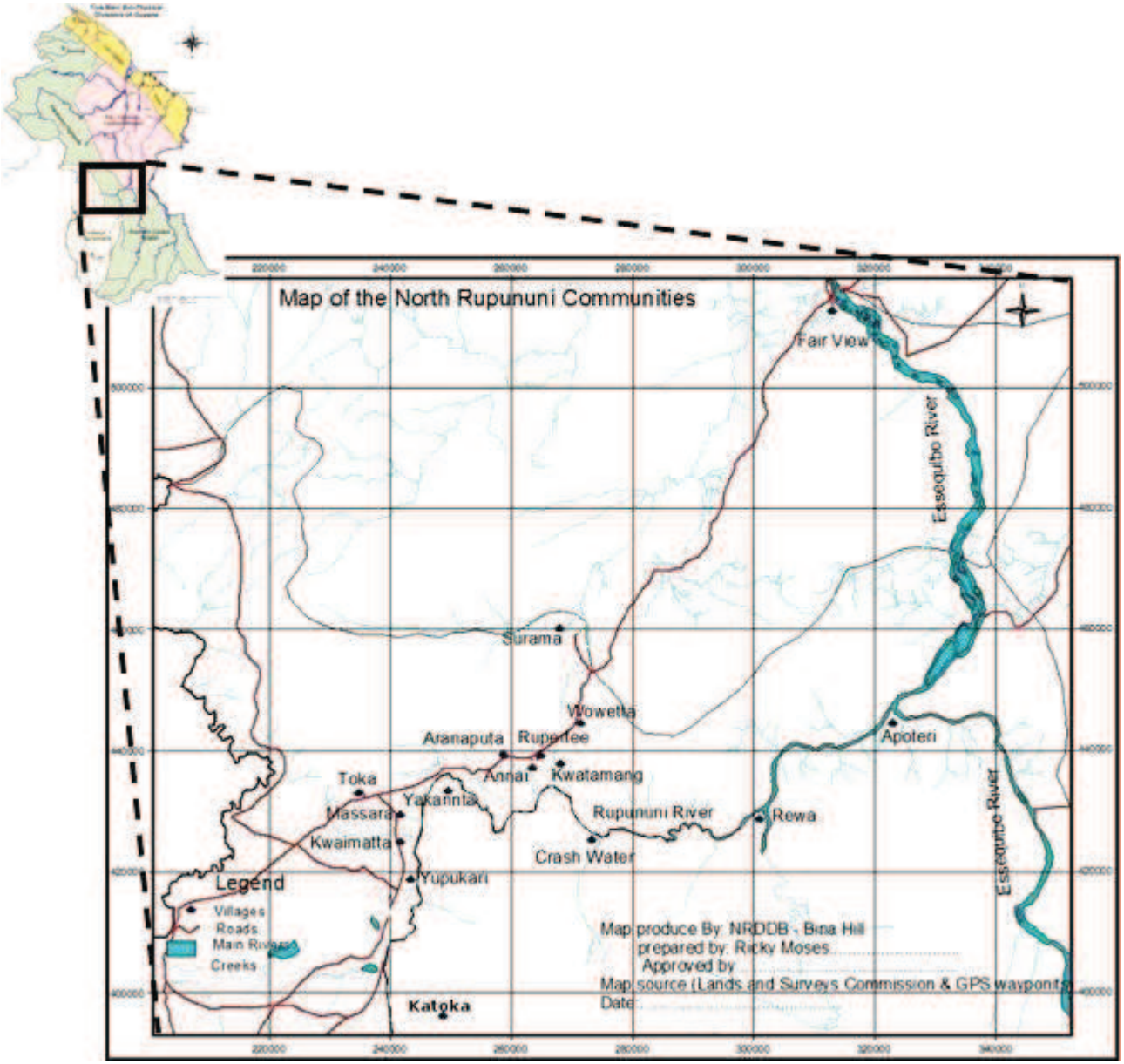


Figure 2.5: Map of the North Rupununi sub-region, showing the 16 communities, the rivers, creeks and roads.

2.5.2 The North Rupununi

The North Rupununi is a sub-region of Region 9, one of the 10 major political divisions in Guyana, and is where the largest remaining population of Makushi Amerindians live. The other half of Region 9 lies to the south, the South Rupununi; a land of forest and savannah over the line of the Kanuku Mountains inhabited by the Wapishana and the Waiwai Amerindians. The western edge borders Brazil and to the Northwest reside the Patamona Amerindians in the Pakaraima Mountains. The Northern parts are designated to the Iwokrama Forest, one of the few national parks in Guyana, and to the East, over the Essequibo River, is largely uninhabited rainforest stretching to Suriname. The Makushi have good relationships with all their neighbouring Amerindian tribes though more

fractious dynamics with Guyanese 'coastlanders' and Brazilians. The sub-region is approximately 2 million hectares of tropical forest and natural savannah. Almost all the area is made up of demarcated indigenous title lands with each of the 16 communities allocated particular areas based on their customary use. The 6,500 inhabitants (NREDDB, 2013) are distributed among villages that range in population size from 170 (Kwaimatta) to 780 (Yupukari), and although most are located along the Rupununi River, the villages are informally identified as either: savannah communities, such as Kakarinta, Toka, Massara, Kwaimatta, Yupukari and Katoka; riverine communities such as Crashwater, Rewa and Apoteri; central communities such as Aranaputa, Annai Central, Rupertee, Kwatamang and Wowetta; or forest communities such as Surama and Fairview. Each village is governed by a village council and a leader, known as a toshao, all democratically elected every 4 years. As with much Guyanese Amerindian culture, their approach to governance is an amalgamation of modern political practice and traditional approaches. An example of the structure of a village can be seen in Figure 2.6.

The North Rupununi has three political features that influence the governance and social dynamics of the communities:

Firstly, the North Rupununi District Development Board (NRDDB) is the de facto sub-regional governing body in the area. It is a non-governmental organisation that was established in 1996, with the assistance of the Iwokrama International Centre, to help the Makushi strengthen their indigenous governance (NRDDB, 2013). It is unique in Guyana as the only community-led governing organisation and was set up here because of the proximity of the Iwokrama Forest National Park where many Makushi work. Its foundation was sponsored originally by the Iwokrama International Centre, but the NRDDB has since become financially self-sufficient through village contributions and international sponsorship. It is constituted of the toshaos of all 16 North Rupununi communities as well as an administrative executive and provides a quarterly forum for discussion and decision making. It is based at Bina Hill, which also hosts a few other important bodies: the Bina Hill Institute, a sustainability and conservation school catering for 16-18 year olds from the local communities; Radio Paiwomak, a centrally funded, locally-run radio station; and the Makushi Research Unit, a group of Makushi women trained in social science methods in order to document and maintain Makushi culture and help address social issues, originally established by the Iwokrama International Centre (an example publication being a book on traditional Makushi knowledge; MRU, 1996).

Secondly, Aranaputa, although part of the study area, is not technically an Amerindian community and so is open for non-Amerindians to settle in. There were coastlanders living in the Aranaputa Valley at the time of the demarcation process (started in 1958 by the British) and so although it does have community lands, these do not come under the Amerindian Act. As such, there are fewer restrictions on externally run enterprises and Aranaputa has more established businesses than any other community. Although the residents of Aranaputa have been included as a part of the NRDDB, engage in the same activities as the surrounding villages, and feel 'Makushi' to some extent, tension between the Afro-Caribbean youths from Aranaputa and the Makushi youths from Annai has been a continuous source of strife.

Thirdly, five of the communities are in a single administrative district under one toshao, known as Annai District, or sometimes even as Annai Village, each having a representative senior councillor that heads their village council. These communities are Surama, Wowetta, Rupertee, Kwatamang and Annai Central. They have unanimously (and amicably) been demanding that the MoAA grant them independence as communities, to change the outdated administrative classification that was appropriate 60 years ago when Annai Central was the only village in the immediate area. Annai Central remains the sub-regional capital where the basic hospital and secondary school are located, and hosts the regional celebration of Amerindian Heritage every September.

No external mining, forestry or other resource extraction takes place in the North Rupununi as it is prohibited under the Amerindian Act. Indigenous village rules across the Rupununi also prohibit the extraction of community resources for commercial gain (except in very special circumstances). One such circumstance being some small scale Makushi forestry operations occurring near Surama in a special area designated by the NRDDB. Each operator has to be a North Rupununi resident, is restricted in the practices they can use and the amount of lumber they can extract, and must pay tax to their resident community. Tourism is really the only wider industry that currently operates in the North Rupununi, although it is still in its infancy. The potential for ecotourism is enormous, with the communities located along the borders of the deep rainforest and the open savannahs. There are a small collection of tourism enterprises in the area, ranging from a ranch house where a foreigner has settled (Rockview Lodge in Rupertee), a community run eco-lodge (Surama, see Figure 2.6), the ancestral home of a colonial family (Karanambu Lodge), and permanent research stations (Iwokrama Field Station near Fairview and Caiman House in Yupukari). All of these provide significant income and employment to the surrounding communities and have become important institutions within the North Rupununi, to such an extent that some have observer status in the NRDDB. As a

consequence of dialogue with the local tourist lodges and various environmental initiatives run through the NRDDB, thirteen of the communities have allocated conservation areas or sustainable use zones in their title lands. The issue of conservation is, however, fairly strange to Amerindian communities as the pressures they exert on wildlife populations and other natural resources is very small; a function of the extremely low population densities (0.3 people/km^2). The only resource management practice that villages have internally imposed has been the harvesting of ite and kokerite palms for thatching. The concept of conservation and resource management is becoming more important as the Makushi population increases and external pressures on Rupununian resources mount, but remains locally viewed as an externally imposed ideology.

2.5.3 The Makushi

The North Rupununi is where Sir Walter Raleigh thought the fabled city of El Dorado was meant to be. He made an unsuccessful expedition up the Essequibo in the late 16^{th} century to explore this myth. There he encountered the Makushi who became famous amongst the colonists not for gold but for a certain type of poison, curare, which they fashioned from a cocktail of native plant extracts and used on blow-pipe darts and arrow heads. The Makushi are Carib-speaking people who are similar to the Arawaks that preceded them insofar as they are a peaceful agricultural people, predominantly practicing rotational farming inside the forest. The staple food, the processing of which has become the mainstay of their culture, is bitter cassava from which they make farine, a dried granular form of the root crop, and parakari, a fermented drink. Whereas the processing of the cassava is dominated by the women, the men traditionally occupy themselves with fishing, hunting and house building, although both the sexes engage in all the activities, Makushi society not being as gender-polarised as other indigenous people groups. Fishing is the next most important livelihood after farming, with Makushi families eating fish from the creeks, rivers or lakes most days. Bow-fishing, line fishing and net fishing are all practised depending on the type of fish that is being sought. Hunting is not as important as it once was, with bush meat now making up a much smaller proportion of the Makushi diet than it once did having been replaced by the keeping of chickens. It is now reserved for leisure or for those individuals who particularly embrace their traditional culture. Although most communities contain multiple churches and almost all the Makushi would identify as Christian, many of the Makushi stories still focus on the animals and spirits that surround them (Grund, 2011). Their dependence on their surrounding environment goes further than their dinner table and spirituality, with housing materials being sourced from community lands, such as palms for thatching, bulletwood for house posts, and clay for making mud-bricks. Palm leaves and grasses are collected for weaving baskets and other household items while cotton is often grown on farms to

spin and weave into hammocks. But walking around a village on the dirt paths, an observer will see that almost every homestead has at least one building with a corrugated iron roof, everyone is dressed in western clothes, and they will hear the occasional sound of a generator or motorbike in the distance. Other income and employment opportunities in the communities are small businesses, vehicle mechanics, primary schools, health centres, craft centres and eco-tourism. A more complete picture of Makushi society can be gleaned from Figure 2.6 which details the institutional and relational structure of the village of Surama.

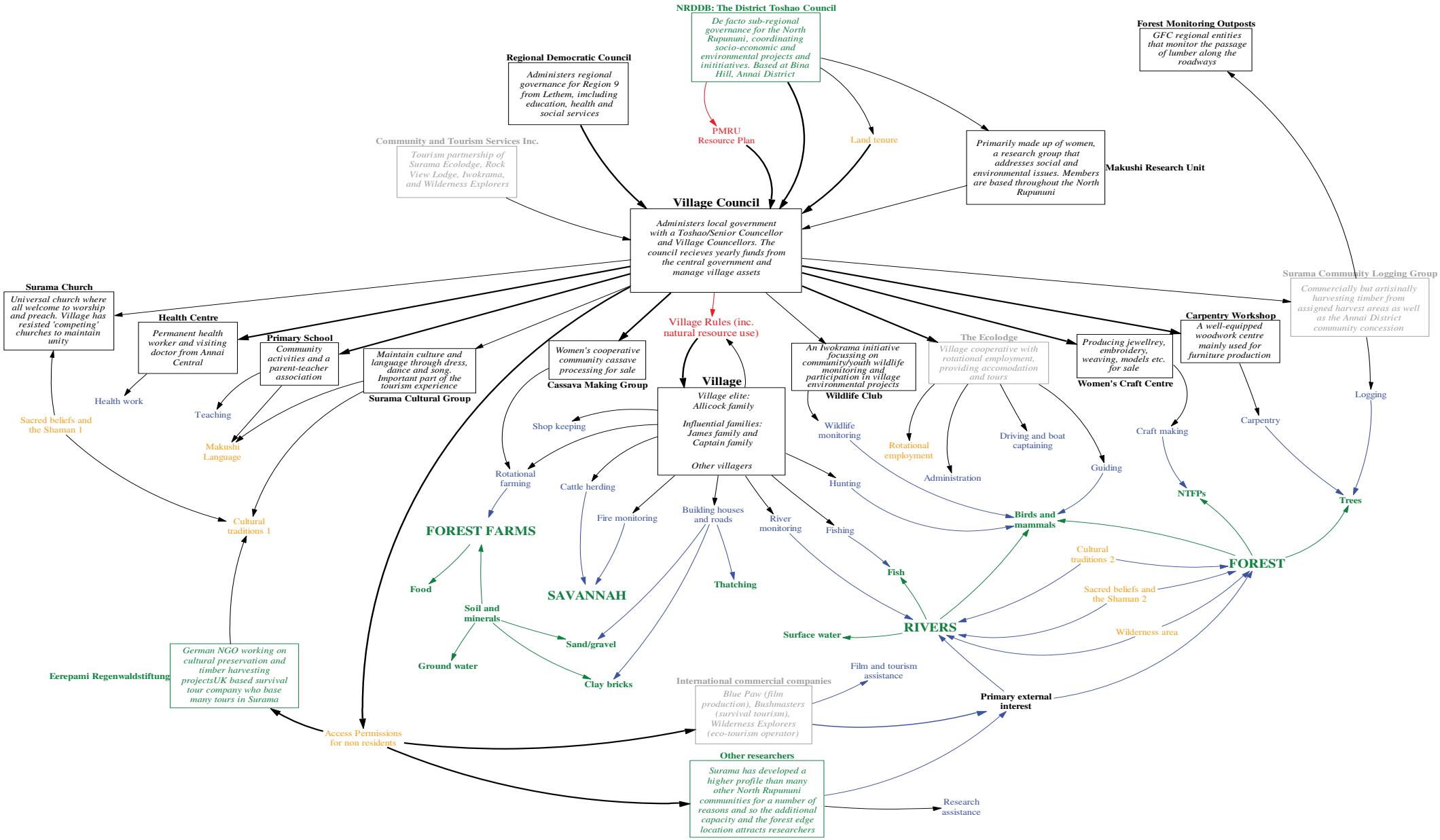


Figure 2.6:Info-graphic showing the institutional and relational context of REDD+ at the local level, using the village of Surama as an example.

Key: Black boxes: institutions/bodies/organisations; Heavy black arrows: governance; Light black arrows: advice/guidance/finance; Grey boxes: private sector organisations; Red text: legislation/policy documents; Red arrows: authorship; Blue text: livelihoods; Blue arrows: utilisation; Green text: natural resources; Green arrows: provision; Green boxes: NGOs; Orange text: management practices/issues

The Makushi are no different from the other Amerindian tribes of Guyana in that they are having difficulty maintaining their culture. They are not allowed to speak Makushi in the government funded schools and so few of the younger generation know their native language. The author hasn't heard any traditional music, in person or over recordings, in five years of experience in the region, 'Makushi music' now being an introduced mixture of Americanised folk and Brazilian dance music. A number of the communities have culture groups which put on shows of traditional dress, dance and stories mostly for visitors. This cultural degradation is not a new trend and can be traced back to the mid 19th century in the North Rupununi, with the arrival of European Christian missionaries who relocated the semi-nomadic people from the hillside areas down into more 'civilised' permanent settlements in the savannahs. Alongside the benefits of schools and hospitals came the loss of traditional lifestyles, while the introduction of firearms made the production of curare redundant. Through the 18th,19th and 20th centuries a combination of the slave trade and introduced European diseases reduced the Makushi population from almost 100,000 to around 2,000. Even so the Makushi were a consistent enough presence to provide exceptionally skilful guides to any passing trader or visitor, as well as committed workers to the three industries that boomed then bust in the Rupununi, each significantly altering the Makushi's cultural identity. Cattle ranching brought British settlers to the area in the 1860's, utilising the vast savannahs and fostering a good rancher-cowboy relationship with the Makushi, rather than that of a slave and a master. These ranch owners fled the Rupununi following the Rupununi Rebellion in 1969 and the 80,000 head of cattle quickly disappeared due to rustling from Brazil and the coast, leaving an entire culture of horsemanship to slowly degrade over time. The early 1900's saw a rubber tapping (aka 'balata' bleeding) boom, with significant external investment coming into the areas and airstrips being built in remote areas to service the extraction activities. This industry completely bust in the early 1970's with the arrival of synthetic alternatives. Finally the wildlife trade was the most recent industry to grow, with the pet and pelt trades thriving from the 1960's to the 1980's until resource depletion saw these industries collapse. With no primary industry remaining, the Makushi of the North Rupununi have been engaging once again in their more traditional livelihoods while also diversifying their income streams, adapting, as in the past, to the changing times. One such potential income stream is from REDD+ which the communities are engaging in with the help of the NRDDB and the CMRV project.

2.5.4 Future challenges for the North Rupununi

The single most important change that the North Rupununi is facing is the paving of the Linden-Lethem highway that runs through the interior. As the landlocked Brazilian province that neighbours the North Rupununi would benefit greatly from the coastal link, it is anticipated that the road will be

paved within the next 5 years (Guyana Times, 2014), encouraging coastlanders to settle along its length and bringing the Brazilian border to within a 1 hour journey in a normal car. This will radically change the social and economic dynamic of the relatively isolated Makushi communities that are placed along the highway. With new roads comes accelerated resource exploitation, both in forestry and in mining, as has been mapped in Brazil (Perz et al., 2008). Although the lands of the North Rupununi are protected from external exploitation by the Amerindian Act, the enforcement capacity is very low in these rural areas, so the natural environment in the proximity of the road is likely to become degraded. More positively, local jobs will be created through roadside businesses and services, as well as enhanced tourism opportunities. Currently there is a serious problem in the North Rupununi with young capable adults emigrating to Brazil and the coast due to a lack of job opportunities (Watkins, 2011). Greater employment prospects will keep young people in their communities, enhancing the sense of community cohesion and flourishing. The NRDDB are strong advocates of Makushi rights but will have to develop greater institutional power and advocacy links in order to cope with the radical socio-economic and environmental changes that will accompany a new road.

3 Community forest monitoring in REDD+: the 'M' in MRV?

3.1 Introduction

Monitoring the state of natural resources is important to almost all levels of human society: the international community need to know whether their national policy commitments are meeting global goals such as those outlined in the Convention for Biological Diversity; conservationists around the world need to assess the effectiveness of their actions; and resource-dependent local people need to calculate how much they can viably harvest each year. If there is external funding involved in natural resource management, monitoring provides essential feedback to the 'investors', creating accountable relationships. Monitoring therefore matters.

Forest monitoring, like other natural resource monitoring, was historically mostly conducted by external professionals using strict scientific methods (Angelsen et al., 2009). However, recently in contrast, these monitoring responsibilities have been devolved to local communities, a practice that has become known as community-based/locally-based monitoring which employs more participatory and locally appropriate techniques of measurement (Danielsen et al., 2005; Garcia and Lescuyer, 2008). The value of locally-based monitoring is clear from examples in the developed world, using 'citizen science' to run projects such as the European bird atlas (Gibbons et al., 2007) and the new UK initiative, OPAL (the Open Air Laboratory, for monitoring environmental quality through measuring soil, air, water, biodiversity and climate, OPAL, 2009). Utilising the observations of resident populations is a way to continue natural resource monitoring despite funding shortages, while also gaining widespread community acceptance.

With approximately 1 billion people depending on tropical forests for their livelihoods (World Bank, 2004), monitoring the state of these valuable forests is becoming increasingly important. Furthermore, with REDD+ looking increasingly likely to become operational in the coming years, there is a significant demand for monitoring, reporting and verification (MRV) best practice, holistically including carbon, biodiversity, social, and ecosystem service monitoring (this four pronged monitoring approach is extrapolated from the current details in the UNFCCC REDD+ draft paper under the Ad Hoc Working Group on Long term Cooperative Action (AWG-LCA)(UNFCCC 2009), an approach also being anticipated in UNREDD and World Bank 'REDD+ Readiness' work, such as in Tanzania (Burgess, 2010)). It is becoming clear from looking at related fields that there are successful examples of the individual components (the 'M', the 'R' and the 'V') that might make up a

REDD+ MRV system, such as the reporting system used by Birdlife International in the IBA network (e.g. Adhola et al., 2009). The unique and largely untested dimension of REDD+ is the combination of these parts to create a functional scheme.

The main objective of this paper is to assess whether locally-based monitoring could be used in the future REDD+ framework. This is done by examining the central issues associated with the spread of locally-based monitoring schemes: firstly comparing the integrity of professional and locally-based monitoring; secondly teasing out the practical lessons and techniques from 20+ years of application in conservation management; and finally assessing how this approach could contribute to REDD+.

3.2 Professional vs. locally-based monitoring

Garcia and Lescuyer (2008) make a strong assertion that that the devolution of forest monitoring responsibilities has mostly been unsuccessful in improving the condition of the forest or halting degradation. Perhaps this is true, but there are exceptions to this trend that are feeding an alternative view, notably two African examples of successful, long standing, locally-based monitoring systems in Ghanaian and Tanzanian protected areas (Brashares and Sam, 2005; Blomley at al., 2008; Danielsen et al., 2010a; Danielsen et al. 2010c). Similarly, recent studies in the Philippines (Uychiaoco et al., 2005; Danielsen et al., 2007a) indicate the potential success and feasibility of locally-based monitoring. Regardless of the context, it seems like there are three particular areas to address when comparing professional monitoring to locally-based monitoring, the evidence for which is summarised in Table 3.1.

3.2.1 Accuracy and Variability

There is a growing consensus that local people, using conventional scientific methods or participatory methods, can produce data sets that are just as accurate as those that are derived professionally (Yoccoz et al., 2003; Danielsen et al., 2005; Danielsen at al., 2008; Jones et al., 2008; Rist et al., 2009, Danielsen et al., 2010c). A classic example that lends weight to the accuracy of locally-based monitoring is that of the Sami reindeer herders, who's "observation of how snow depth has changed over the past 50 years aligns with long-term data collected by scientists" (Danielsen et al., 2007b). An additional part of locally-based accuracy is the correct use and 'translation' of locally derived traditional measures into more 'scientific' data sets – a sort of conversion exercise that, for example, takes measures such as "consistently waist deep snow" and

carefully translates that into broadly usable “50cm depth with low variance +/- 5cm”. Nevertheless, the variability of locally produced information remains problematic, as exemplified by the international K:TGAL carbon monitoring project (Skutsch et al., 2009). While not glossing over this problem, Skutsch et al. insist that this high variability is a consequence of different communities employing slightly different techniques, rather than any lack of skill within the community. Thus the variability of locally-based data can be reduced by standardising the techniques used, be them participatory or strictly scientific, and increasing the sampling frequency – something that is easily done by local communities living close to the forest resources (Danielsen et al., 2010c)

3.2.2 Cost and Sustainability

In general, locally-based monitoring is cheaper than professional monitoring, even if the start-up costs for locally-based systems can be high (Topp-Jørgensen et al., 2005; Rist et al., 2009, Danielsen et al., 2010c). Professional monitoring has long been regarded as prohibitively costly (Balmford et al., 2003). Intuitively, if the costs of locally-based natural resource monitoring are low, the monitoring programme will be more financially sustainable than a costly professional scheme. The locally-based approach also involves the community in planning, data collection, analysis, and decision making, which in turn generates local support and ownership for the monitoring programme, enhancing its longevity. Chhatre and Agrawal (2009) suggest that this ownership is the primary advantage of locally-based monitoring, as it leads to the local community regulating their own resource use (thus becoming a practice of internalising the costs of resource exploitation, in so combating the ‘tragedy of the commons’ which continues to create environmental problems worldwide). Additionally, this involvement increases capacity and environmental awareness among community members, and creates a local institutional framework that can link more remote rural communities into the sub-national and national institutional arrangements, encouraging relationship with the government.

3.2.3 Cultural relevance

Involving the local community in the planning and operation of monitoring programmes gives them the opportunity to significantly influence what specific resources are monitored. As these resources are more likely to be those on which they daily depend and interact, any threats are often quickly detected and thus can be addressed through local management actions (Danielsen et al. 2010b, Danielsen et al. 2010c). This can be contrasted to professional biodiversity monitoring which may focus on rare, endemic, or charismatic species which may have been identified in a monitoring contract. Local communities are often more interested in the broader resource base of the forest

than the status of particular floral/faunal populations. The task of the external expert is therefore to ensure, during the planning and contract writing phase, that the monitoring scheme covers elements that are both culturally relevant and scientifically useful (Garcia and Lescuyer, 2008, Rist et al., 2009) e.g. integrating non-timber forest products that are used for subsistence but are also suitable indicator species. Stuart-Hill et al. (2005) also speculate the role of the expert, highlighting the need for externally usable information as well as data that the community deems relevant to collect – the community might need an expert to enable them to see their immediate environment in a broader context, and may stimulate them to monitor something that they may not have planned to monitor.

Table 3.1: A summary sample of studies showing which locally-based monitoring schemes This details evidence of accuracy, which show evidence of cost-effectiveness and sustainability, and which show evidence of particular cultural relevance. A more complete and up to date analysis of locally-based monitoring schemes can be found in Danielsen et al. (2010b).

		Evidence		
Case Study	**Details**	**Accurate**	**Cost-effective / locally sustainable**	**Culturally relevant**
Danielsen et al. 2010c	Assessing the results of community-based and professionally-executed monitoring in India, Madagascar and Tanzania.	x	x	
Rist et al. 2009	Monitoring biodiversity through hunter reporting of Bushmeat harvesting in Equatorial Guinea.	x	x	x
Skutsch et al. 2009	Assessing the successes of the K:TGAL community carbon monitoring project	x	x	
Jones et al. 2008	Monitoring biodiversity through interviewing crayfish fishermen in Madagascar.	x		
Danielsen et al. 2007	Comparing locally-based and professional methods across the protected area network in the Philippines.		x	x
Stuart-hill et al. 2005	Assessment of locally-based wildlife monitoring conducted by the Namibian government.			x
Uychiaoco et al. 2005	Comparing reef monitoring by marine biologists and local fishermen in the Philippines.		x	
Topp-Jørgensen et al. 2005	Locally-based monitoring of forest disturbance in Tanzania.		x	
Brashares and Sam 2005	Assessing locally-based wildlife monitoring in Ghana's nature reserves.		x	

Professional monitoring nonetheless has the advantage of potentially being conducted anywhere and at any time, with only a moment's notice, given the international pool of trained scientists with the appropriate skill sets to conduct such work. The quality of information can be largely guaranteed through the initial selection of the external team, and this information is frequently published in the international science and policy world, so may impact at a much larger scale. Although there are relative advantages to both professional and locally-based monitoring, the best approach will often

be an amalgamation of the two (as discussed by Gardner, 2010). There are in fact a range of different approaches that sit between these two polarised methodologies, which Danielsen et al. (2008) outline in a 'sliding scale' of local involvement, each tier of which is suited to different ground-level scenarios. For example, category 2 programmes use data collected by local community members but have all other aspects run by professionals (as in the creation of the European Bird Atlas, Gibbons et al., 2007), whereas category 4 programmes involve communities in all aspects of the monitoring, from planning to data analysis. External experts can assist communities to ensure that the planning phase covers elements that are scientifically useful as well as culturally relevant (Garcia and Lescuyer, 2008). An applied example of this is the use of butterfly counts as a biodiversity indicator during the butterfly harvest in the Iwokrama Forest, Guyana (Bovolo and Losos, 2010).

3.3 Locally-based methodologies and best practice

With the benefits of locally-based monitoring becoming clear, establishing and sharing appropriate practical techniques has become important. As such, an international network was established in 2006 called Monitoring Matters (MOMA) and included governmental and non-governmental collaborators from Tanzania, Nicaragua, Bhutan, Ghana, Namibia and the Philippines, as well as research scientists from across the globe. MOMA conducted a 3-year project (Jensen, 2009), tracking 6 categories of natural resource indicators (e.g. vegetation types, bird populations) in all 6 countries, while utilising different monitoring techniques (both participatory and conventional 'science' techniques). Many specific practical lessons have been drawn from this, some of which are discussed here, and the approaches continue to be tested and analysed (Monitoring Matters, 2010). There appears to be consensus on a number of community-based monitoring issues:

- It is better to use appropriate, participatory methods of data collection, instead of training locals in conventional scientific methods which might interfere with local activities e.g. using hunting diaries (hunters recording timings of bushmeat hunting trips and details of catches, Rist et al. 2009) instead of line transects for biodiversity, and using disturbance checklists (multiple-choice identification of destructive activities in specified areas, Holck, 2008) instead of fixed point photography for forest disturbance. Independent interviews conducted by local project workers are also capable of detecting meaningful changes in biodiversity (Jones et al. 2008). However, focus groups are seen as the most universally useful technique in that they draw information from a number of different sources

simultaneously, while creating an institution in itself through which the local community can be empowered to solve their local problems and influence government;

- With a minimum of one day of training, local monitors are capable of producing habitat loss and forest disturbance data that is comparable to that collected professionally (Holck, 2008);
- Concerted input is typically needed to ensure continuity, starting with planning and continuing through data collection. This may come from a local NGO worker or a local government official (Uychiaoco, 2005);
- As communities will often have ways of monitoring their own resources, it is essential that any applicable elements of the indigenous system are integrated into the monitoring scheme (Read et al., 2010);
- The benefits that the monitoring participants receive must be clear, be them economic or social, in order for them to understand (if the programme is planned correctly) that the benefits outweigh the costs.

However, there is a specific subject where there is still disagreement – the use of advanced technology. Skutsch et al. (2009) consider GPS units, GIS systems and online tools as necessary components of community-based forest monitoring. Abrell et al. (2009), on behalf of UNEP, also promote the use of 'high' technologies in locally-based monitoring. Although such an approach helps build technological proficiency and potentially allow locally derived data to reach higher institutional tiers, Rodriguez et al. (2003), Danielsen et al. (2005), and Global Witness (2009b) state the need to avoid unsustainable use of hi-tech equipment in remote rural settings, despite the pressure to use it for local and governmental prestige.

These technical points are included to share knowledge and are important to regard when considering the design of REDD+ forest monitoring programmes, the subject of the next section.

3.4 Locally-based monitoring in REDD+

It is clear that given: 1) the shortfall of funds available for environmental monitoring (that have stimulated the likes of the Open Air Laboratory project in the UK); 2) the potential for locally-based monitoring to feed into a global system; and 3) its sustainable and transparent nature - locally-based monitoring has the potential to shape the future of conservation management, a future that will include REDD+ in some shape or form. There are already encouraging signs internationally as

national locally-based monitoring programmes have been established in Ghana, the Philippines, Tanzania and Namibia.

Focussing on REDD+, locally-based monitoring should provide the backbone for any MRV guidelines that are produced by the UNFCCC. This is important, firstly because remote-sensing alone cannot monitor the state of carbon stocks and the welfare of forested areas. Satellite imagery needs to be complemented by ground-based monitoring (Gibbs et al., 2007) as monitoring forest degradation (as opposed to forest clearance) is not possible using current satellite technologies. Secondly, it is the only way to holistically conduct a global forest preservation effort, as argued by Graham and Thorpe (2009), "Community MRV should be included in a REDD mechanism in order to reduce the cost of REDD, engage communities, generate a direct income stream for them and improve equity and governance of REDD". Lastly, as insinuated by the previous quote, it generates jobs and income. As the primary goals of REDD+ is to reduce deforestation (community or commercial) any programme should include alternative livelihood possibilities for those whose employment is affected by the introduction of the scheme (Topp-Jørgensen et al., 2005; Verplanke and Zahabu, 2009; Burgess et al., 2010; Danielsen et al., 2010c). Chhatre and Agrawal (2009) and von Scheliha et al. (2009) both point towards the enhanced livelihood benefits of forests with greater autonomy and involvement of communities in ownership and management. Thus, tentatively, locally-based approaches can provide monitoring jobs for 'displaced' workers, in so addressing two major concerns about REDD, namely the unacceptable social and biodiversity impacts. Social integrity could be preserved by minimising emigration of the jobless, and pressure on biodiversity could be reduced by preventing local lumberjacks turning from harvesting wood to harvesting flora and fauna. Sustained REDD+ monitoring jobs would be both more favourable than simple compensation payments (which don't require the beneficiaries to *do* anything and thus create an excess of inactive workers) and any logging operation (which will only last as long as there are trees to fell in the vicinity). Furthermore, the presence of the local monitoring personnel in the forest may well deter illegal loggers (Danielsen et al., 2010c).

A brief paradigm of REDD+ forest monitoring might look like an above mentioned category 4 scheme: the community consents to the REDD+ project after extensive consultation; the community itself then plans the monitoring programme with the assistance of an external expert, and a REDD+ contract is created that fulfils local and high level policy demands; the forest monitors are elected by the community from a subgroup nominated by the expert, trained, and carry out the agreed monitoring activities that encompass carbon, biodiversity, social impacts and ecosystem services;

payments are given out at a flat rate for providing the information (instead of linking them to carbon stocks as conflict may arise due to natural variance in forest carbon, and so payments (Skutsch et al., 2009)); and finally this data is collected and fed into the local management system as well as the higher level institutional framework on an annual basis, in so integrating the local information into regionally/nationally co-ordinated strategic forest cover monitoring. A final addition to this monitoring paradigm might be that suggested by Global Witness (2009a; 2009b) – an independent and expert monitoring body, assembled by a local partner, that primarily looks at implementation of policy and regulations, in so combating the commonplace "weak governance, corruption, high levels of illegality and poor forest law enforcement" in forest-rich developing nations. This would also be capable of verifying the information provided by the community and so eliminating the credibility issues associated with unregulated self-monitoring.

Zooming out from the local scale, the level of flexibility within the UN REDD+ MRV requirements are centrally important. The UNFCCC use the International Panel on Climate Change (IPCC) and national science research bodies as their primary source of information for the current policy movements on REDD+ and are therefore accustomed to receiving exhaustive quantitative data with rigorous statistical analyses. Locally-based monitoring will not provide this type of data. As such it is essential that there is plasticity in the monitoring requirements. A systems-based indicator approach could be used (Bossel, 2001) for forest monitoring, which provides guidelines for selecting appropriate indicators from an official pool which are all indicative of the pressures, state or responsiveness of the forest (e.g. stream flow, or avian diversity). Each indicator can be satisfied using a variety of different techniques, be them quantitative or qualitative, so the approach leaves room for site specific variation in what can be monitored, as well as variation in the type of data produced (e.g. complex biodiversity indices or simple bushmeat hunter counts). This approach contrasts with insufficiently vague procedural guidance, or the overly rigid standards-based approach. This latter approach, often favoured in high-level policy, requires information on very specific indicators, additionally setting particular performance standards for each indicator that must be met/exceeded in order for the project to qualify for payments or indeed continue. This approach has been used by the Clean Development Mechanism to monitor low-carbon projects, and as a result it is "very difficult for community run projects to qualify for certification and carbon payments" (Ecosecurities, 2009), as they are generally unable to "handle issues of additionality, acceptability, externalities, certification, and community organisation" (Minang et al., 2006).

Showing the growing popularity and momentum of this field, Danielsen (2009) published a leaflet on locally-based monitoring and its potential to fulfil the MRV requirements of the REDD+ programme. It was launched during a side event at COP-15, the 15th conference of the parties to the UNFCCC in Copenhagen, and details the likely REDD+ documentation requirements for monitoring and what locally-based monitoring can deliver in response.

3.5 Conclusions

Locally-based monitoring has the potential to shape the future of conservation management, which includes REDD+. Depending on the monitoring requirements and the social/geographical dynamic of the site, local involvement can be included to varying degrees and appropriate techniques can be employed. This all relies on careful and participatory planning before any monitoring activity begins, and this planning is best informed by the study of comparable category 4/5 schemes (more autonomous local monitoring).

As REDD+ comes online, in order to make the programme function in the long-term, locally-based monitoring should be seen as one of the critical elements of the operational MRV system. With this in place, REDD+, as an ambitious global framework, becomes more cost-effective, strengthens the local institutional setup, and crucially provides alternative livelihoods. The necessity for genuine local participation has been duly noted from bad experiences in Papua New Guinea last year, where there was a large and uncoordinated 'land grab' by private REDD developers. This has been attributed to there being no safeguards in place at the time to ensure local consent or involvement. Care Denmark (Blomley and Franks, 2009) make a further argument for the widespread use of locally-based monitoring, drawing attention to the current need to integrate a "pro-people" approach to participatory forest management, but more poignantly, a future need for that to evolve into a "pro-poor" approach. This critically promotes equity in forest management programmes.

Locally-based monitoring overcomes some of the big problems with REDD+ (such as it being a top-down mechanism) but still isn't a silver bullet. Professional monitoring will continue to be required in areas where local people don't depend on the natural resources around them, where there are actually no residents at all, where resource threats are multiple and complex, and where the relationship between the communities and the local authorities is poor. These last two characteristics are unfortunately commonplace in many developing countries. Professional input

may also be required during the verification process, where an independent 3rd party will periodically validate the information gathered.

There remain many areas where further work is required. Scepticism towards this style of monitoring is still found in the governmental, non-governmental and private sectors. This is attributed to the need for more quantitative studies that examine the quality of the locally produced data next to professionally derived data. There is also a need to explore the previously untapped potential of locally-based monitoring to track social impacts (which will be a central MRV requirement in a REDD+ programme). Furthermore, there is still low confidence that locally-produced data can genuinely feed into a global system, there being two barriers to this information transfer: 1) the well mapped institutional deficiencies in many developing countries; and 2) format differences between locally-produced data and an international system that is accustomed to receiving scientific datasets from professionals. The task of strengthening the institutional arrangements in emerging forested countries is daunting but clear and is being addressed in 'REDD Readiness' work by the UNREDD program and the World Bank's Forest Carbon Partnership Facility. However adapting REDD+ policy to be flexible enough to allow the input of locally generated data has yet to be addressed, but could potentially be satisfied by using a systems-based indicator approach.

4 Monitoring local wellbeing in environmental interventions: a consideration of practical trade-offs

4.1 Introduction

In pursuing a balanced and long term approach to managing the world's ecosystems, practitioners and policy makers in the field of environmental management are becoming increasingly aware that genuine involvement of local people is centrally important to project success (Brashares and Sam, 2005; Skutsch et al., 2009; Danielsen et al., 2011). Without free, prior and informed consent, integrated local involvement, clear benefit sharing and community ownership environmental projects that involve local people will lack stability and effectiveness (TFD, 2012). Thus to evaluate environmental interventions, it is necessary to assess both the human and natural parts – ecological and human dynamics cannot be separated (Liu et al., 2007). By definition 'environmental interventions' are environmentally focussed policy or project actions that lead to localised changes in existing systems, but might additionally have human-centred goals which may range from positive to 'no harm' with respect to the surrounding population. Intervention 'success', therefore, is characterized by the achievement of these ecological and human goals. The complex social, economic and environmental landscapes which frame interventions make effective monitoring of change very difficult (Christie, 2004; SENSE, 2008). Monitoring changes in the environment (the biophysical parts) has received much attention from specialist natural scientists over the years (Millennium Ecosystem Assessment, 2005). These same specialists have also commonly been responsible for monitoring the impacts of interventions on people, an area in which they may not have sufficient experience or training. Soulé (1985) adds that environmental interventions are often implemented in areas where there is perceived to be a 'crisis', necessitating action without necessarily having complete knowledge of the situation or context. Accordingly, there is a need for practitioners to have broad knowledge and wide skill sets in order to improve the likelihood of interventions being successful (Drury et al., 2010). In response to a deeper understanding of the coupling of social and natural systems, modern conservation science is beginning to draw more readily upon social science expertise and approaches, and thereby becoming increasingly interdisciplinary (Kareiva and Marvier, 2012), while also continuing to converge with the field of sustainable development (Roe, 2008).

Although the poorest people are often those most directly reliant on functioning biophysical systems (e.g. Bahuguna, 2000; Kepe et al., 2004; and reviewed in TEEB, 2010), policies aimed at conserving

these systems frequently marginalise this socio-economic group due to factors such as an over-emphasis on local rather than global drivers of degradation (e.g. Lenzen et al., 2012), and insufficient attention to distributional issues such as elite capture (e.g. Sommerville, 2010). A more nuanced understanding of the social impacts of environmental projects is necessary if interventions are to be sustainably pro-poor (Blomley and Franks, 2009). One lens through which socio-economic and cultural impact can be discerned is individual 'wellbeing' – defined by the Oxford English Dictionary as "a state characterised by health, happiness and prosperity". This is a position paper resulting from multi-disciplinary discussion groups and the broad experience of the authors, examining the use of wellbeing as an indicator of the success of environmental interventions in developing countries. We focus on interventions in poor rural areas that often have weak systems of governance, and consider specifically the wellbeing of local beneficiaries or participants in such interventions. Larger scale concepts such as 'National Wellbeing' (as used by the UK Government; ONS, 2011; and the Government of Bhutan; CBS, 2012) are beyond the scope of this paper.

Scholars and practitioners need a rigorous understanding of the wellbeing concept in order to develop and implement frameworks to monitor the intentional or unintentional impacts that environmental interventions have on local people. This work has two sister papers that address various aspects of this – Agarwala et al. (in press) provide a thorough survey of the different wellbeing conceptualisations and monitoring frameworks, while Milner-Gulland et al. (in press) looks at why wellbeing is of particular interest to conservationists. Here we focus on the implementation of wellbeing monitoring, specifically on the implications of having multiple stakeholders involved. First we briefly review the multifaceted concept of wellbeing that is being used differently across different fields, from subjective happiness at the national scale (ONS, 2011) to individual empowerment within farming communities (Friis-Hansen and Duveskog, 2012). We then move on to consider who wants to measure wellbeing and why, a question that directly influences the conception of wellbeing and perceived success in environmental interventions. It is necessary to develop a greater understanding of the positions, interests, and subtle agendas of stakeholders when considering how "success" is defined for environmental interventions, particularly when that success is measured in human rather than biophysical terms. We use a specific case study from Guyana to illustrate these perspectives. This paper does not address *how to measure* wellbeing because several methodological reviews already exist (e.g. Schrekenberg et al. 2010, Angelsen et al. 2011, Richards and Panfil 2011). Furthermore, this paper does not claim to identify the best approach to using the concept of wellbeing, but instead considers the trade-offs and dilemmas that policy makers and practitioners face when applying the concept within the context of environmental

interventions. Two of these trade-offs relate to the concept of wellbeing, and two to its operationalisation.

4.2 What is wellbeing?

The concepts of wellbeing and economics have been closely linked since ancient times; the word "economics" comes from the ancient Greek for 'household management' which included all the important things that related to a person's life (Oxford Dictionaries, 2010). It is only since the industrial revolutions of the 18th and 19th centuries that economics has been used more narrowly to describe the flow of goods and services within a market, and wealth and income have commonly been used as proxies for human wellbeing. This is mostly due to their broad correlation with wellbeing and relative ease of measurement (Dickinson, 2011). However, it is becoming more widely accepted that income and wealth are not sufficiently representative of human wellbeing and mixed qualitative-quantitative approaches are often more appropriate for revealing the poverty that development experts seek to alleviate (EurActive, 2007; Thomas 2008; Fox, 2012), thus harking back to the original holistic meaning of the term "economics". There are numerous definitions of wellbeing in existence, each of them using a slightly different emphasis, albeit often with some significant overlap. In general, the use of the term "wellbeing" rather than "poverty", for example, represents a conceptual shift towards a more positive approach to development, focusing on what is good and improves people's lives rather than primarily what is bad or lacking (nef, 2012).

4.2.1 Objective approaches

"Poverty is an absence of well-being" (World Bank, 2012).

Objective changes in this context refer to observable, material changes in the external world surrounding an individual. In high level, macro scale development literature, such as the UN Millennium Development Goals (MDGs) and the World Bank resource documents, poverty and wellbeing are seen as objective concepts which are mutually exclusive, as in the above definition. This broad approach results in a concept that can include a number of different factors such as basic materials for a good standard of living, health, security, social relations and freedom of choice. Some more refined objective interpretations can be found within the development field, such as the FAO (2012) asserting, in relation to MDGs, that a malnourished individual cannot have good wellbeing. Objective approaches characterise many other policy areas; for example, the health discourse suggests that wellbeing is determined by good physical health which can be further improved by

engaging in positive behaviours (as exemplified by the mixed content of the UK Government's webpage on health and wellbeing; Government of the UK, 2012). Economists widely use wellbeing interchangeably with 'gain' so that the concept is synonymous with a person's objective access to rights, goods and services (Baldock, 2007). Given that wellbeing by definition is an internal not external state it is interesting to note that the objective approach is not so much looking at wellbeing itself as at the factors that influence wellbeing. Even when using objective proxies it is far from straightforward to correctly identify the defining factors. Focussing on objectivity we face a conundrum. How, using a purely objective approach, can the genuine sense of wellbeing commonly described as being felt in extremely poor communities be explained?

4.2.2 Subjective approaches

"Wellbeing refers to the emotional quality of an individual's everyday experience – the frequency and intensity of experiences of joy, stress, sadness, anger and affection that makes one's life pleasant or unpleasant" (Kahneman and Deaton, 2010).

Focussing on an individual's experience, subjective definitions such as the one used above capture how a multitude of external, objective factors are translated into internal experiences of wellbeing. In psychology, where subjective approaches have been adopted most strongly, the eudaimonic approach proposes that happiness is sourced in the experience of life satisfaction and fulfilment, while the hedonic approach engages with the more familiar concept that happiness is sourced in the experience of pleasure and pain (as reviewed by Ryan and Deci, 2001). Both approaches place considerable emphasis on individual personality but do not always correlate because the expectations of people within the same cohort, and of individuals through their lives, can differ significantly. For example, different expectations can cause people with the same emotional wellbeing and resources to experience very different life satisfaction (Kahneman and Kruger, 2006). Both approaches refer to the term 'happiness', which is increasingly fashionable with national governments, e.g. the Government of Bhutan's pioneering concept of Gross National Happiness (CBS, 2012) and the UK Government's commissioning of a national well-being study that uses 'happiness' as the cornerstone of its work (ONS 2011). However, although subjective approaches draw upon relatively direct indicators of individually-experienced wellbeing, Keyes and Waterman (2003) assert that they don't tell enough of the story and so use a slightly hybridised definition that includes internal states as well as external objective capabilities: "[wellbeing] encompasses positive functioning states that include successful accomplishing of social challenges and tasks".

4.2.3 Hybrid approaches

"Wellbeing is a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life" (Gough and McGregor, 2007).

The Wellbeing in Developing Countries research group, a substantial contributor to the wellbeing literature since 2002, utilises the above definition, explaining that the blend of the objective and subjective concepts transcends both by recognising the way each is socially constructed (Gough and McGregor, 2007). Amartya Sen (1999) pioneered this mixed approach by emphasising that people are likely to subjectively experience their objective deprivation very differently. The hybrid approach has emerged from the social sciences and gained traction in other fields such as health (e.g. the Gallup-Healthways definition – "wellbeing is a state of complete physical, mental and social health"; Gallup, 2009), economics (e.g. the new economics foundation definition – "wellbeing is functioning well, having positive feelings day-to-day and overall, and thinking your life is going well"; nef, 2012), and government policy (e.g. the Australian Bureau of Statistics definition – "wellbeing is a health or sufficiency in all aspects of life"; ABS, 2001). Although using a hybridised definition promotes a holistic approach to monitoring the impacts of interventions on people and ecosystems, there is a danger that being broadly inclusive can render the wellbeing concept overly complex and difficult to operationalise. As a result, policy makers and practitioners typically face tradeoffs when conceptualising and measuring the effects of interventions on wellbeing.

4.2.4 Trade off 1: single versus multi-dimensional definitions

Some definitions of wellbeing are more complicated than others and this has implications when planning and monitoring environmental interventions while explicitly considering their impact upon human wellbeing. If a (relatively) one-dimensional definition is used, such as 'wellbeing is determined by an individual's experience of life satisfaction and fulfilment' (the eudaimonic approach; Kahneman and Deaton, 2010), then wellbeing is readily conceptualised and therefore more easily utilised in monitoring, fulfilling the needs of interventions with very specific interests such as the impact of forest protected areas on local livelihoods (e.g. Coad et al., 2008). The major drawback of such an approach to wellbeing is that it is narrow – it may at best only partially describe the changes that human subjects experience, in so doing defeating the point of using wellbeing as a nuanced and holistic approach. Conversely, a multi-dimensional definition such as 'wellbeing is determined by all aspects that are important to an individual' (the Australian Bureau of Statistics approach) is so widely descriptive that any operationalisation of the concept is likely to require the

inclusion of many subtle elements that contribute to wellbeing, in so being more likely to capture the genuine social impacts of an intervention. However, this array of elements may make understanding, monitoring, and therefore robust measurement of wellbeing change an impractically large and complex undertaking. To reconcile this trade-off, policy makers and practitioners may choose to select a manageable set of elements from a pre-defined pool of appropriate indicators, in line with the approach outlined by Bossel (2001).

4.2.5 Trade off 2: wellbeing versus illbeing

There is a likelihood that in mobilising the concept of wellbeing, an approach that focuses on desirable states and what is good in people's lives (nef, 2012), we might focus too heavily on the positive aspects and neglect to address the negative aspects of people's lives, or 'illbeing' (Bevan, 2012). In an effort to develop a genuinely holistic conceptualisation of wellbeing, McGregor (2011) writes that wellbeing is reduced by 'harms' such as poverty, malnourishment, social exclusion and more extremely, war, and governments should take steps to reduce these harms. However, the wellbeing-illbeing divide is not so obviously polarised. There are four subtle aspects to consider here: (i) an active presence of positive wellbeing factors; (ii) an absence of those wellbeing factors; (iii) an active presence of negative illbeing factors; and (iv) an absence of those illbeing factors. This nuance is conceptually akin to the differentiation between satisfiers, pseudo-satisfyers, and pathogens in Max-Neef's (1991) discourse on human needs. Particularly in areas where there is substantial poverty, conflict and land seizure, where environmental interventions can occur, the changing presence of illbeing factors may be more relevant to the overall balance of someone's life. This four-part categorisation is important as seemingly neutral wellbeing indicators (that may give 'present' or 'absent' results) won't necessarily include related illbeing factors; the two concepts are not mutually exclusive. An increase in wellbeing factors doesn't necessarily produce a decrease in related illbeing factors, and an absence of one type doesn't mean a presence of the other. For example, an individual may have improving family relationships and increased access to health and education services, but this does not mean that the social issues that negatively affect them decrease, such as alcoholism in the community, or that they are less affected by ecosystem 'dis-services' such as flooding or drought. As the potential duration of wellbeing interviews is limited, a greater emphasis on collecting positive information naturally leads to diminished collection of negative information. Objective approaches should equally cover positive and negative aspects of a person's surrounding environment while subjective information may reveal how these negative and positive factors are internally processed, summed and expressed. Subjective information can also serve to test the relevance of the objective measures – if the objective overview shows a person to be surrounded by

more positive wellbeing factors than negative illbeing factors, but they convey poor subjective wellbeing, the monitoring process may well be missing key elements that shape wellbeing for that particular person, community or society.

4.3 Who wants to monitor wellbeing and why?

Wellbeing can be conceptualised by external personnel and used comparatively in different locations and over time, or conceptualised by local people themselves and be as relevant as possible to those affected by an intervention at a particular point in time (e.g. Ferraro and Pattanayak, 2006). One key factor that frequently determines the approach taken to wellbeing in environmental interventions is who is involved in the project and why they are interested in monitoring wellbeing. Mapping the range of stakeholders involved in environmental interventions is a typical step in planning a monitoring programme. However, practitioners rarely explore the possible underlying agendas of each stakeholder (for examples, see Malan, 2008; MacDonald, 2010), as these more subtle agendas are not easily evidenced and often only understood after a considerable time working in the locality. Below we describe a hypothetical 'roundtable' discussion for planning and implementing an intervention, incorporating a limited selection of caricatured perspectives that stakeholders may have on why it is important to monitor wellbeing. Differences in perspectives stem from disparate motivations for involvement in interventions. Here we break down some typical perspectives, showing the public narrative openly expressed by stakeholders as well as potential underlying strategic interests. These perspectives are generalised from our own experiences and are by no means exhaustive; the aim is to raise common issues relating to wellbeing. Two key trade-offs relating to operationalising wellbeing are then drawn out.

4.3.1 Stakeholders and their perspectives

Table 4.1: showing the positions of different stakeholders with respect to wellbeing monitoring in conservation

Stakeholder group	Public narrative	Strategic interests
Community leaders **'Will it help our community?'**	Community leaders in rural areas have responsibilities to their communities and families to manage natural and human resources. Their interest in examining the impact an intervention has on their people (monitoring wellbeing) comes from a desire to assess whether it is socially sustainable through directly improving the lives of the community, helping them towards their own development goals.	Individuals and leaders have to deal with the expectation of development and that living standards will continue to improve, which is a pressure that grows more acute with increasing global connectivity. Wellbeing data will help them answer questions about this, and so show their communities that they've been leading well. This type of information could also be used to manipulate community opinion to consolidate power and maintain elite status. Community leaders are also aware that they have to be compliant and capable in order to earn trust and funds from projects, and may therefore take interest in monitoring whatever indicators the project implementers suggest.
'Grass-roots' NGOs **'Are we doing a good job?'**	Usually staffed by a mixture of non-resident experts and local people, these NGOs often take on the responsibility for solving environmental problems through managing projects. They prefer to be seen as doing this effectively and with sensitivity to the interests and concerns of local people.	In order to attract continued financial support, project managers are obliged to provide objective data to their funding body on the impact that an environmental intervention has on the beneficiaries of the project (e.g. Friis-Hansen and Duveskog, 2012). This data needs to show that their actions are actually leading to improvements, thus implying causality. Also these NGOs may be used as vehicles for other agendas by the local employees (e.g. pushing political messages during project meetings in the communities) and wellbeing data can be used as leverage for this. This engages the field of anti-politics - the depoliticisation of power structures (Fisher, 1997).

National governments **'Are we allocating resources appropriately?'**	Governments have the same responsibilities as community leaders but at a much larger scale. Addressing environmental problems through interventions will always require some government involvement through staffing or permissions. When monitoring wellbeing, governments may wish to gather international-standard statistics for their records, assemble information that shows concern for local people and the decentralisation of power, and undertake an assessment of the effectiveness of their policies for improving the lives of the population (e.g. Jordan et al., 2010; Biddle, 2011; ONS, 2011). The standardisation of information will often come at the expense of meaningful local details, a concept defined as 'legibility' by Scott (1998). He asserts that these details are essential if the human condition is to be improved.	Governments may have an interest in indicating that environmental problems are generally a result of poor local resource management and not national mismanagement. This may include superficially devolving as much responsibility as possible to communities while operationally retaining as much power as possible (Ribot et al., 2006). Specific information about the wellbeing of local communities may allow government departments and ministers to better manage this local-national power dynamic in their own favour. They may also be keen to leverage international donor funding through the demonstration of both current need and effective governance and reporting.
International NGOs and multi-lateral agencies **'Is our support helping and can it be replicated?'**	At this level, NGOs and agencies become major influences on national and international policy while still facilitating ground-level activity through project work. Their primary concern in monitoring wellbeing is to assess the impact of environmental interventions and the effectiveness of related policies (e.g. Cooke et al., 2007; Gjoski, 2010), both of which they may be supporting through finance or personnel. In doing this the organisation shows that they have significant technical expertise in the particular policy area. Furthermore, as environmental NGOs have traditionally had nature at the top of their priorities, incorporating wellbeing monitoring shows funding bodies, colleagues and participants that they are integrating the heart of the development agenda – that is, alleviating poverty - into their work (Roe, 2008).	If the intervention and its wellbeing monitoring framework are functional, the NGO/agency may wish to export the model to other regions or nations in similar situations. Because wellbeing is currently very topical in conservation and development, the organisation may seek to be a pioneer in developing a wellbeing 'toolkit', showing leadership in good practice, raising their international profile, and attracting more funding.
Businesses **'What are the needs of the market?'**	The term 'business' is used here to describe for-profit organisations whose existence depends on financial solvency. The traditional public narrative for businesses suggests "what is good for us is good for you; help grow our business by buying from us so we can provide for more of your needs." By monitoring wellbeing, businesses know more about what people want and can thereby better serve local consumers, as well as demonstrating corporate social responsibility.	Wellbeing data may help a business to better understand local people as consumers, co-producers, or clients (e.g. Rangan et al., 2011), and through this understanding the business is primarily looking for opportunities to grow profits and bring returns for shareholders. Ethical practices that address the wellbeing of local people are often a secondary concern, either based on legislative obligations or making the products more marketable to ethical consumers elsewhere.

Academia **'Is wellbeing a good concept to use?'**	Academics aim to further knowledge. They may be interested in monitoring wellbeing for all the above reasons, depending on the discipline, but are attracted to nascent fields and open research questions, aiming to offer balanced, expert views and innovative insights. An underdeveloped aspect of the literature is the use of local wellbeing as a concept, and so the operational challenges of monitoring wellbeing may be considered a primary research focus (e.g. Coulthard et al., 2011; Khumalo et al., 2012).	Academics develop a career by exhibiting expertise and innovative analysis which then attracts funding. Because emerging or exciting fields also attract funding and can be published in high impact journals, there may be a tendency to rebrand ongoing research to also encompass wellbeing (De Rond and Miller, 2005). Furthermore, as wellbeing is a growing policy concern, and as the real-world impact of academic research is increasingly being measured by research funders, academics may gravitate towards it.

4.3.2 Trade-off 3: internal versus external validity

With contrasting interests in monitoring wellbeing, subtle power struggles may occur as different stakeholders attempt to have their own needs met. One particularly important outcome of this power struggle is the extent to which monitoring of wellbeing is focussed on external or internal validity. Internal and external validity in this context refers to whom a framework, project or system is primarily serving with respect to investigation and information provision. A wellbeing monitoring system that is internally valid is well tailored to a specific area or population and represents the local expressions and determinants of wellbeing, engaging deeply in causal relationships. It wouldn't necessarily be transferable or applicable to other areas or populations, or even to the same population over time, as an externally valid system would be. Both types of validity are important; internal validity or relevance will often determine the local social sustainability of an intervention while external validity or relevance ensures that interventions lead to more wide-reaching benefits and thus potentially better returns on environmental investments. In practice, external validity frequently dominates due to the greater political and economic power of high-level external organisations (for example, see Scheske, 2012). Schmidt and Bullinger (2007) describe this trade-off in validity and propose an adaptable cross-cultural approach that includes both external and internal validity.

4.3.3 Trade-off 4: quantitative versus qualitative understanding

Quantitative approaches frequently underpin externally valid interventions and generate numerical data that can be analysed using statistical methods and presented concisely. On the other hand qualitative approaches often provide greater detail about the meaning and experience of wellbeing and are regularly used in internally valid interventions where issues of local importance are explored within complex social systems (Krauss, 2005; Dominguez Gomez et al., 2010). Qualitative

information, relating back to the stakeholder analysis, may be preferred by local communities as well as academic social scientists. The two styles are largely complementary because they provide different methods with which to investigate and represent multifaceted wellbeing (Healy and Perry, 2000). However, quantitative data is often viewed as sufficiently robust for policy formulation (AbouZahr, 2006), whereas qualitative data is often considered extraneous or preliminary instead of providing essential context. This disparity frequently arises from a misconception of what constitutes scientific data (numerical data is often perceived as scientific; Choi et al., 2005), as well as variation in concepts and terminology, which can lead to misunderstandings about the value of different types of knowledge (Fox et al., 2006; Drury et al. 2010) and a reduction in the quality or effectiveness of wellbeing assessments.

4.3.4 An example of stakeholder dynamics: Community monitoring in Guyana

In Guyana, a community monitoring reporting and verification (CMRV) system is being established under the broad policy instrument of REDD+. The project, which will remain anonymous, includes a wellbeing monitoring component in order to fulfil international obligations to 'safeguard' biodiversity and the local society from errant REDD+ projects, as well as to strengthen local community management. The preliminary design phase for the intervention involved multi-stakeholder focus groups as well as numerous meetings and consultations at a local and national level. Those pursuing internal validity were the community leaders, trained community monitors, the local project management team, some non-resident NGO advisors, and an international academic. This group sought a mostly qualitative locally-defined monitoring system focussing on resource-dependent livelihoods and development indicators. The advisors and academic stressed the importance of local empowerment and leadership. Internal validity in this context entails the multi-dimensional use of locally-relevant indicators such as possession of key assets, family stability, community relationships, and farming success, as well as the inclusion of negative illbeing aspects such as alcoholism, domestic violence and emigration. While some of this information is readily quantifiable, may other elements are not.

The remaining stakeholders advocated external validity: the government of Guyana wanted a community monitoring system that followed national forestry practices and could be implemented nationally; it was not particularly interested in wellbeing because REDD+ payments are based on forest carbon. Similarly, the international NGO's emphasis was developing a progressive, forest-centred monitoring system that could be utilised elsewhere in South America and could provide information worthy of carbon payments. External validity in this context entails the use of

standardised, primarily quantitative measures that are widely recognised and comparable across societies, such as statistics about education, health, food security and income, though the contemporary use of the wellbeing concept is encouraging the application of a more multi-dimensional approach. As the project moves towards the end of the design phase the emphasis is primarily on quantitative external validity; two thirds of the monitoring system has been designed to address government or investor interests while only one third addresses community interests. Though there is some overlap between the two, there is currently no indication that the local participants desire to continue the work after the international NGO withdraws (see chapter 7 for more details).

4.4 Discussion

"[there is a] more widely accepted view, associated with Sen (1999), which is that human well-being depends on a range of functions and capabilities that enable people to lead a good life, each of which needs to be directly and objectively measured and which cannot, in general, be aggregated into a single summary measure" (Deaton, 2008)

Wellbeing is a holistic concept that can be used to promote a more comprehensive understanding of the human part of an ecosystem. Natural scientists and development workers involved in environmental interventions have traditionally tended towards concise, quantitative results to evaluate the impact of their projects and demonstrate success to donors and colleagues. It therefore follows that these practitioners will, for the most part, look for similar outputs when considering wellbeing. Quantitative expectations are being placed upon the wellbeing concept in many other policy fields but Shah (2012) expresses some scepticism with this trend, asserting that assigning accurate numbers to human wellbeing is an unrealistic expectation given its multifaceted nature. Significant local input is required to provide a nuanced understanding of the local situation within which an intervention takes place, a necessary requirement if the intervention is aiming to improve (or not harm) the human condition (Scott, 1998).

The power struggle to gain control or influence over an intervention is centrally important because those who dominate will determine which conceptualisation and approach to wellbeing is used and therefore what is monitored during the ongoing project. As seen in the above example, local voices are often overpowered by the more influential bodies such as local elites, investors and the government (Scheske, 2012), and so to achieve greater equity and intervention sustainability, policy

makers and practitioners should endeavour to give local people more influence over project design as well as facilitating the airing of local perspectives in national and international level project meetings. A more detailed discussion of local participation can be found in chapter 6.

Utilizing the wellbeing concept in developing a monitoring programme for the social impacts of an intervention may both improve understanding of local context while raising the profile of local contributions to the planning process. Navigating this process is only possible when the subtle as well as the obvious motivations and agendas of the various stakeholders are explicitly understood, and the details given of the public narratives and strategic interests may serve to help inform practitioners of this. It follows that by doing this (promoting internal validity), qualitative approaches and human narratives may become more integrated with the classically dominant quantitative methods, shaping a more holistic methodology advocated by Thomas (2008). However, there are two generally important cautions here: (i) the project team will consequently need to be bigger, more inter-disciplinary and may need longer to decide upon a monitoring plan, due to the different disciplinary thinking, language and traditions; and (ii) careful consideration should be given to the whether enhancing participation of local people is both appropriate and beneficial (Shand and Arnberg, 1996) – assuming more participation is 'good' is a value-statement and is not universally applicable (Bishop and Davies, 2002).

In seeking a more equitable approach to measuring wellbeing and assessing the success of interventions, we encounter a potential dilemma. The concept of wellbeing is itself constructed by individuals in a relational context (McGregor, 2008). As such the entire conceptual framework for an individual can change radically as the relational situation changes. As a complex concept with a potentially shifting baseline, is wellbeing something that can be measured over time in order to determine the success of an intervention, be the goal improvement or 'no-change' to wellbeing? An example would be the displacement of the Batwa Pygmies in East and Central Africa from their forest homes as a result of gazetting national parks. Their wellbeing was previously centred on traditional craft and hunter-gathering strategies but is now increasingly influenced by access to education and justice as they seek to flourish while living in close contact with the surrounding societies (Lewis, 2000). Constructing an assessment to track wellbeing through these two scenarios would be extremely difficult. This dilemma warrants further research to investigate the stability of the wellbeing concept under shifting baselines. It also leads to the question of whether it is more appropriate to use the concept of wellbeing to help inform and frame the planning and implementation of interventions, rather than as a metric for their success.

In order to negotiate the trade-offs we have identified, there is firstly a requirement to clearly understand the needs and perspectives of each stakeholder and determine the proportion of external and internal validity (trade-off 3). Subsequently, agreement can be reached on a definition and conceptual framework for wellbeing which includes a range of subjective and objective dimensions (trade-off 1) and the balance of positive wellbeing and negative illbeing factors (trade-off 2, specifically considering the nuanced difference between the absence of positive wellbeing factors and the presence of negative illbeing factors). Finally, the quantitative and qualitative contributions can be decided when developing actual measures (trade-off 4).

The issues examined in this paper lead to three main conclusions. Firstly, individual wellbeing is not a simple concept that can be easily defined and measured to see how an intervention is affecting people. It is multifaceted and contains a mixture of positive and negative elements, which are likely to be affected by environmental interventions in complex, often indirect ways. Secondly, policy makers and practitioners should be aware of the need to give local perspectives on wellbeing more attention when designing and implementing environmental interventions. In doing this the local relevance of indicators may be improved, stakeholder equity may be enhanced, and more revealing qual-quant methodologies may shape monitoring systems. Management action of this sort is only possible when the underlying motivations of each of the stakeholder groups are explicitly understood. Thirdly, in light of the shifting baseline dilemma discussed above, wellbeing may be more appropriate for the qualitative framing of interventions than for directly measuring their success or impact. Heeding lessons from the highly regarded and thorough work of the Wellbeing in Developing Countries research group (Gough and McGregor, 2007), we suggest that applying these conclusions in a real-world scenario might take the form of: (i) local people providing qualitative story-based information about events before and after the intervention to determine the subtleties of local priorities and whether the intervention addresses, has addressed, or is likely to address, pressing or relevant local issues; and (ii) more quantitative livelihood and resource-based wellbeing surveys for the purpose of formal evaluation. Finding a fair, feasible and fitting balance of trade-offs in monitoring wellbeing will help shape more successful environmental interventions in the future.

5 Exploring local and external perspectives of individual wellbeing: an experiment to inform social monitoring in REDD+

5.1 Introduction

There is an ancient Indian parable that tells of the Blind Men and the Elephant. The story goes that a group of blind men encounter an elephant and, in approaching it, each feels a different part of the creature. Their descriptions of the essence of the animal vary enormously depending on which part they feel and they consequently argue about it. The parable teaches us that we will often have different perspectives of the same reality, and that we often need contributions from others to build towards a good representation of that reality. So it is with knowledge, science, and all their subcomponents, including the world of conservation. As long as one group professes to hold the key to understanding reality, their description will only ever be narrow and lesser, limited to the individual perspective they have adopted. Broad perspectives and multi-disciplinary approaches are important characteristics for the effectiveness of conservation (Pooley et al., 2014), particularly as demands from conservation donors to prove and monitor this effectiveness increase.

But if perspectives are in conflict, then who should we listen to? As the scientific discipline developed there emerged a distinction between the expert scientist and the layman, the scientist laying claim to greater objectivity and closeness to reality through the scientific method (Daston and Galison, 2007). But this modernist view of expertise (and experts) being rooted in disciplinary training and methodologies has increasingly been challenged in conservation and other sectors where locally resident people are important stakeholders and show themselves to be key expert contributors (Tidemann and Gosler, 2010). Expertise does not just come from formal education and training but also from experience (Fazey et al., 2006; Evans, 2008; Burgman et al., 2011), the term 'expert' becoming associated with 10,000 hours of deliberate practice (from psychology; Ericsson, 1996) or at least 10 years of experience in a particular field (e.g. Simon and Chase, 1973). This expert knowledge is also much more than the components of memory, intelligence and strategy (Bransford et al., 2000), but includes the subtle unknowns of tacit and implicit knowledge (Nickols, 2000). As such we are seeing a greater variety of expert knowledge being integrated into conservation decision making, for example, traditional ecological knowledge from indigenous people being used in biodiversity and wildlife management (Fraser et al., 2006; Tidemann et al., 2010), famer's anecdotal wisdom being used in biodiversity policymaking (Harrison et al., 1998), and fishermen's knowledge being used to help administer fisheries (Johnson, 2007). It is important that we are able

to make distinctions between the diversity of expert knowledge (stemming from empirical data, training, or experience) as well as non-expert knowledge when we seek to suitably compile different perspectives to build an accurate picture of the world around us.

The integration of local perspectives into normally scientist-dominated conservation discourses may be done for a number of reasons, such as: (i) philosophical reasons - one of the central emphases in progressive development literature is that the improvements that result from external actions must be "better for people as they themselves would understand it" (Melamed et al., 2012, p1); (ii) pragmatic reasons - that we achieve better conservation outcomes when local opinions are taken into account (Adams et al., 2004); and (iii) technical reasons - when investigating the effect of conservation interventions on the profound complexity of the human experience, approaches that rely on objective descriptions become less appropriate as subjective realities (of local stakeholders) become equally crucial to consider (Kahneman and Kruger, 2006). It is this dynamic, the potential conflict or complementarity between local expert perspectives and external expert perspectives, that provides the primary context for this paper as we seek to investigate the issue of local knowledge in monitoring the social impacts of conservation interventions.

Traditional social monitoring has focussed on education, health and wealth (Westendorff and Ghai, 1994) and providing 'strong evidence' to policy makers (AbouZahr, 2011). But due to the holistic and integrated natural and social context that surrounds conservation projects, policy makers and practitioners are realising the need for a more integrated and interdisciplinary approach to evaluating project impacts (Kareiva and Marvier, 2012). As a result the more holistic 'wellbeing' approach has started to replace conventional social monitoring. Wellbeing provides a wide-angle lens through which to discern socio-economic and cultural changes, facilitating broader and more nuanced monitoring design. As a concept, the benefits go further than the simple addition of a wider array of indicators. Additional dimensions are subjective perspectives being included with objective ones, qualitative information being captured as well as quantitative data, and notions of illbeing explored alongside those of wellbeing (White, 2008; chapter 4). The language of wellbeing has already entered high level environmental and development policy (Cooke et al., 2007; UNFCCC, 2010) as well as ground-level REDD+ projects (Reducing Emissions from Deforestation and Degradation) (Fordham et al., 2012) so there is good cause to assume wellbeing will be used to frame the social monitoring for REDD+ or other equivalent forest, climate and conservation projects. Furthermore, while evaluative monitoring in conservation and REDD+ has to date been carried out by external professionals for the most part (Angelsen et al., 2009; e.g. Lawlor, 2013), community-

based approaches (where local people are centrally involved in design, implementation and data use) are being shown to be an equally viable option to generate information at the same time as conferring significant additional benefits, such as ownership and livelihood provision (see Brooks et al. (2013) for a comprehensive review).

Studies of REDD+ community monitoring programs have mostly focussed on comparing the accuracy of locally-produced data to that of trained scientists and in so investigating the viability of integrating local people into scientific monitoring programmes (e.g. Skutsch et al., 2009; and Mant et al., 2013). However these comparisons have primarily been examining the monitoring of physical entities such as forest carbon and biodiversity. When monitoring local wellbeing, it becomes less relevant to compare the accuracy of external or local data as neither can hold claim to providing comprehensive descriptions. They simply provide different perspectives which are equally useful to build a better understanding of the society, both the externally trained social scientist and the longstanding local resident being considered experts in wellbeing (Fazey et al., 2006). It is here that anthropology provides a useful typology: emic knowledge and etic knowledge. Emic descriptions come from within a culture, incorporating beliefs and underlying assumptions, showing how a particular domain or subject is organised in someone's mental life. Etic descriptions come from outside a culture, looking at common themes between cultures and what patterns exist in the behaviour stream (Harris, 1976). Etic knowledge is typically associated with external actors while emic knowledge is associated with the subject people, despite the founders of these concepts, Pike (1967) and Harris (1976), being keen to stress that both insiders and outsiders are capable of emic and etic descriptions. Although apparently conflicting, it is only when these two types of descriptions are combined that the richest view of a culture or society can be produced and understood (Harris, 1976).

We propose that if wellbeing monitoring in REDD+ and conservation just uses external experts to generate etic information, significant aspects of the human experience will be missed, and likewise if local people are solely used to generate emic information only weak comparisons with other regions or societies will be possible. Neither can be considered more 'accurate' or truthful, and it is thus necessary to utilise a combination of the two approaches. But in order to make an effective combination it is essential to explore how they differ in both conceptualisation and assessment of wellbeing, i.e. in theory and in practice. We decided to run an experimental assessment in a region where REDD+ community monitoring was underway (the North Rupununi in Guyana), investigating these differences and informing how to operationalise wellbeing evaluations in terms of combining

local and external input in planning and implementation. This fits into the broader context of exploring the potential of community-based monitoring to fulfil monitoring requirements under REDD+. It also informs the question of how much external assistance local people require to establish and operate viable community monitoring systems.

Aim

To use the North Rupununi case study to explore the how and why external and local assessments of wellbeing differ, in order to inform best practice in planning and implementing community-based wellbeing monitoring.

Research Questions

1. How does the external etic conceptualisation of wellbeing differ from local emic conceptualisation? What do these differences stem from?
2. How does the external assessment of individuals' wellbeing differ from the local assessment? If there are observed differences, are these due to different conceptualisations, different weightings or other underlying factors?
3. How do these findings inform the planning and implementation of community-based wellbeing monitoring, in terms of the appropriate roles of external and local actors?

5.2 Background

5.2.1 Emic and etic perspectives

"We have to remember that what we observe is not nature itself but nature subjected to our method of questioning"
Heisenberg (1962), from Physics and Philosophy

Despite the role of science being the pursuit of true objectivity (Daston and Gallison, 2007), Heisenberg's quote reveals the philosophical position that many scientists and research academics have struggled to adopt over the past half century: the understanding that true objectivity is simply not attainable. With this in mind, Pike (1967) steered the epistemological debate of objectivity and subjectivity towards a more pragmatic and methodological discourse, that of emic and etic knowledge. The emic-etic divide is not synonymous with subjective-objective divide as it describes the source rather than the type of knowledge in question (Harris, 1990; Xia, 2011). This is important when examining external and local monitoring of wellbeing insofar as emic-etic comparisons allow

for an open look at concepts, methods, results and the underlying assumptions rather than being limited to theories of knowledge.

Although exploring both perspectives provides a balanced view, "everything we experience or do is not equally effective for explaining why we experience what we experience and why we do what we do" (Harris, 1976, p331). Emic and etic knowledge and explanations have different strengths and so can play different roles. They can also only be validated by the insiders or outsiders that they relate to. For example, Saunders et al. (2010) applied a scientifically standardised etic method of enquiry to investigate universal qualities of trustworthiness, showing that different cultures (e.g. Nigeria and Ghana) had different ways of expressing or communicating the same personal qualities. This was validated by related scientists through peer review. On the other hand, Sun and Li (2011) examined money-saving behaviour in China, the authors' own culture, revealing the influence that aspects of Chinese culture had on this trade-off between immediate pleasure and future benefits. The content of this study could only be validated by people from within the Chinese culture.

So emic and etic approaches are suited to answer different specific questions, but when we are looking at the human condition more generally, as for individual wellbeing or descriptions of personality, it is not appropriate to use one or the other; both are essential. Practical examples of combined approaches are described by Tripp-Reimer (1984) for health in the nursing profession, Leung (2009) for Chinese and Western management research, in Schustack and Friedman (2010) in the context of personality, by Ho and Cheung (2007) for subjective wellbeing and more generally Mead Niblo and Jackson (2004). However, there is no identifiable literature on combining emic and etic perspectives in the contemporary field of multi-dimensional wellbeing evaluation. As such, in order to contextualise this topic, we will first expand on wellbeing assessments as they relate to monitoring in conservation, secondly introduce the reader to the Guyanese case-study, and finish with a look at expertise and bias.

5.2.2 The wellbeing concept and its implementation in conservation

The vast majority of the literature on individual wellbeing focuses on the adoption of the wellbeing concept as a means to evaluate the effect of certain projects, policies or interventions on people, moving from narrow conceptions of social monitoring towards holistic, multi-dimensional frameworks (chapter 4). Examples are The Happy Planet Index (nef, 2012), the Domains of Life approach (WHOQOL, 1998), the Sustainable Livelihoods Approach (Chambers and Conway, 1992) and the Wellbeing in Developing Countries framework (Gough and McGregor, 2007), which are all

reviewed by Agarwala et al. (in press). Agarwala et al.'s review details practical differences between the approaches while also identifying the five common wellbeing constituents that cross-cut these contemporary frameworks: autonomy, agency and the freedom to act; material wealth and access to the basic materials for a good life; physical and mental health; relations with others, culture and socioeconomic status; and security. However, there is precious little published commentary on how to operationalise the wellbeing concept as an evaluative tool in real-life, grass roots scenarios, particularly in conservation (Milner-Gulland et al., in press).

In order to implement wellbeing monitoring, as a substitute for more traditional one dimensional social monitoring (Westendorff and Ghai, 1994; Ward, 2013), there are two distinct constituents to consider: the conceptualisation and the assessment methods (including the weighting system). There was a profusion of different wellbeing concepts generated in response to the Sarkozy Commission (Stiglitz et al., 2009; reviewed by Gasper, 2010) but there has since been a fairly general consensus as defined by the OECD (2013) and as observed by Agarwala et al. (in press). These have been generally conceived in international institutions through etic approaches, while a few emic frameworks have been developed with indigenous people in Australia (ABS, 2012).

In terms of implementation, the weighting process is just as informative as the conceptualisation in terms of potential results as it reflects a value judgement about what wellbeing means (Decanq and Lugo, 2009). Dahlgren and Whitehead (1991) provide an early perspective from the health sector showing a hierarchy of what shapes people's health and general wellbeing. But focussing on weighting seems counterintuitive, having moved away from narrow social monitoring towards multi-dimensional concepts, only to weight some single dimensions more heavily again. A number of studies have shown wellbeing to be shaped by a single or a limited number of site-specific determinants: in the UK comparative wealth and physical illness have been shown to be a key determinants of wellbeing (Shields and Wheatly Price, 2005); in Vanuatu, the practice of traditional culture (VNSO, 2012); in rural Australia, the presence of social institutions (Maybery et al., 2009); in the indigenous populations of Canada, traditional diet and land tenure (Kant et al., 2013). A subtle thread in these papers, and one more explicitly detailed by McGregor (2011) and Bevan (2012), is that of ill-being or 'harm' where negative factors, not simply the absence of positive drivers of wellbeing, act to reduce an individual's overall wellbeing, overriding other factors. Hetzel et al. (2004) describe this principle in their data from South Australia, how single risk factors can lead to cascades of other problems, highlighting single 'protective' factors that can guard against these

cascades, while also stressing the complex interrelationship of all wellbeing factors throughout life-course trajectories.

To elucidate this subject some more analytical work has been done on the practice of weighting wellbeing dimensions, notably a review of the different approaches by Decanq and Lugo (2009) and a study by Woodcock et al. (2008). Both of these pieces conclude that weighting makes little difference to the overall wellbeing assessments, with un-weighted or equal weighting being significantly simpler to implement. This latter point has particular relevance for community-based monitoring.

5.2.3 Community-based monitoring and the CMRV project

The broader policy context of this paper, as specified in the introduction, is the international forest conservation instrument known as REDD+, particularly the integration of community-based monitoring into REDD+ MRV (monitoring, reporting and verification). The study was run alongside an operational community-based monitoring project in the North Rupununi sub-region of Guyana called the CMRV project (Community MRV) which is functioning in all 16 communities in the area and is described at length in chapter 2. As the aim of this investigation was to inform best practice in community-based monitoring of wellbeing, which is a component of the CMRV project, it is necessary to specify one of the key operational requirements of this type of work: Community-based monitoring, by definition is a participatory, community-led approach which integrates local people into all stages of the monitoring work (so-called 'category 4' schemes in Danielsen et al., 2008). As such any monitoring methodologies used which are influenced by external facilitators must be easily understood and implemented by local communities with limited technical expertise. This subject is discussed in greater detail in chapter 6. It is clear from the emic-etic discourse that effective wellbeing monitoring requires both the local and external perspectives to be included. As the monitors conducting the wellbeing surveys are local people, the external perspectives (and therefore approaches) included need to be simple enough for local people to implement. Many of the multi-dimensional wellbeing surveys not only require significant expertise to execute, but sometimes require a reasonable level of education and skill from the interviewees themselves, such as with the Global Person Generated Index used in the WeDQoL assessments (McGregor et al., 2009). This context, the necessity for simplicity in the external wellbeing assessment, helped shape the design of the investigation.

The Makushi Research Unit (MRU) is a group of local experts that are from the communities of the North Rupununi. The MRU was established in 1995 through an Iwokrama International Centre initiative which trained female representatives from 13 communities in public communication, report writing and basic interview techniques (IIC, 2008). During their existence they have been commissioned to collaborate on studies of local biodiversity, ethno-medicine and Makushi culture, while also promoting awareness of various social issues for regional health initiatives. The majority of the original MRU experts who received the initial training are still in post.

5.2.4 Expertise and bias

This investigation was designed to compare local and external expert assessments. Expertise can come in different forms: substantive expertise which refers to an extensive pool of knowledge about a certain subject; normative expertise which refers to an ability to communicate knowledge in certain formats; and adaptive expertise which refers to how an individual may adapt or apply their knowledge to new scenarios (McBride and Burgman, 2011). Furthermore, the distinction between experts and non-experts can be made by considering both experience and training, either of which, when reaching a certain level can be qualify someone to be an 'expert' (Burgman et al., 2011). Hence both rainforest dwellers and university researchers can be considered experts on, for example, human-wildlife conflict, though their type of expertise, their approaches and their consequent conclusions on a subject may differ enormously (epitomising the emic-etic divide).

Breaking down approaches associated with such experts, we see that the use of expert judgement varies, i.e. the instances where expert knowledge (tacit, implicit or explicit) is utilised to predict, elicit or interpret information can vary between approaches (Fazey et al., 2006). Those with experiential expertise, such as local community members, may use this expert judgement more liberally, relying on it more often as the foundation for making assessments or generating knowledge. However researchers with trained expertise will often rely on formalised structures to generate knowledge, using expert judgement within the scientific method to design studies and interpret results, but not to generate results themselves (Fazey et al., 2005). Although both approaches may detect patterns that the layman will struggle to see, the more open use of expert judgement by the experience-based expert facilitates a more holistic view when considering complex issues such as human wellbeing. Allowing a greater input from tacit knowledge and the intuition of the expert may allow for the inclusion of unanticipated but important information in the process of generating knowledge. However when results are produced from this approach that reside outside the paradigm of an expert's understanding they may be discounted before

conclusions are drawn, a phenomena known as confirmation bias. Although not open to such broad inputs, if paradigm-challenging results are produced from more rationalised and structured research, confirmation bias can be more difficult and there is a greater opportunity for experts to assess their potentially erroneous mental models (Sutherland et al., 2004).

Even so, both of these approaches are susceptible to bias. Structured, empirical approaches can be subject to bias through the use of personal judgement in the design and interpretation phases, rather than (more obviously) in the generation of results. The experience-based approach that relies more broadly on personal judgement can be subject to more general personal bias due its opaque nature; one of the main reasons for the evolution of the reductionist approach of the trained expert (Daston and Gallison, 2007). Unbiased approaches don't exist, so when working with experts we need to balance the need to detect subtle or complex information with the propensity for bias with the availability or suitability of expertise. To do this, we need to understand that biases can take different forms, and some that are particularly relevant to this study are: confirmation biases which come from particular beliefs, or desires to see particular outcomes; anchoring biases which come from linking a result to a certain benchmark and then not being able to adjust it away from that benchmark; overconfidence biases which arise when an expert's confidence in their judgements is not proportional to their expertise; accessibility biases which are relevant when information that is more easily retrieved from memory tends to dominate judgements; and dominance biases which arise when social pressures force people to conform to the perspectives of a higher-powered individual (Martin et al., 2011). Different experts may be susceptible to different biases, though these relate more often to personality and surrounding institutional structures rather than the origin of their expertise (Meyer and Booker, 1991). When comparing expert assessments, these biases can have a significant influence over the information produced, so require careful consideration before comparative results are used to inform policy.

5.3 Methods

During the months of November 2011 and May 2012, we conducted a social science study in the five Makushi Amerindian communities of Annai District, North Rupununi, Guyana, in order to explore the differences between local and external conceptualisations and assessments of local wellbeing. It is very important here to note that the study was not aiming to assess actual wellbeing but instead was comparing how and why external and local wellbeing assessments differ, hence the absence of statistical analysis and the inclusion of substantial narrative ethnographies. Descriptions and

discussions of these differences provide the central elements of this study. In summary, an external wellbeing questionnaire was formulated and used in local interviews by the author, and a local wellbeing questionnaire was formulated and used by local experts from the Makushi Research Unit to interview the same group of residents. The study was specifically informed by the auto-ethnographic practice of layered accounts (O'Reilly, 2009). Rather than 'measuring truth' we used narrative and participant observation alongside more rigid analyses, understanding that reflexivity, introspection and multiple voices are just as important to reveal the subtleties of emic and etic comparison while also illustrating the parallel emergence of wellbeing results and theories (Ellis et al., 2011).

For the research, both the local and external perspectives are considered 'expert', as both have substantive expertise (the external contributor from training and specific research collaborations, the local contributor from a lifetime of experience), normative expertise (external from ethnographic experience, local from previous training) and adaptive expertise (local and external from life experience). We rely on Burgman et al.'s (2011) definition of expert status but hold this lightly and use it more due to our surrounding peers using this description than a self-perception of superiority. We leave the reader free to discount this identity as they see fit. But the emic and etic identity attributed to the contributors cannot be discounted and provides the backbone for this study's comparison.

Mumpower and Stewart (1996) assert that in order to fully understand expert agreement or disagreement, three pre-requisites must be met: 1) that the problem definition is agreed; 2) that everyone has access to the same information; and 3) that everyone uses the same organising principles. These requirements are satisfied and referred to in the methodology below. The study's aim is to inform community-based monitoring of wellbeing, which involves comparing the wellbeing of the same individuals over time. However, this study, like most emic-etic comparisons (Xia, 2011) gathered local and external information on wellbeing from a group of individuals at a particular moment in time, comparing them to each other. It therefore can't be used as an operational model for wellbeing monitoring. Instead, as was the intention, it was designed to help understand how the emic and etic perspectives differ through engaging in a variety of local and external monitoring situations. The necessity for the external approaches to be simple (suitable for potential local implementation) was also continuously used as a filter during the study design.

This study was run concurrently to the CMRV project also operating in the region. The outcomes from two project workshops on local livelihoods and local monitoring priorities helped inform this study and a combination of the two questionnaires was eventually used as the basis of the social monitoring (GCP, 2012).

To clarify the language used below, 'approach' describes the general theory, methods and implementation used, 'conceptualisation' describes the theory and ideas used, and 'assessment' describes the implementation of the theory to generate results.

5.3.1 Comparing local and external conceptualisations of wellbeing

In order to investigate different conceptualisations of local wellbeing in the context of social monitoring, an applied and experimental method was used. The author and a group of local experts were challenged to each devise an assessment questionnaire from a broad but simplistic definition: wellbeing is a health or sufficiency in all important aspects of life. This was created by condensing some of the language used in the Gallup-Healthways (Gallup, 2009) and Australian Bureau of Statistics (ABS, 2001) descriptions of wellbeing and reflects the progressive use of wellbeing in its broadest, most inclusive sense. The agreed brief was "create a questionnaire on the basis that you have 30 minutes to interview a local person and make an assessment of their wellbeing, in order to compare their wellbeing to others who have also been interviewed". This fulfils the first and partially fulfils the second of Mumpower and Stewart's three requirements (1996) for comparing expert opinion. Surrounding informal conversations between the author and the local contributors, recorded in field notes, were used to frame these conceptualisations i.e. giving some indication as to the sources of any differences, and are used in the discussion. The methods are presented in chronological order.

5.3.1.1 Formulating the external questionnaire

A wellbeing questionnaire was compiled by the author (Appendix C) using the above definition over the course of six month period. The questionnaire itself draws from a broad range of sources, with the subjective and socio-economic indicators being drawn from the health and development sector (Cooke et al., 2007), the Millennium Ecosystem Assessment (MEA, 2005), psychology theory (Cantril, 1965; Kahnemann and Deaton, 2010), and the Basic Necessities Survey (Davies and Smith, 1998). The cultural indicators were primarily drawn from the two focus groups investigating local

livelihoods run by the Global Canopy Programme as part of the CMRV project (GCP, 2012), as well as consulting the Australian Bureau of Statistics Indigenous Wellbeing Framework (ABS, 2001), the National Aboriginal and Torres Strait Islander Social Survey (NATSISS; ABS 2009), and the frameworks proposed by the UN Permanent Forum on Indigenous Issues (UNPFII, 2004). The author's experience and field notes from working in the communities over the previous two years also informed the choice of questions and dimensions. Details of the specific source of each of the questions can be found below in Table 5.1. Despite a degree of local input from the workshops and the author's cultural familiarity with the region, this questionnaire nonetheless takes an etic perspective, being conceptualised by the author who is a British national, shaped to some extent by the predominantly materialist British culture (Majima and Savage, 2007). It takes a contemporary academic perspective on wellbeing (wellbeing being a wide-angle lens through which to examine the social, economic and cultural aspects that are important to people's lives) and closely aligns with other well regarded international wellbeing frameworks (e.g. Gough and McGregor, 2007). The phrasing was informed by pilot interviews with four local Makushi colleagues, who also advised on simplification of questions (for potential local implementation). This is referred to as the 'external' questionnaire.

Table 5.1: showing details of the sources used to construct the external questionnaire.
See Appendix C for the actual questionnaire. 'CMRV workshop and ethnographic study' refers respectively to the CMRV project workshops on local livelihoods and local monitoring priorities and the author's local understanding from working in the region for extended periods of time.

Question	Wellbeing dimension	Source of the question
1	Emotional wellbeing (emotions)	Kahnemann and Deaton (2010)
2	Emotional wellbeing (satisfaction)	Cantril's Self-Anchoring Scale: 'the Ladder' (1965)
3	Assets and finance (assets)	CMRV workshop, ethnographic study and the BNS (Davies and Smith, 1998)
4	Assets and finance (financial security)	Millennium Ecosystem Assessment – 'security' (MEA, 2005)
5	Assets and finance (financial security)	Millennium Ecosystem Assessment – 'security' (MEA, 2005)
6	Education	Cooke et al. (2007)
7	Health (personal health)	SF 36 health questionnaire (Ware et al., 2003) and Cooke et al. (2007)
8	Health (exercise)	Millennium Ecosystem Assessment – 'health' (MEA, 2005)
9	Health (food)	Millennium Ecosystem Assessment – 'health' (MEA, 2005)
10	Health (health care)	Millennium Ecosystem Assessment – 'health' (MEA, 2005)
11	Health (health security)	Millennium Ecosystem Assessment – 'security' (MEA, 2005)
12	(background info)	Cooke et al. (2007)
13	Family (partner)	CMRV workshop and ethnographic study
14	Family (family support)	ABS (2001) indigenous framework
15	Faith and beliefs	CMRV workshop and ethnographic study
16	Community safety	CMRV workshop and ethnographic study
17	Culture (traditional activities)	CMRV workshop and ethnographic study
18	Culture (language)	CMRV workshop and ethnographic study plus 2008 NATSISS
19	Culture (culture groups)	CMRV workshop and ethnographic study
20	Community relationship (leadership)	CMRV workshop and ethnographic study plus 2008 NATSISS
21	Com. relationship (cooperation)	CMRV workshop and ethnographic study plus 2008 NATSISS
22	Com. relationship (participation)	CMRV workshop and ethnographic study
23	Aims and aspirations (happiness)	CMRV workshop and ethnographic study
24	Aims and aspirations (ambitions)	CMRV workshop and ethnographic study

5.3.1.2 Formulating the local questionnaire

After seeing the brief, five local experts, all members of the Makushi Research Unit (MRU), collectively designed their own wellbeing questionnaire (Appendix D). This process was lightly facilitated by the author. Detailed discussion was held early in the process in order to ensure that they fully grasped what the brief meant. It was emphasised that the study relied on the participants honestly giving their own perspective on what contributed to wellbeing in their communities, which aspects may be more important than others, and how they may go about comparing one person's wellbeing assessment to another. Importantly during this briefing the author offered no suggestions and also stated that there were no right or wrong questions to include, addressing a previously experienced bias for the MRU experts to write what they thought the author would write. To assist their engagement in the topic, they were first asked to discuss what it means to have good wellbeing in their communities, closing their eyes and visualising a person with good wellbeing, in a household in a community, calling out aspects that they saw and thought were important. This was repeated with bad wellbeing. The amount of information provided during the discussion was sufficient to fulfil

Mumpower and Stewart's second requirement of comparable experts needing access to the same information (1996) while balancing the need for the MRU experts to think freely and not be influenced by external expectations, suggestions or techniques. With this fresh in mind, the MRU were secondly asked to communally create a questionnaire to answer the brief. The only tips that were given for this task were the number of questions for a 30 minute questionnaire should be somewhere between 20 and 30, and they were reminded that they would have to compare different people's wellbeing using this questionnaire, fulfilling the third of Mumpower and Stewart's requirements. Thus this questionnaire was formulated independently from the questionnaire designed by the author and is subsequently referred to as the 'local' questionnaire, adopting the emic perspective of people living within the culture.

5.3.1.3 Comparing the questionnaires to reveal conceptualisations of wellbeing

The questionnaires themselves were then compared in terms of question dimensions and question types with the assistance of the MRU coordinator (who was part of the questionnaire formulation) to help with the process and explain any subtleties of the MRU questions to the author. In order to make an effective comparison all the questions were placed into thematic and type categories. The thematic list was built during the questionnaire comparison as the number of different dimensions was unknown beforehand, whereas the list of question types was pre-defined, questions possibly being subjective or objective, qualitative or quantitative, and covering wellbeing or illbeing. We were also open to other observed differences. Commentary was then possible on the similarities and differences between the emic and etic conceptualisations of wellbeing.

5.3.2 Comparing external and local assessments of wellbeing

Wellbeing assessments are composed of the conceptualisation of a broad and relevant indicator set, the weighting of these indicators to show their relative importance, an assessment process and the results themselves. Due to the highly applied context of this investigation – the use of wellbeing in community-based monitoring – we decided to take a practical experimental approach and conduct a full (if reduced size) wellbeing assessment. It is only by following a wellbeing assessment through that the largely theoretical conceptualisation, weighting and assessment process can be analysed. With comparative results of local and external assessments, differences can be attributed to disparity in concept, methods followed, or indeed some unknown factors. As such it was proposed to carry out an assessment where groups of individuals would be assessed by both the author and the MRU experts and ranked from 'best to worst' in terms of wellbeing.

5.3.2.1 The weighting and assessment process for the external questionnaire

Decanq and Lugo (2009) provide a comprehensive review of the weighting process in multidimensional wellbeing assessments though don't reach any singular conclusions as to the most appropriate methodology, leaving it very much to the sensibility of the researcher. As the primary attraction of utilising wellbeing is its holistic nature and movement away from the narrow scope of traditional social assessments, we decided to use equal weighting of the various dimensions included in the external questionnaire, recognising that 'equal' does not mean 'neutral', and responding to local opinions expressed in the CMRV workshop that each of the dimensions were equally important. In order to rank the groups of individuals, a simple scoring system was formulated that accounted for the fact that each of the dimensions of wellbeing had a different number of related questions, the details of which are shown in Appendix E.

5.3.2.2 The weighting and assessment process for the local questionnaire

In order to facilitate the MRU experts to decide whether or not they wanted to use any sort of weighting system for their questionnaire, they were first asked, *individually*, to specify which questions they would use to make a wellbeing assessment. There was no limit on the number they could choose but they were encouraged to choose the ones they felt were most important. Following that, all the answers were combined into a table (Table 5.2) showing which questions were most frequently selected. The MRU experts were then shown the table and asked, *as a group*, which questions they would select from their questionnaire to make a wellbeing assessment, an assessment that involved ranking a group of individuals from 'best' to 'worst' wellbeing. They decided to use the six most commonly chosen questions. These six happen to represent the six different dimensions included in the local questionnaire, thus implying an equal weighting to each of these dimensions. As a group, they were then asked what process they proposed to follow in order to rank a group of individuals after being interviewed, being briefed that they would need to all follow the same process. They were unanimous in deciding to individually read through the group of completed questionnaires from their own community, focussing on the six most important questions that they had already identified (shown in Table 5.2), judging who were the top and bottom interviewees with respect to each of these questions using their aforementioned concepts of good and bad wellbeing. They would then use this recorded information combined with the other answers and their tacit knowledge to make an expert judgement on the overall wellbeing of the various individuals in order to rank them.

Table 5.2: showing the local questions that were identified by the MRU experts as being the most important. The coloured boxes depict individual selection by the MRU experts and the bold type and darker colours indicate which questions were communally decided to be the most important (for a weighting system). Names are of the villages where the experts live.

Question	Dimension	Surama	Rupertee	Annai	Kwatamang	Wowetta
1	(background)					
2	Family (size)					
3	Family (partner)					
4	Assets and finance (financial security)					
5	**Faith and beliefs (church)**					
6	**Community relationship (sharing)**					
7	Community relationship (cooperation)					
8	Community relationship (participation)					
9	Community relationship (communication)					
10	Family (support)					
11	Assets and finance (farm)					
12	Assets and finance (farm distance)					
13	Assets and finance (food supply)					
14	Assets and finance (livestock)					
15	Assets and finance (financial security)					
16	Family (relationship)					
17	**Family (abuse)**					
18	**Community safety (alcoholism)**					
19	Community relationship (conflict)					
20	Community relationship (noise)					
21	Culture (language)					
22	**Culture (participation)**					
23	Community safety (theft)					
24	**Assets and finance (assets)**					
25	Culture (traditional activities)					
26	Culture (forest)					
27	Community safety (migration)					

5.3.2.3 The wellbeing assessment

This took place in the five Makushi communities of the Annai District, each of which had a representative in the group of MRU experts who had been taking part in the tasks. These five communities are technically part of the same administrative 'village' and although quite far apart geographically (they're spread across a 20km diameter area) they exhibit close similarities in terms of social organisation, family dominance, and traditional livelihoods with growing modern influences. It was cogent therefore to use this group of communities instead of others from the region. As the main aim of the investigation was to carefully elucidate the differences between local

and external wellbeing assessments, quality was emphasised over quantity in terms of sample size. Also ranking large group sizes could become overly complex for the purposes of this study. We (the author and the MRU group) decided together that each MRU expert would interview 10 selected individuals from their home communities with the author also interviewing these same individuals. The individuals were chosen not to be randomly representative but to deliberately scrutinise a variety of lifestyles within each community. As such in each of the communities five employed people were selected alongside five people without paid jobs, in an attempt to capture a range of wealth and social position. Each local person had to be from a different household and be the head of that household (or the wife of the head). This was to ensure the individuals were approximately in comparatively similar stages of life, an aspect which influences the type of measures or indicators that a study uses (e.g. Courtenay, 2003; Hetzel et al., 2004). The interviewees were also to have a good command of English in order for both the author and the MRU expert to interview them effectively. Even though English is spoken throughout the region and is the official language, it was recognised and accepted that those individuals most marginalised from society would probably be excluded from the sample due to this requirement. An even male-female split was also sought. Due to the small size of the communities (on average having a population of approximately 400) it was impossible to avoid the extended relatives of the resident MRU expert, but nonetheless we excluded their immediate family. The MRU expert visited the households the day before the study to arrange convenient visiting times, which dictated the order of the interviews.

The local and external questionnaires were then implemented with the 10 selected interviewees by the author and the resident MRU expert, alternating who went first, taking 2-3 days.

The MRU expert was then asked to rank the 10 interviewees from 1 to 10, with 1 having the best wellbeing and 10 having the worst wellbeing, using the weighting and assessment process agreed during the briefing. Afterwards they were asked to further explain how they had made their rankings and which of their questions were thought to be particularly important to understand wellbeing in their community, being asked for an explanation if this was different from the six most important questions identified beforehand. Independently the author first created a ranking based on personal impressions, allowing for his tacit knowledge and intuition to play a role, but then also ranked the 10 interviewees based on his external questionnaire results, using the scoring system specified in Appendix E. This was done to see to what extent the author's impression matched with his more organised and weighted assessment, as well as with the local assessment. When the external scoring led to equal rankings in the external assessment, the equal ranks were summed and divided by the number of equal ranks to give an average rank (which therefore wasn't always a whole number).

This process was carried out in each of the five Annai District communities of Surama, Wowetta, Annai, Kwatamang and Rupertee, giving a total sample size of 50 individuals. The MRU experts were paid an appropriate fee for their work and their expenses were covered.

After an appreciable amount of time had been spent working with each of the individual MRU experts, the author used a basic assessment to rate them based on a few pre-defined criteria: their interest, knowledge and experience of social dynamics in their community; ability to explain questions; strategic planning of the work; and the meticulousness in recording results. This helped further inform the analyses.

5.3.2.4 Comparing the results from the local and external wellbeing assessments

Direct comparisons of the weighting methodologies and assessment processes were possible as they were described before the assessment proper, but a multifaceted comparative analysis was needed to examine the ranking results. Statistical comparisons were not suitable as the central aim of the study was to investigate how and why the local (emic) and external (etic) assessments differed rather than the degree of difference between them, plus the local rankings could not be aggregated into a single sizable sample as they were conducted by different MRU experts in their respective home communities.

With ranking sets from each of the five communities studied – each including a local ranking, an external ranking from an assessment and an external ranking from initial impressions – two different comparative descriptions were made. Firstly difference scores were generated for each interviewee, showing the difference between the local ranking as compared to the rankings from the external assessment and the external impression. The difference scores from the assessments were combined into a single comparative graph, examining whether the external assessments generally over or under-estimated wellbeing in comparison to the local assessments. Secondly, the individual difference scores enabled specific examination of the cases where the local ranking differed greatly or negligibly from the external ranking, potentially highlighting subtle or missing dimensions. This allowed a case-by-case exploration of why external or internal perceptions of wellbeing might differ, bringing additional ethnographic observations and conversations surrounding each individual interview into the analysis. Including comparisons between the local assessments and the external impressions also allowed some exploration of the role of intuition and tacit knowledge. Large differences were considered to be differences of five or more ranks, as these highlight the individuals which one assessment deems to have ‘good wellbeing’ (i.e. in the top few rankings)

whereas the other deems them to have 'bad wellbeing' (in the bottom few rankings). Instances where the assessments ranked an individual to within two ranks of one another were considered to be notably similar. Each community was given a total difference score in order to facilitate comparison of assessments between communities.

5.4 Results

5.4.1 External perception of the MRU experts

To help inform the results, an assessment of the different MRU expert's abilities as specified in the methods, will be dealt with first. In order of most able to least able, the assessment the author used placed the MRU experts in the following order (given as the name of the village not the expert):

1) Surama;
2) Wowetta;
3) Rupertee;
4) Annai;
5) Kwatamang.

This is expertise as judged from an etic assessment. Applying the authors assessment criteria to himself, he would be on a par with the MRU expert from Wowetta.

5.4.2 Comparing the local and external questionnaires

Firstly the breadth of the wellbeing concept, as understood by both the external and local experts will be compared. The number of different wellbeing dimensions covered by each of the questionnaires was recorded, resulting in a total of 10 different dimensions between them, shown with the details of the questionnaire content in Table 5.3. The external questionnaire was more balanced in terms of distribution of the subjects, with most of the dimensions getting assigned approximately 2 or 3 questions (although the number of questions assigned isn't the same as the question weightings – see later – it may give a subtle indication of question focus and desire for more information). Assets and finance, culture, community relationship and health were those categories that were represented most. The local questionnaire, although slightly narrower, also emphasised assets and finance, culture, and community relationship, but family instead of health. Emotional wellbeing, life satisfaction, education and health were notably absent from the local questionnaire. So both the local and external concepts of wellbeing contained similar dimensions, though the external questionnaire had a slightly broader spread. This is shown graphically with the

additional grey shading in Table 5.3. When asked after the investigation had been concluded which questions from the external questionnaire the MRU experts would like to include in their questionnaire, they chose ones on health, education and emotional wellbeing, reasoning that they hadn't always given these subjects much thought in their communities but do consider them very important. They also expressed an interest in including a question on how life compares to previous years, i.e. life satisfaction.

In terms of question type, both questionnaires strongly emphasised an objective and quantitative type of question, focussing primarily on positive wellbeing, rather than on negative illbeing. However, the local questionnaire had a greater proportion of qualitative questions; ones that explored meaning and were more open-ended to important additional information. The external questionnaire contained only two open-ended questions out of 23, the other 21 being either yes/no questions or multiple choice. This was to ensure effective ranking after the assessment. Both questionnaires contained one question that didn't actively contribute to the wellbeing rankings but provided the interviewer with background information (question 12 in the external questionnaire and question one in the local questionnaire). On a phrasing note, the local questionnaire has very specific phrasing which reveal different cultural meanings, such as 'do you eat your food on time?' is not a health question, but a question of food security, farm size and productivity so comes under the 'Assets and Finance' dimension.

Table 5.3: showing the different subjects addressed in the local and external wellbeing questionnaires. Types of questions are also included. In the question dimension section, grey bars are included to approximately show the proportion of questions that a particular dimension makes up.

Question Categories	External questionnaire (/23)	Local questionnaire (/26)
Dimensions		
Emotional wellbeing	2	-
Aims and aspirations	2	-
Assets and finance	3	7
Family	2	5
Faith and beliefs	1	1
Community safety	1	3
Culture	3	4
Community relationship	3	6
Education	1	-
Health	5	-
Types		
Subjective questions	9	8
Objective questions	14	18
Qualitative questions	2	9
Quantitative questions	21	17
Wellbeing	19	19
Illbeing	4	6
TOTALS	23	26

5.4.3 Comparing the local and external assessments

5.4.3.1 Weightings and assessment process

The weighting and assessment processes for the external and local questionnaires have been described as part of the methods section. In summary, both the weighting systems assigned equal importance to all the dimensions included rather than create a hierarchy of priority wellbeing factors (the MRU experts decided to select a key question from each of their six dimensions, indicating equal weightings). However the assessment processes employed were quite different. The external assessment process numerically scored the dimensions, adding them up and then ranking the total wellbeing scores for each interviewee (Appendix E). The assessment process for the local questionnaire – noting the top and bottom performers in the key questions then using expert judgement to make the rankings – was a less standardised method, giving results that could vary according to the judgement of the respective MRU experts but also be open to other potentially

important influences. The 'aims and aspirations' dimension was excluded from the external assessments because not all of the interviewees understood the question.

5.4.3.2 Rankings: a first look

Assets and finance was the one identifiable dimensions that seemed to have a large bearing on the local wellbeing ranking throughout, the wealthiest respondents generally being placed at the top of the rankings. In exploring why some respondents were scored with 'bad wellbeing', material wealth was a factor, but only when the household was extremely basic in comparison to others in the community. From previously expressed opinions in the communities, there was some expectation that due to the importance of having a long-term partner for support in demanding traditional livelihoods, those without partners would be positioned very low in rankings by the local assessments. However, out of the five single respondents, only one was ranked at the bottom, and this was for different reasons. In looking for an explanation, the common thread for four of those who were ranked bottom by their MRU expert was the presence of violence in their households (four of the five individuals placed at the very bottom of their rankings showed this). The two other individuals in the study who were shown to be experiencing domestic violence were also ranked very low in their respective communities. This was further supported by 'family (abuse)' being included as one of the key questions in the MRU weighting process (Table 5.2). Following the study the MRU experts expressed that they would consider it inappropriate for an external assessor to ask about domestic violence in the absence of a long standing relationship with all the communities.

5.4.3.3 Rankings: Overall differences

The overall observed differences in the rankings are shown in Figure 5.1 and indicate whether the external assessments were generally similar to, or under/overestimated the wellbeing status of the people interviewed in comparison to the local assessments. The majority of rankings from the local assessments did not deviate much from the rankings from the external assessments – 29 local rankings were within two or fewer ranks of the corresponding external rank, and another 12 local rankings lay within four ranks of the corresponding external result. Only nine local rankings out of the 50 interviewees differed by five or more ranks from the external rank. In terms of the skew of the graph, 19 local rankings were higher (by more than 1 point) than the corresponding external rankings, while 12 local rankings were lower (by more than 1 point) than the corresponding external rankings. This indicates there was only a very slight tendency for the external rankings to underestimate wellbeing in comparison to the local assessments. Given the assessment methods, it was the large differences in rankings (where the external and local assessments placed the interviewee at opposite ends of their rankings) that were regarded as particularly important as these

provided clear and viably investigable results, whereas smaller differences (e.g. a 5th ranking compared to a 7th ranking) would be difficult to draw firm conclusions from.

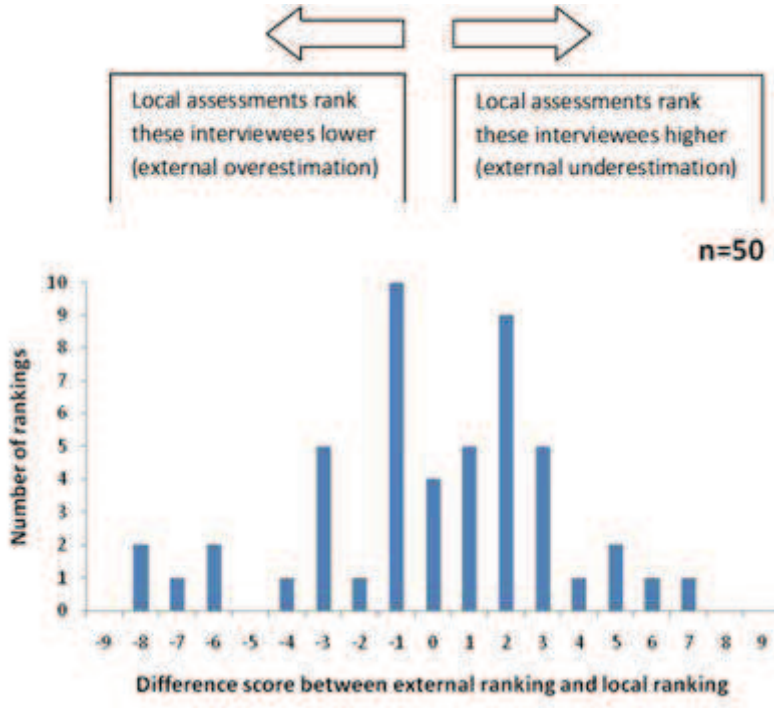


Figure 5.1: A bar chart showing the overall difference between the local and external wellbeing rankings. It shows how much the local ranks deviate from the external ranks) for all five communities combined (n=50). The distribution would be expected to be even along rank 5 if the differences were due to chance alone.

5.4.3.4 Rankings: Individual comparisons

The graphs of individual ranking comparisons are shown in Figure 5.2, illustrating how each of the local rankings deviate from the external assessment rankings. These can be compared to the graph series in Figure 5.3 showing the difference between the external impressions and the local rankings. In these graphs we see much variation in the way the external rankings compared to the local rankings in all the communities. Despite this variability, there are observations to highlight. In terms of general deviation from the external rankings, the local rankings from Surama and Wowetta showed the closest similarity with the external rankings (total difference scores of 23 and 22 out of a possible 50), with none of the rankings differing by more than five points in Surama. But the more interesting results from these graphs are specifically the large differences where the rankings from the MRU experts differed from the external rankings by 5 or more ranks. The results are person **Ai** and person **Ab** from Annai, person **Kj**, person **Kc**, and person **Kd** from Kwatamang, person **Rg**, person **Rj** and person **Ra** from Rupertee, and person **Wj** from Wowetta.

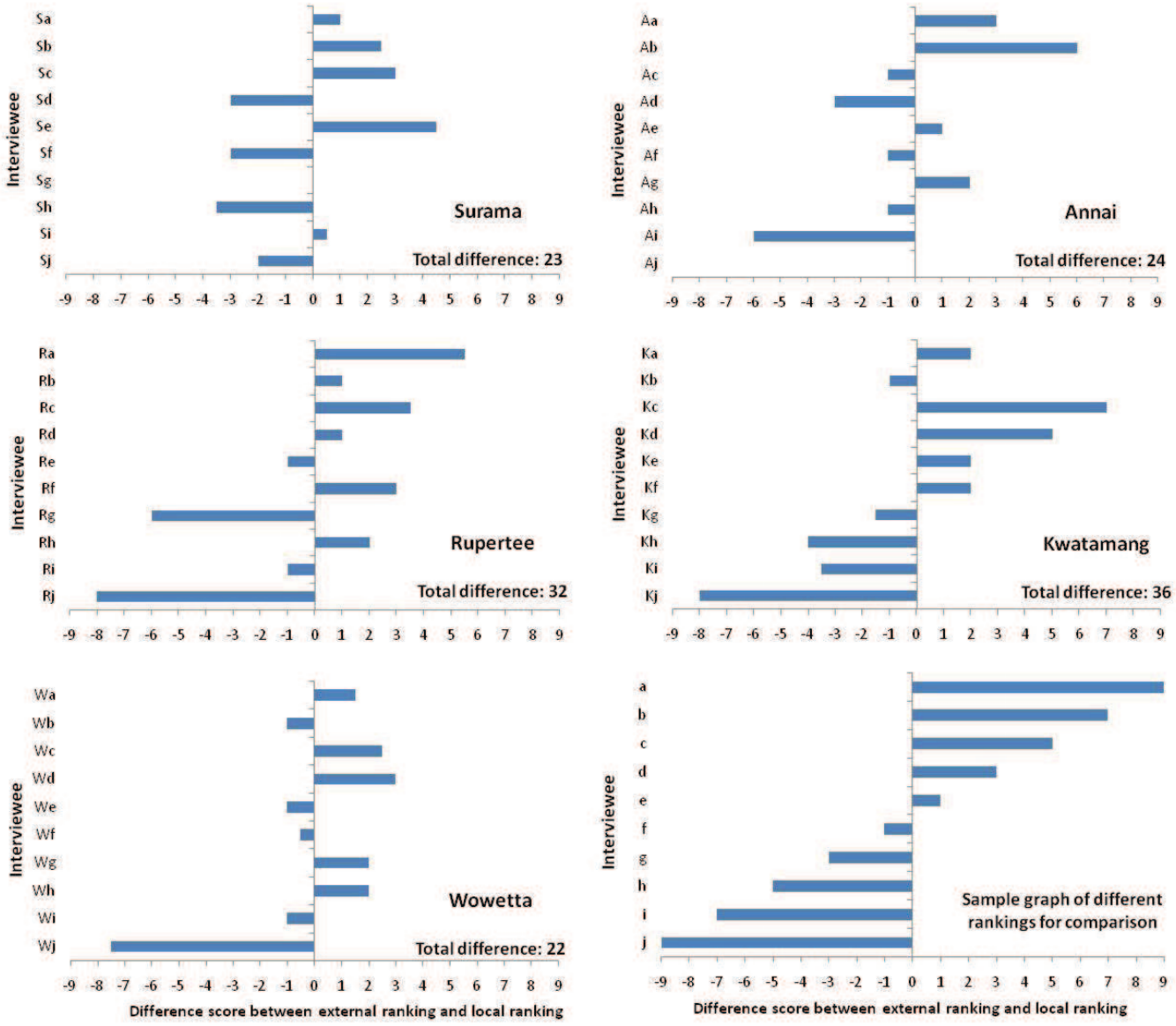


Figure 5.2: A series of bar charts showing how the local rankings deviate from the external rankings in each community wellbeing assessment.

The zero value on the x-axis represents the local rank against which the external rank is compared. Bars to the left of the zero value show which interviewees the local assessment ranked lower than the external assessment, and bars to the right of the zero value show which interviewees the local assessment ranked higher than the external assessment. The interviewees are listed in the order of the local wellbeing ranking, from 'best' to 'worst' wellbeing, i.e. the person at the bottom of the Surama graph was placed 10th by the MRU expert but 8th in the external assessment.

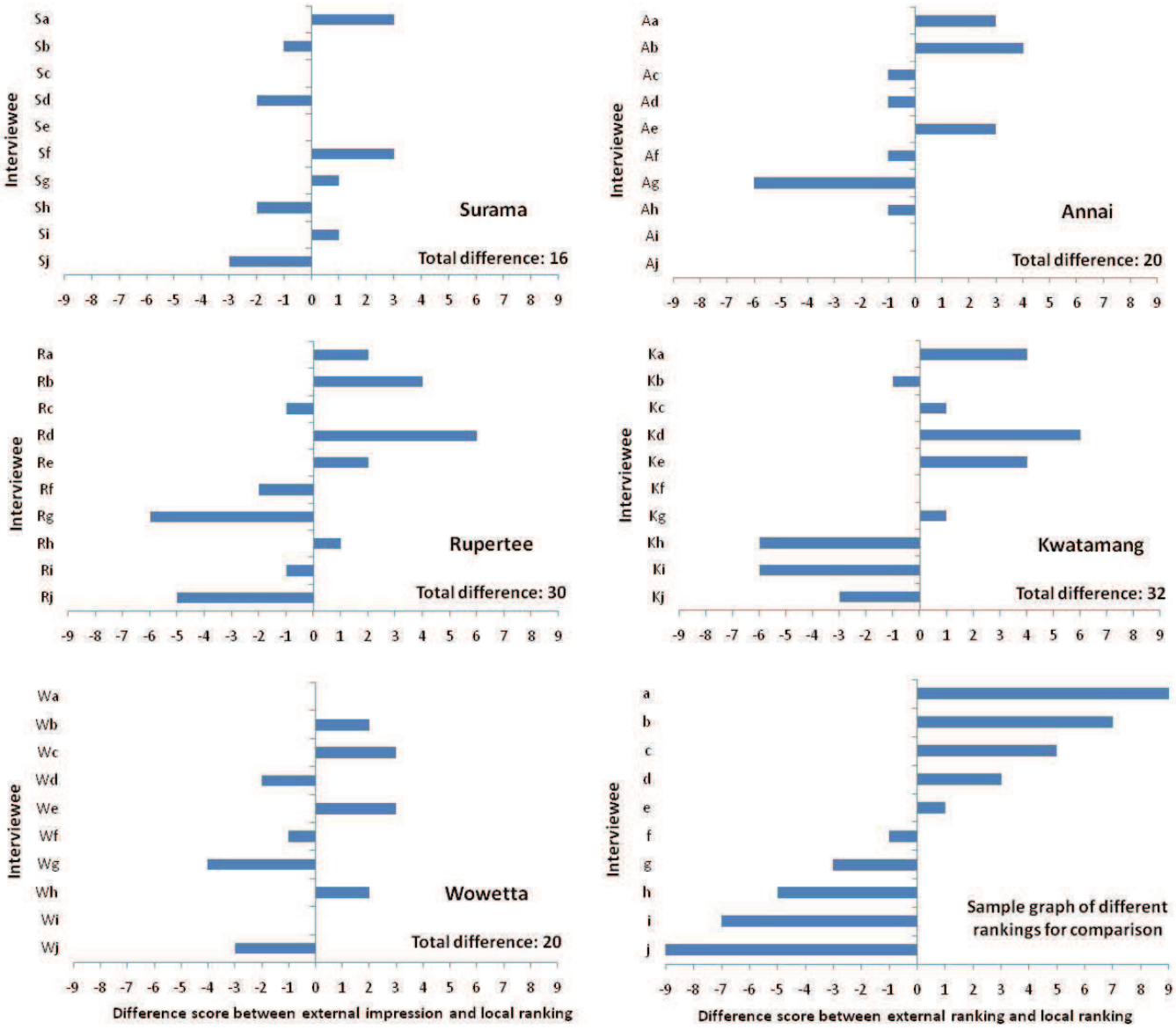


Figure 5.3: A series of bar charts showing how the local rankings deviate from the external IMPRESSIONS in each community wellbeing assessment.
The zero value on the x-axis represents the local rank against which the external impression rank is compared. Bars to the left of the zero value show which interviewees the local assessment ranked lower than the external impression, and bars to the right of the zero value show which interviewees the local assessment ranked higher than the external impression. The interviewees are listed in the order of the local wellbeing ranking, from 'best' to 'worst' wellbeing, i.e. the person at the bottom of the Surama graph was placed 10th by the MRU expert but 7th in the external impressions.

Interviewees with high external assessment ranks but low local ranks

In **Rupertee** person **Rg** was ranked very highly by the external assessment (1st) but poorly by the local assessment (7th), the MRU justification being that her husband has been working hard for the Ministry of Education as a teacher and so there is an expectation that the household should be significantly more developed than it is. Person **Rj** was ranked as #2 in the external assessment but as

#10 in the local assessment solely because there was domestic violence in his home. The MRU expert recognised that other than that, his life appears to be going very well. The external impressions of wellbeing (Figure 5.3) also placed person **Rg** and person **Rj** high in the rankings, showing that the factors that the MRU expert used to assess wellbeing in these cases were also not identifiable by the author's intuition. In **Annai** person **Ai** was ranked as #2 in the external assessment but ranked at #9 in the local assessment, once again there being illbeing factors present that the external assessment did not pick up on. During the post assessment interview, the MRU expert specified that she had a complicated marital situation, insofar as she is married but not to the partner who she is living with. In a traditional marriage-based society, this made life very difficult and served to slightly marginalise person A**i** from previously close relationships. The external impression may have picked up on this intuitively as it gave her the same #9 ranking. In **Kwatamang** person **Kj** was ranked highly by the external assessment (2nd) but was considered to have the worst wellbeing by the MRU expert, being ranked at #10 due to the extremely basic nature of his living conditions. The external impression was more influenced by the modest household and also ranked person **Kj** with poor wellbeing (having placed them in the 'bottom 4'). In **Wowetta** person **Wj** was ranked highly in the external assessment (2nd) but was placed at the bottom of the rankings by the local assessment (10th). Even though he was single, he scored very well in all other aspects of wellbeing. However, the local assessment picked up that his brothers brought violence into his home, this determining his very poor local wellbeing ranking. The external impression may have detected some of this negative sentiment intuitively as the ranking was more similar to the local assessment (7th).

<u>Interviewees with low external assessment ranks and high local ranks</u>

In Rupertee person **Ra** was ranked in the mid-range by the external assessment (6th) but ranked first by the local assessment. The explanation was that although she had modest living conditions, person **Ra** was very happy and enjoying significant elevation in social position as a village councillor. Interestingly, the external impression placed her at #1 as well, implying there was a positive atmosphere in the interview that influenced the external impression ranking but not the external questionnaire results. In **Annai** person **Ab** was ranked rather low on the external assessment (8th) while she scored well on the local assessment, being ranked at #2. In the following discussion, the MRU expert explained that although she is a single parent and might seem to struggle materially, person **Ab** participates whole-heartedly in the community activities, communicates and shares regularly with her neighbours, and attends church with unshakeable faith. These contributed to her being ranked more highly. The external impression placed person **Ab** in the mid-range so was not so

sensitive to these factors. In **Kwatamang** person **Kc** was deemed to have the worst wellbeing in the community by the external assessment (10^{th}) whereas the local assessment ranked him at #3. On enquiry, he scored highly on the local assessment due to him possessing many assets from working previously as a gold miner. Some of these assets were not on the multiple choice list of the external questionnaire (e.g. a fridge) so this may have been the reason for under-estimation. The external impression more closely matched the local assessment in this case (ranking them at #4). Person **Kd** was ranked at #9 by the external assessment but was positioned at #4 in the local assessment. According to the MRU expert, she might not have her own house or many assets but has a good quality of life by living with her mother and benefitting from the communal household assets. The external impression agreed with the low ranking of the external assessment so seemed to miss the subtlety of this person's material quality of life.

Positive Relationships between the external and local assessments

Looking just at the 'top and bottom 4' for the local assessments, the external and local rankings agreed when the MRU expert assessments used a number of different dimensions together (all of which were covered by the external assessment). There were seven individuals in the 'top 4' local rankings that differed by two or fewer ranks. In the post-assessment interviews with the MRU experts, multiple dimensions were quoted as their reasons for ranking the individuals highly. See three example quotes from those interviews below:

"Person **Sa** (Surama) was ranked top as she grew up in a bad home but is now married and wealthy. All her children are healthy, her needs are met in terms of household and transportation, but she still enjoys taking part in farming. She is well educated and has a wider exposure to the world"
"Person **Wb** (Wowetta) is well educated and has a good job, enabling her to assist other households."
"Person **Kb** (Kwatamang) has a good home, many assets, is involved in the leadership of his community and is very well educated."

Education may not have been a dimension that was included in the local questionnaire but it was clearly an influential factor in the local assessments of wellbeing, as evidenced by the quotes above.

There were ten individuals in the 'bottom 4' local rankings whose local and external ranking differed by two or fewer points. The reasons given for these rankings in the post-assessment interviews were not holistic, but narrow and village specific, and consistent for each MRU expert: Surama focussed

on relational isolation; Rupertee reporting material poverty; Annai reporting alcoholism and domestic violence; Wowetta reporting domestic violence; and Kwatamang not providing an answer. Referring to the results above where some key illbeing factors were not picked up in the external assessment (due to their subtlety, e.g. #2 ranked person **Wj** in Wowetta experiencing violence in his home), these findings show that for some interviewees, the same underlying illbeing factors can sometimes influence the holistic wellbeing of the interviewee in such a way as to be picked up on the external assessment.

5.4.3.5 Rankings: External impressions

The external impressions have served to provide an extra layer of comparative analysis between the two assessments, but we can explore more closely the role of the author's intuition by looking at graph series in Figure 5.3 individually. We observe that the impression rankings are largely similar to the external assessment rankings in Figure 5.2, with the total difference scores for each community remaining much the same, if showing slightly smaller figures. Overall, there are fewer large deviations (five or more ranks apart) between these rankings; seven in comparison to nine. Given that the author was aware of the weighting and assessment process, it is likely that the close resemblance of the external impressions to the external assessments was due to the author unconsciously assessing the performance of the interviewee based on the pre-defined multi-dimensional assessment system.

There are four individuals whose external impression rankings differed more than the external assessment rankings when compared to the local rankings, and who have yet to be commented on. These were person **Rd** (Rupertee), person **Ag** (Annai), and persons **Kh** and **Ki** (Kwatamang). The external impressions in these cases seemed to be influenced by fairly superficial observations, in retrospect most likely to be the mood of the person at the time, showing that intuitive observations made in the absence of a relationship or in-depth knowledge of a person's situation can be very misleading. Person **Rd** (Rupertee) was perceived to have very poor wellbeing, appearing to be in a state of despair about her living situation, although this turned out not to be the case after discussion with the MRU expert. Person **Ag** gave the impression of contentment and positivity (external impression #1) but was in fact being ostracised from her immediate family (local rank #7). Person **Ki** was enthusiastic and ambitious (external impression #3) but has not the capacity or motivation to fulfil these goals, leaving him frustrated (local rank #9). Person **Kh** was very quick to laugh and seemed to hold the difficult aspects of life quite lightly (external impression #2) but is highly disempowered by her husband, not feeling any ownership of the assets in the house or the

household decisions (local rank #8). Regarding some of the informal notes on the results sheets, the material wealth or poverty of the household also had a fairly strong influence on the ranking of external impressions. These results, with those impressions that correlated with the local rankings, show that external dependence on initial impressions, or intuition, can be both informative as well as misleading.

5.5 Discussion

The main aim of the study was not to discern the degree of difference between the external and local perspectives on wellbeing, but instead to look at how they specifically differ, examining where and why there are subtle differences between the emic and etic approaches. It is an understanding of these subtle differences that will provide the best platform for reconciling or combining local and external approaches for community-based monitoring of wellbeing. We will, however, start with a brief look at the divide between the two approaches, comparing the conceptualisation and assessment in order to be strategically informed about the amount of reconciliation necessary to bring them together. Following that, most of the discussion will then focus on the easily overlooked particularities identified during the comparisons of the different wellbeing assessments and their relative significance, drawing frequently on the author's observations and understandings from his time within the communities, before concluding with discussing the process of emic-etic combination for wellbeing monitoring.

5.5.1 Wellbeing conceptualisation and assessment

"Your questionnaire looks just like mine!"
MRU expert, Surama

In summarising the general emic-etic comparison of the questionnaire content (Table 5.3) and the assessment results (Figure 5.1), there is appreciable similarity between the local and external conceptualisation and assessment of individual wellbeing. The questions from both approaches were predominantly quantitative, objective, and focussed on positive wellbeing factors (as indicated by the quote above), both used an equally balanced weighting system, and only nine of 50 wellbeing comparisons differed by five or more rankings. The majority of the external rankings (29) were within two or fewer rankings of the local ranking. A particularly revealing detail of this similarity was that where the closest relationships were found, the MRU experts were explicitly using multi-

dimensional assessment to make their rankings. We can give the broad explanation that both the external and local planning phases and assessments were conducted by experts, with the same brief and using comparable resources (fulfilling the requirements for comparison as defined by Mumpower and Stewart, 1996). However, there was a greater theoretical similarity between the local and external conceptualisation and weighting processes so to explore the dissimilarities we must look to the revealed practical differences expressed during the assessment itself.

We can first speculate on why the local and external experts respectively departed from the more traditional positions associated with emic and etic perspectives, showing some convergence. To start, the etic perspective was from a contemporary understanding of wellbeing assessment, which is informed by some genuinely emic frameworks (such as the NATSISS, 2008; and the author's life experience in the region) and so was not expected to assume a traditional etic approach that narrowly emphasised the traditional social values of health, wealth and education, common among western policy makers (Westendorff and Ghai, 1994; Cooke et al., 2007). In this contemporary field, researchers and practitioners are encouraged to take a more holistic and inclusive view of human subjects (Milner-Gulland et al., in press) and in attempting to encompass the multifarious influences upon an individual's life, assessments necessitate a much greater degree of local understanding, thus being drawn closer to local, emic approaches. The awareness that the investigation would be practically informing a community-based monitoring program also influenced the external aspects to be more inclusive of locally appropriate methodologies.

So what of the emic approach being influenced by the etic? In scrutinising the MRU experts, we see a variety of abilities as the author perceived them, an inconsistency that partially accounts for the variability we see in the comparative rankings between communities in Figure 5.2 and 5.3. Surama and Wowetta were, previous to analysing the results, thought to have the most able MRU experts and these were the two assessments that also showed the least deviation from the external rankings. These MRU experts had, in the past, experienced more external contact, training and work with visiting researchers (conducting studies following the scientific method) so potentially were adopting more etic perspectives in their assessments that entailed better performance in tasks deemed significant by the author his criteria.

On a more regional scale, the North Rupununi is an area of accelerating change, change that is moving it towards a more westernised culture. With national-level economic agreements pending with Norway and Brazil (Kaieteur News, 2012), large-scale resource exploitation and infrastructure

projects are a very possible future in the area and the number of non-resident and foreign people passing through the region has continued to increase in the past years. With this, plus a continued stream of western academics using the region as a research site, and an expanding centralised education system, the value systems of the Makushi are changing (Watkins, 2011). As such, despite the small size of the communities and their 'undisturbed' reputation being upheld by the visible presence of traditional livelihoods, the local perspectives on wellbeing are increasingly converging with western ideals, influencing the local emic perspective to converge with the author's European derived etic perspective. To give a more specific example from the study, 'assets and finance' was, maybe predictably (Majima and Savage, 2007), very influential on the external assessor's initial etic impressions of wellbeing (section 5.4.3.5). Assets and finance was also the only identifiable factor that consistently placed individuals at the top of their community rankings in the local assessments (section 5.4.3.2). The North Rupununi communities have entered into a monetary economy and families have spread into different regions. Televisions and the infrastructure necessary to communicate with distant relatives have become more common. Goods and services are increasingly provided by private enterprises and material assets and wealth generally confer betterment for the Makushi, both objectively and subjectively. This fits with existing wellbeing and development theory that explains a person's wellbeing will increase with additional wealth but only up to a certain income threshold (Easterlin, 2010). All the respondents in this study were most certainly below this threshold, their wellbeing being strongly influenced by material gain.

Having addressed similarity, we turn our focus to some of differences encountered. Returning to the technicalities of the questionnaires and assessment, the external questionnaire and assessment were both highly structured, taking a reductionist perspective that could be easily standardised and repeated in other areas for comparative analysis. This is a true manifestation of the etic approach, constructing an investigation that is suited to identify common themes between cultures (Harris, 1976) and transparently produced numeric data that could be deemed as 'strong evidence' in the western policy sphere (AbouZahr, 2011). This contrasted with the local questionnaire which contained numerous open-ended questions and an assessment process that was semi-structured, including the opportunity to exercise holistic expert judgement. Being widely open to information which may come from different aspects of life is a holistic trait common to the Makushi culture (Krauss, 2005; Grund, 2011), to indigenous peoples in general (Tidemann and Gosler, 2010), and indicative of an emic approach that includes the beliefs and assumptions present in the culture (Harris, 1976). The more open-ended nature of the local approach provides additional explanation

for the local variability shown in Figures 5.2 and 5.3, whilst also revealing an important difference in the discerning power of emic or etic approaches to wellbeing monitoring.

The significance of this more general commentary on the similarities and differences between emic and etic perspectives on wellbeing lies in the subject of training and exposure. We introduced this paper making the point that for an effective view of individual wellbeing, both emic and etic perspectives are required. We have since revealed that, at least in this instance, the perspectives were not radically different. This needs very careful consideration, to understand whether the similarities were somehow induced by the investigation itself. Having emic and etic perspectives being brought closer because of cultural convergence is noteworthy but not within the bounds of this study or indeed under the control of any community-based monitoring project. However, on an individual scale, the training of the MRU experts clearly had an influence, with more exposure to researchers and external training leading them to produce results more similar to that of the external assessments. The study was thorough in terms of ensuring consistent understanding of the experimental brief between the MRU experts, deliberately leaving the meaning, content and methodologies to be locally defined. But did those from Surama and Wowetta, due to their previous experience, give less authentic emic contributions, providing a more etic perspective than their peers? Is the more systematic approach and eloquence in social science an indication that they're departing from a representative emic perspective? It is not possible to know without further investigation, but this does raise the issue that in training local people for community-based wellbeing monitoring (which would necessarily include emic and etic approaches), the amount and style of externally orientated training needs to be carefully balanced so as not to induce nominally scientific perspectives among the local experts, which may endanger the expression or detection of truly emic descriptions.

5.5.2 Particularities of emic and etic expert judgment

Potentially the most significant difference identified in this investigation is that the etic approach seemed to miss some key wellbeing determinants that the emic approach detected, such as aspirational context, social expectations, and familial stresses. These additional emic reflections came from three sources: (i) some of the original questions included in the local questionnaire; (ii) additional discussions stemming from the local method of open-ended questioning; and (iii) the integration of prior community knowledge during the ranking process. The first relates to questions on sensitive social issues that although possible to include in a questionnaire, were deemed by both the author, the MRU expert and other local people as offensive in the absence of the trust that

comes through continued social relationship. The second is reconcilable with the etic approach through more comprehensive and considered questionnaire design, attempting to further push the boundaries of the traditionally scientific approach towards something more anthropological. The last is problematic insofar as prior knowledge is only available through extensive firsthand experience of life in the community. The use of the author's intuition may have occasionally integrated some of these more subtle determinants into the etic impression rankings, but this was inconsistent, identifiably linked with the mood and personality of the interviewee and impressions of the setting in which the interview took place, and subsequently difficult to analyse due to the opaque nature of intuition. For the most part, sensitive information and the highly complex relational setting of people's wellbeing (Gough and McGregor, 2007) were difficult to detect with a relatively rigid, reductionist questionnaire, exacerbated by an almost complete absence of relationship with the interviewees. Despite the external approach being rooted in the holistic field of wellbeing, it was still borne out of the predominantly objective etic paradigm. With some of the constraints of the etic approach (such as limited answer options to aid standardisation and comparability) it is difficult to explore an individual's overall wellbeing, to be exhaustive enough with the questioning to reveal the necessary subtleties within an hour-long interview period, while also using locally appropriate question types. The less restrictive approach chosen by the MRU experts enabled this more insightful case-by-case assessment, creating more room for expert judgement.

The emic approach utilised may potentially be more revealing of subtle wellbeing determinants but an offshoot of this less restrictive approach is a greater propensity for bias, mostly due to the hidden nature of the judgement process. Martin et al. (2011) provide a detailed framework to elicit expert knowledge, highlighting the need to control for the biases common in expert judgement. In highly complicated scenarios, such as high-level corporate decisions, medical diagnoses and wellbeing assessments, using expert judgement (including intuition) can be very powerful as it can draw upon multiple sources of information that may or may not be easily recorded or consciously recognised, much like a 'gut feeling' (Sadler-Smith and Shefy, 2004; Stolper et al., 2009). But within 'gut feelings' there are other singular strong influences, like fears and biases that are very hard to differentiate from helpful influences due to the opaque nature of intuition. For instance, the MRU experts had the benefit of a relational context to their wellbeing assessment, enhancing their awareness of subtle and potentially important wellbeing determinants. However, along with previous relational context may come a confirmation bias, where a pre-conceived understanding of an individual's wellbeing may be an unmoveable influence on the local assessment. This can also be influential from the perspective of the interviewee, insofar as 'researcher bias' can entail an external questioner to be a

'safer' person to do the questioning. A local interviewer may be subject to potentially difficult emotional prejudice, particularly among the marginalised, so it might be easier for interviewees to talk to an external, relatively impartial person about relational aspects of their wellbeing and health etc. For example, a pregnant teenager might in fact be happier to talk to an external interviewer than to her mother's best friend. This bias can be may be controlled through removing immediate family and close acquaintances from samples or through the use of local interviewers from neighbouring communities, potentially on a rotational basis. The former may be difficult to enact in small communities, like those used in this study, where most people are family or close acquaintances, and the latter involves a trade-off where the local neighbour offers less confirmation and researcher bias while also potentially missing key subtleties about wellbeing in that particular community (like an external but to a lesser extent). Furthermore, accessibility and dominance biases may also have been in play as the local wellbeing assessments relied on memory recall of the MRU expert to some extent (not solely relying on recorded information) as well as inevitably being influenced by the dominant perception of the social hierarchy in the MRU experts' own communities.

The external assessment controlled for confirmation, accessibility and dominance biases by respectively: there being no previous background relationships between the interviewees and the author; the methods not relying on memory recall at any stage; and the wellbeing approach is not (yet) being the dominant stance towards social monitoring in the author's culture. The external approach was also not susceptible to an anchoring bias, where a single factor may have been given a disproportionately large influence in the wellbeing assessment. This was due to there being an explicitly equal scoring and weighting process that led directly to the rankings. On the other hand the local approach showed some tendency to prioritise or 'bias' particular dimensions of wellbeing post hoc. This type of emic bias may actually be revealing of critical determinants of wellbeing and so play an important role in characterising a person's wellbeing within their culture, a reflection that is discussed in the next section. But these anchoring biases may also be revealing of the particular biases held by the local assessor, which may not be representative of broader social norms. With respect to social norms, the MRU experts, retrospectively, highlighted additional dimensions from the external questionnaire that they would include in their assessments. Some aspects of life can be so fundamental and secure throughout the living memory of local people that they don't stand out as worthy subjects to keep an eye on, such as life satisfaction in the previously isolated Makushi communities. This is another facet of anchoring bias and reveals an additional value of including an

etic perspective during wellbeing assessments; external assessments are less influenced by local social norms so are less likely to miss potentially important dimensions in this respect.

Biases do need to be addressed to reduce their potentially deleterious influence on wellbeing assessments, such as minimising the reliance on memory recall through note-taking (accessibility) and encouraging personal opinions to be expressed despite the presence of dominant individuals and pre-conceptions (dominance and confirmation). But in this context some biases, particularly those that relate to social norms, may actually be an intrinsic part of emic descriptions.

5.5.3 Single risk factors

Some of the illbeing dimensions raised in the emic approach had an irrefutably large bearing on the wellbeing assessments. In the post-assessment interviews all the MRU experts cited single negative factors when asked why they had placed certain individuals at the bottom of their rankings. Domestic violence, alcoholism and extreme material poverty, when actively present, appeared to override all other dimensions when present in a household, even if the factor wasn't directly attributed to interviewees, broadly aligning with the concept of 'harms' outlined by McGregor (2011) and single risk factor cascades described by Hetzel et al. (2004). This does appear to be a selective use of wellbeing dimensions (which could be seen as a regression back towards more traditional, uni-dimensional approaches) or a type of conditional application of wellbeing, with 'if-then' logic being applied to specify necessary pre-requisites to having good wellbeing.

"Yes, he is a very active member of the church and is good to his neighbours. He is a good man and has his business. But his brothers come around, bringing their alcoholism and violence into his home. This is very bad."
MRU expert from Wowetta talking about Person **Wj**

Practically applied, Pollnac and Poggie (2008) found a similar principle in an investigation of wellbeing among fishermen, that there were specific constituents that needed to be present or absent in order for other wellbeing dimensions to have an effect. This principle can pose a problem depending on the nature of the identified factors. The concept of multi-dimensional wellbeing covers subjective and objective factors, both contributing to the overall understanding of an individual's wellbeing, but can negative subjective factors override positive objective factors to radically reduce someone's overall wellbeing, or indeed vice versa? For example, can depression rule out an observation that an individual has good access to medical care or a very supportive family? In

instances where negative factors are chronic and have time to cause an obvious cascade of effects, such as systemic alcoholism in a family leading to the loss of employment and relational division, the subjective and objective may sufficiently overlap for multi-dimensional assessments to detect a general decline in wellbeing. But individuals, households, and communities never provide such simple cases of predictable interactions. The relationship between subjective or objective overriding factors with other wellbeing constituents requires careful consideration.

It seems that a possible way forward in differentiating between wellbeing dimensions in multi-dimensional assessments is not to use a weighting system that creates a hierarchy of priorities (this approach having been devalued by the observations in this investigation, a general lack of consensus in the literature, as well as direct recommendations from Decanq and Lugo (2009) and Woodcock et al. (2008)), but instead to use a broadly balanced group of dimensions with any negative overriding factors being identified on a case-by-case basis. This approach more effectively accounts for the impacts of negative factors, as they seem to amount to more than a simple absence of wellbeing factors.

5.5.4 Combining the emic and the etic for community-based monitoring of wellbeing

Community-based monitoring is best understood as a community-led activity where the local people conduct the monitoring work and are trained and facilitated to plan, analyse and interpret information that is produced for local and wider use (discussed in more detail in chapter 6). In this setting, to strategise effective wellbeing monitoring, etic approaches need to be sensitively integrated into the conceived emic approaches, rather than the other way around. This is an important philosophical differentiation to help counter a commonly found approach in conservation of externally conceived projects being applied in local contexts with little adaptation (Little, 1994; Hulme and Murphree, 1999; Khadka and Nepal, 2010). This study provides an example where the difference between the two approaches was only very subtly revealed in the practical implementation of an assessment, highlighting the need for particular care when integrating the two perspectives during wellbeing assessments. It is not always possible, due in part to ubiquitous financial constraints in conservation monitoring, to conduct separate emic and etic assessments and later combine them, as is planned for the CMRV project in Guyana. But using the experiences from this study and the wider project context, we will run through a potential design process for community-based wellbeing monitoring, from briefing to conceptualisation to assessment planning, looking specifically at where the emic-etic combinations are necessary in light of the previous discussions. This does not claim to be an exhaustive methodology or a prescriptive strategy, simply

the sharing of reflections on some particular elements of wellbeing monitoring that are suited to the particular time and place of the case study. There are, however, some non-negotiable participatory principles: both external and local experts must be involved; decision-making power dynamics should be evenly balanced between the local and the external (see chapter 6); and the process should be co-chaired by one external actor and one local actor. External contributors would also benefit from extensive previous experience in the locality in question.

To start the **briefing**, the basic principle of monitoring needs to be explained alongside the technical goal of the work, i.e. in order to see if people's wellbeing is changing, we need to carry out wellbeing assessments in the community from time to time. It is assumed that a consultation and engagement phase has preceded this, where the goals were communally decided and the actors to be involved were agreed. During this briefing phase, a mutual understanding of what wellbeing means from the external and local perspectives is centrally important. Through discussion an agreed definition should be decided which is likely to be openly multi-dimensional. Also a 'pie-slice' visual exercise can be run to decide how much of the assessment should be apportioned to emic investigation and how much to etic investigation (i.e. how many questions each actor is allocated in a quota of approximately 30, based on an hour-long interview). The reasoning behind this portioning exercise is to examine the threshold where an assessment is too externally dominated and so may cease to feel 'locally owned' by the communities. A fundamental principle of community-based monitoring is that it is embraced as a locally-led programme.

A detailed **conceptualisation** follows, where after an emphasis on bringing your own perspectives to the discussions, the two groups separate in order to facilitate an even power dynamic and clearly show the differences in emic and etic perspectives, clarifying subsequent discussions. According to the agreed definition, these two groups then broadly list the wellbeing dimensions they deem important. Using these as a template, each group then designs a questionnaire of approximately 30 questions for local people to use to make an assessment. They are also asked to highlight any overriding factors, any positive factors that must be present in order for local people to have good wellbeing, or any negative factors that must be absent for local people to have good wellbeing. Once completed, the groups reconvene and, using the 'pie slice' portions agreed on during the briefing, negotiate and combine their questions into an emic-etic questionnaire. The overriding factors should also be agreed on and marked on the questionnaire. Redundancy should be avoided, question structure should be respected, and an awareness of openly exploring different issues must be included in the discussion. Furthermore, sensitivities, trust and community relationships must be

also be considered when finalising the question subject matter, questions that will be asked by local monitors.

This is then followed by the **assessment planning**. Using the emic-etic questionnaire, each group is separately tasked to devise a scoring system that each of the monitors may be able to use to assess the wellbeing of the interviewees, creating a wellbeing score and then ranking them relative to one another. Once again, the two groups reconvene after their separate work and negotiate a common scoring system, which includes the use of the identified overriding factors. The questionnaire may need to be revisited and adapted in light of these discussions, and the necessity for simplicity cannot be stressed highly enough – even with this in mind, the external questionnaire and relating scoring system from this investigation was still too complex for general local use. As per this study and the literature, an even weighting of all the dimensions should be used, unless there is significant, justified and agreed reason for divergence from this by any of the actors. Rather than ranking the interviewees from 1-10, the assessment process could then put them into different categories, such as very good, good, ok and poor wellbeing, reducing the complexity of the results and enhancing their future comparability. Discussion may be had at this stage as to what the boundaries are of these categories. Maintaining a clear structure to this stage is essential to reduce methodological variability between assessments, allowing comparisons over time and therefore a robust monitoring practice. However, the integration of expert judgement and intuition must be considered here, identified above as a key emic method that the etic approach did not emphasise. Explicitly providing a window for this intuition is important, helping determine whether an individual's wellbeing is higher or lower than the structured assessment shows. It may also be where the results for some of the more open-ended discussions may be integrated.

In terms of **operational considerations**, the local monitors would need detailed input during their training so as to fully conceptualise the difference between the emic and the etic elements as well as understand the scoring and categorisation system. The questionnaire and assessment process also needs to be piloted in every community that it will be used in, changes being fed back to the same group of external and local experts, this time with additional community representatives to help the planning process. But how does local monitoring work over time? Monitoring wellbeing may occur in the presence of an initiative or project (such as REDD+) and, in the current conservation field, those involved will often be obliged to report on whether local wellbeing has been affected. Repeating the assessments over time to track conservation progress and aid community management, the overall wellbeing (or separate dimensional) scores generated for each interviewee are as important as the

wellbeing categories for temporal comparisons, as they may show whether certain aspects of absolute wellbeing have improved or not, stimulating further dialogue about what specifically caused those changes. The wellbeing categorisations or groupings (in place of the rankings) reveal relative changes in wellbeing and so potential alterations to the social structure, being less useful for gauging absolute changes as whole communities can ascend (or descend) showing no change in the relative wellbeing categorisation. For example it would be worth monitoring whether a newly designated community wilderness area (with hunting restrictions) causes an absolute decline in traditional hunting and feelings of cultural strength as well as the relative positioning of hunters in the wellbeing of the community. Both the absolute scores and the relative wellbeing categorisation can be used for comparisons between villages, although significant caution should be exercised when considering community specific emic information.

Further things to consider are sample type, size and monitoring period. This study controlled for family position but explicitly sought a variety of individuals, whereas for a monitoring programme more representation would be needed. Different characteristics have been shown to influence the relative importance of wellbeing dimensions, in particular, age (Blanchflower and Oswald 2008), gender (Courtenay, 2003), ethnicity (Sokoya et al 2005), and occupation. Categorising groups of this sort within the community and monitoring their change would add a nuance to the approach. Sample size and period need to be appropriate to community size and the hypothesised timescale of expected changes. Consideration also needs to be given to how the wellbeing monitoring work correlates with other monitoring work that is happening within the overarching monitoring system being devised (e.g. under REDD+ there would also be natural resource and forest carbon monitoring occurring as well). Furthermore the interviewing activity may clash with or be repetitive of other community projects or initiatives. Interview fatigue and repetitive questioning can be very destructive to community support of a project. Well coordinated work plans and collaborative actions with other community initiatives help avoid this. Lastly, it is necessary that the monitoring methodologies employed locally fit easily into the time and practice of existing livelihoods to ensure that they don't impede local monitors or respondents from other important cultural activities (Holck, 2008; Rist et al., 2009). This may be more straightforward for social assessments such as this than for other natural resource monitoring techniques; as wellbeing monitoring is primarily based on semi-structured questions, interviews shouldn't differ too much from household conversations.

5.6 Conclusions

From this study, we draw two particular conclusions. Firstly, although the etic approach was less susceptible to biases, it suffered from missing subtle but key local wellbeing determinants; the study showed the strengths and weaknesses of each approach and so provided evidence to support an emic-etic integrated approach to wellbeing monitoring. The replicable structure of the etic approach was useful but the emic approach specifically highlighted the presence of single risk factors that may override general good performance in other wellbeing dimensions. Secondly, the emic perspective of wellbeing differed between theory and practice, indicating that the process of integrating emic and etic approaches into a single community-based wellbeing assessment requires significant care so as not to lose precious emic nuances. We recommend considering the practical reflections discussed above to assist the navigation of this emic-etic integration.

In terms of specific further work, the role of intuition in this context necessitates more investigation due to its potentially pivotal role. In a study of this type, including a local pre-assessment wellbeing categorisation and comparing this to the post-assessment wellbeing categorisation would aid the exploration of the influence of intuition and relational context within these local assessments. It would also inform the discussion of whether actual community residents or those from external localities – ranging from neighbouring communities to neighbouring countries – would be most appropriate for monitoring wellbeing in terms of balancing propensity for bias with the capacity to detect local subtleties. Lastly there are significant amounts of work to be done before a thorough suite of best practice recommendations can be produced for community-based monitoring of wellbeing. Most of the practically focussed wellbeing literature assumes external researchers are conducting the investigations. This paper has started to explore the implications of local people conducting wellbeing assessments and how, by combining the etic with the emic, a rich picture of wellbeing can be constructed. We would like to see a combined emic-etic wellbeing assessment being trialled over time and space, with local communities in different cultural settings, as well as by external researchers from different disciplines, thus exploring the potential influence of different etic perspectives on the outcome of wellbeing assessments.

6 Challenges in enabling true participation in community-based monitoring

6.1 Introduction

Whenever a group of people get together and there is an aim or goal of some kind relevant to their meeting, a hierarchy will often form and there will be a delegation of responsibilities (Chase, 1980). When this happens, whatever the context, the issue of participation comes into play as the leader(s) begin to coordinate activities. Who will do which tasks? How will they be done? Who makes the decisions and how? Assuming there is a hierarchy, participation can be considered the way in which the leaders involve the others in the activities. Arnstein (1969, p16) was one of the early contributors to this subject, explaining the importance of this dynamic, stating "citizen participation is a categorical term for citizen power", and any process that does not transfer power is not participation. This is relevant in all walks of life, from politics, to commerce, to education, to finance, to religion. Vitally, it can include such a range of behaviours as participation in slavery to participation in Marxism to participation in a sports match. The semantic emptiness of the term has thus appealed to both liberals and authoritarians alike (Edelman, 1977). We start, therefore, with the premise that the word 'participation' is ambiguous.

6.1.1 Participation, or lack thereof, in community-based conservation

The way that participatory language has found its way into conservation in recent times has been through community-based conservation. Although theoretically very similar to participatory development, community-based conservation has been practiced quite differently, insofar as end objectives have been emphasised over the means to achieving these objectives, and in so doing attracting criticism for not learning from closely related fields (Campbell and Vainio-Mattila, 2003). The majority of the conservation projects occurring throughout the developing world are instigated and dominated by external personnel, an approach that has often led to project failure (e.g. Land et al., 2009; Thomas and Amadei, 2010). Within projects of this type, the issue of participation is central as we immediately encounter a leader/participant dynamic between external researchers and the local people who are drawn into the project activities (Pimbert and Pretty, 1995; Morrow and Hull, 1996). To clarify at this point, local people in this context are considered as people (indigenous or otherwise, but with traditional livelihoods) who live in the immediate proximity of a project or programme, are the de facto stewards of the surrounding environment, and may or may

not be directly involved in the conservation work. For simplicity in this particular analysis, this paper is treating local people as a single stakeholder group, much like an NGO or the Government might be, even though the author recognises the great diversity of individuals and perspectives within local communities. As such it remains focussed on a pro-people approach rather than engaging in the pro-poor discourse (Blomley and Franks, 2009).

The paradigm of local participation in conservation has emerged over the past 30 years as recognition of the importance of local support for interventions has grown, reflecting a shift away from purely expert-driven conservation (Little, 1994; Hulme and Murphree, 1999; Khadka and Nepal, 2010). Project effectiveness and longevity have been empirically linked to local participation and co-management in a number of extensive studies (e.g. Narayan, 1993; Shultz et al., 2011; Brooks et al., 2012), specifically when local stakeholders have been involved in all stages of the decision making process. Additionally, Anderssen et al. (2013) show self-organisation and local empowerment to be essential for the sustainable management and use of forests. But despite this evidence base for the importance of true participation for the success of community-based conservation, or 'new conservation', levels of local participation have remained lower than might have been expected (Campbell and Vainio-Mattila, 2003) and there are a number of stated reasons for this:

- participation is simply being used as a fashionable mask, attracting positive attention while hiding the un-altered, top-down, purely consultative approach of the previous era (Guijt, 1991; Munro-Clark, 1992; Adams and Hulme, 2001; Brown, 2002);
- the ultimate goals of conservation practitioners may clash with those of the local people (Ghimire and Pimbert, 1997; Berkes, 2004), so the former might seek to 'contain' local dissent through pseudo-participatory actions (Few, 2000) or indeed incentivise locals to take part in something that is of no interest to them (Rahnema, 1992);
- the cultural differences between the external leaders and the local participants can be very great, this disparity resulting in a lack of trust and therefore a reticence to share responsibilities, even when this a central part of the work in hand (Siegrist et al., 2002);
- the site-specific design details required for each and every participatory project are very complicated and time consuming (Khadka and Nepal, 2010) and may require different skill sets from the natural scientists which who often run these projects (Song and M'Gonigle, 2001; Mascia et al., 2003), so some design details may be 'skimmed over' a little during hectic work in the 'crisis' field of conservation (Soulé, 1985);

- integrated conservation concepts such as ICDPs have been perceived by conservationists to have failed and there are calls to revert back to externally-led protectionist approaches (Wells and Brandon, 1993; Terborgh, 2000; Brechin et al. 2002);
- NGOs position themselves as 'experts' in the field of conservation so may resist the devolution of responsibilities which limit their potential to produce deliverables themselves (Mandel and Steinberg, 2009).

These reasons can be loosely organised into two groups which lead to reduced local participation in community-based conservation: 1) intentionally ambiguous use of the term 'participation' by conservation practitioners; or 2) barriers encountered or deliberate power plays made during the implementation of conservation projects that are genuinely intended to be participatory.

6.2 Participation in community-based monitoring

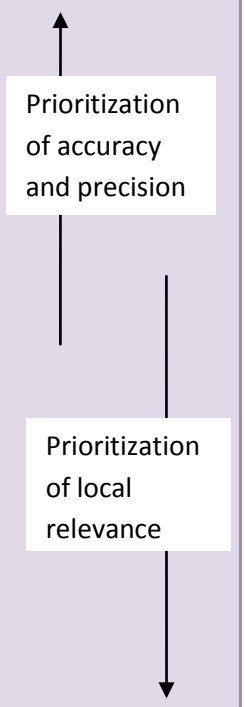
Community-based monitoring (CBM) is a type of conservation scheme that fits into the bracket of 'new conservation', combining conservation goals with a human-centred approach to delivering and verifying those goals. It is defined as 'the central involvement of local people in collecting information about the state of the natural and human environment around them' (Danielsen et al., 2005). The specific details in this definition are important, though there are alternative categorisations e.g. Fernandez-Giminez et al. (2008) discuss scientist-led 'citizen science', more democratic 'civic science' where society and scientists have more dialog, and 'community science' where investigations are driven by community issues. CBM systems may be specifically coupled to another conservation or development intervention to track its progress, or may be established independently to 'keep an eye' on potentially vulnerable or precious ecosystems.

Monitoring work in conservation has, for the most part, been delegated to external professionals (Angelsen et al., 2009) to answer external questions (e.g. Pratihast et al., 2013). Even though community-based monitoring has been shown to be more cost-effective (e.g. Topp-Jorgensen et al., 2005), provide a more constant stream of data (e.g. Fordham et al., 2012), potentially use more culturally appropriate techniques (e.g. Rist et al., 2009), answer local management questions that facilitate rapid action (e.g. Danielsen et al., 2010), and generate high quality data (e.g. Skutsch et al. 2009), doubts nonetheless remain over the impact of local participation on accuracy of the data (e.g. Shultz et al., 2011) and the motivation and ability of local people to maintain a monitoring program after the researchers leave (e.g. Garcia and Lescuyer, 2008). These critiques place responsibility for project functionality and sustainability at the feet of the external professionals: the ability to

produce accurate data relies on the delivery of good training and the collaborative design of appropriate methodologies; and the longevity of community-based projects relies on the devolution of responsibility and sharing of benefits. The breadth and depth of local involvement is pertinent in all monitoring activities, so we look now into how the term 'participation' is currently understood in monitoring schemes.

Danielsen et al. (2008) have started to address the issue of ambiguity in people's conceptions of CBM and participatory monitoring schemes in general. This is linked back to Pretty's (1995) typology of participation in Table 6.1. We understand CBM to be a type of participatory monitoring, insofar as 'participation' comes in to play when you have an interaction between insiders (locals) and outsiders (externals) and so participatory monitoring is any monitoring scheme that involves, to any extent, both of these parties.

Table 6.1: showing the different degrees of local involvement in monitoring schemes and how these relate to the typology of participation.
Adapted from Danielsen et al. (2008) and Pretty (1995)

Category of monitoring scheme	Relative contributions of externals/professionals and local people (Danielsen et al. 2008)	Relation to typology of participation (Pretty 1995)	Other details
1 – Professional monitoring	No involvement of local people (except maybe for consent). Design, monitoring, analysis and data use by professional researchers.	**Manipulative or Passive Participation**. People's involvement is superficial and they have no influence or power in decision-making.	
2 – Externally driven monitoring with local data collectors	Local people only involved in the data collection stage, with professional researchers designing, analysing and using the data.	**Consultative or Incentivised Participation**. Project design and info gathering process is controlled externally. Locals are only involved through working for rewards, or consultation where there is no obligation for externals to heed local views.	
3 – Collaborative monitoring with external design and data analysis	Local people are involved in the data collection and data use in resource management. Design and analysis carried out by professional researchers.	**Functional Participation**. Local people involved in decision making processes, though big decisions are often taken externally, and in advance. Participation is a project goal.	
4 – Devolved, **community-based monitoring** with external advice	Local people involved in all areas of the monitoring process, with professional researchers giving support where needed.	**Interactive participation**. Local people have control of project design, action plans, resource allocation and activities. Participation is a right, not a goal.	
5 – Autonomous local monitoring (traditional and customary)	No external involvement (except maybe for advocacy). Design, monitoring, analysis and data use by local people.	**Self-Mobilisation**. Initiative taken locally to address issues. Contact may be made with external institutions to work at higher levels	

Regarding the different categories of monitoring approach, the boundaries and differences between categories 1, 2 and 5 are clear. 1 (passive participation) and 5 (self-mobilisation) exclusively involve professionals and local people respectively so do not involve participatory monitoring per se, as defined above. Category 2 schemes (incentivised participation) only use local people in the limited role of data collectors. However, the boundaries between category 3 and 4 schemes (involving functional and interactive participation) are less obvious. These categories involve the ambitious and complex level of participation that progressive community-based monitoring projects should, by definition, be aiming at. However, Danielsen et al. (2008) only offer these two categories, and although providing some detail on the differences between them, ambiguity between the two remains.

Community-based monitoring schemes that are entwined with localised community management (and are not simply for academic research), should look to maximise the integration of local people to ensure the future existence of projects and the benefits they entail, thereby reducing North-South dependency (Ear, 2012) and addressing the difficulties of short-term, fad-centred conservation funding (Redford et al., 2013). But the increased devolution of tasks and responsibilities to local people involves the loss of control for coordinating organisations which can be a difficult process. We use the example of a community-based monitoring scheme working with indigenous people in the interior of Guyana, called the Community Monitoring, Reporting and Verification project (CMRV) to create a more detailed characterisation of local participation in monitoring schemes. We then use this characterisation to explore the factors influencing participation in the CMRV project, and compare the insights gained to those of practitioners in other CBM projects. We asked the following specific research questions:

1. What additional detail can be added to the scale of local involvement specified by Danielsen et al. (2008), to help practitioners be more specific and intentional about how, when and why local people will participate in monitoring schemes?
2. Where does the Guyanese CMRV project lie on this more detailed scale, in terms of local participation in monitoring?
3. What was the desired level of participation from the perspective of the international, national and local stakeholders, and so who has realised their expectations in the CMRV project?
4. What ‘power plays’ were made by stakeholders during the course of the project which may have affected the degree of local participation?

5. What other barriers were there which affected the degree of local participation? And what factors contributed to the continued involvement of external researchers in monitoring that was intended to be carried out by local people?
6. How do these observations compare to the situations being faced by CMRV practitioners in other projects? What are the common themes with respect to local participation in CMRV displayed by projects in different locations and external organisations?

6.3 Background

6.3.1 The ambiguity of 'participation'

Participation is an ambiguous word. Of course it has a proper definition – 'the action of taking part in something' (Oxford English Dictionary, 2013) – but even so, people's understanding of 'action' and 'taking part' may differ significantly. A group of children might be playing football in a park, some parents deciding to 'take part' by cheering the young players on while others might wade into the thick of it and score themselves a few goals - very different types of 'taking part'. The football playing parent is clearly taking part actively, but what about the supporter? Are a few cheers enough to be considered active? As such, who is 'participating'? There is an obvious need for more specific language and meaning here, especially when the term is used in slightly more significant situations.

Pretty (1995) and Bishop and Davis (2002) offer helpful reviews elucidating the subject of participation, exploring the more detailed meanings of the term and its application in agricultural development and political arenas respectively. Importantly, both justify their papers with the same concern for the ambiguity of language used. They concede that most authorities recognise the right of people to a voice in issues likely to affect their interest, but the details of implementation reveal contending meanings of participation. As such it is possible for the participation label to be used in contexts which could arguably be described as manipulative or even 'non-participation' (Hart, 1992). Munro-Clark (1992) also warns of the hollow meaning of participation, citing its use as being largely ideological, conferring a stamp of approval on whatever it names.

This is a complex socio-cultural issue to navigate, and one of the central problems is the disparity between those in positions of leadership and those who are participating. If they are very similar in aspects such as culture, education and wealth, it may be easier for leaders to entrust participants with extensive responsibilities or indeed for participants to buy into the activities. However, if they are very different, trust, confidence and therefore delegation might be harder to practice (e.g.

Thomas and Ravlin, 1995; Siegrist et al., 2002; Bonito, 2004). As such, any effective participatory work must overcome these tendencies and act to reduce the distance between these two parties or talk openly about this disparity (Mermet et al., 2013), a pre-requisite to transferring power from leaders to participants.

6.3.2 Participation as a value-statement

The discourse in the paper has thus far been working on the premise that more participation is inherently good. This is a value statement which, given the enormous variety of conservation projects that are in existence, is not universally applicable (Bishop and Davis, 2002). The different types of participation that Pretty (1995) outlines (Table 6.1) can be matched to different management problems in order to effectively solve them. Total participation, known as 'direct democracy' in politics, is not always the right solution (Shand and Arnberg, 1996). A political example might be the UK's pending referendum on EU membership. Many critics state that this is a judgement that requires significant specialist and wide-reaching knowledge which is beyond the general populus, so participation here should be limited (Walker, 2003). Another poignant example comes from the life of Nelson Mandela, an inspiring advocate of participation. When his newly elected ANC party was on the verge of abolishing the Springbok rugby team, an icon of the previously oppressive Africaans ruling people, he stepped in to prevent them, citing the need for compassion in order to heal the wounds of the past and pursue a better future together; an ultimately beneficial and well justified reduction of the participation of his party (Mandela, 1995). With respect to conservation and resource use, the tragedy of the commons can also be argued to be a failure of unlimited, unregulated participation in the management of a natural resource (Ostrom, 1990).

6.3.3 Power dynamics

Participation, in the context of conservation projects, is the function of interactions between leadership and participants, and Clegg et al. (2006, p6) argue that "power is inseparable from interaction and thus all social institutions are imbued with power." Therefore any project that is not fully authoritarian will be born out of complex power struggles between stakeholders (Few, 2000). Foucault (1975) led the way in expanding theories of power, focussing on its diffuse presence in every form of social interaction rather than simply concentrated in those that occupy the central relational spaces in a social structure. Associated with this, the past hundred or so years of history tells of the general shift in power strategies among national governments, from hierarchy to

polyarchy, moving from control through soft coercion towards cooperation (Clegg et al., 2006). But Raven (2008), drawing on organisational theory, provides a comprehensive and further differentiated version of his original thesis (French and Raven, 1959), describing six different power bases, the resources or devices that may be used, and the effects of them.

6.3.3.1 Types of power strategies

Informational Power is where compelling or persuasive information is provided by the 'actor' that influences independent behavioural change in the 'target'; **Reward Power** is a relatively weak or temporary form where the actor may be positioned to offer the target positive (often material) incentives for particular responses; **Coercive Power** is the least effective and is where the actor brings about their goal by threats of negative consequences and, like Reward Power, is strengthened when relationship between actor and target is closer; **Legitimate Power** is the most obvious form and is where the target recognises and feels an obligation to comply with the requests of the actor because of their formal position, repaying a favour (reciprocity), righting a wrong (equity), or social responsibility for those less fortunate; **Expert Power** is a very niche form where the agent's training and knowledge are perceived as superior so that the target defers, in faith, to the greater expertise of the agent; and **Referent Power** is perhaps the most subtle where an agent uses relational skills to build affiliation, admiration and loyalty in the target (e.g. patriotism), though this can be negative when a charismatic leader lacks integrity.

6.3.3.2 Power resources or devices

There are numerous ways that agents realise their desired type of influence, and some of these are: building knowledge or social contacts, intimidation (bodily or morally), ingratiation (including compromise), emphasising communality, self-promotion, authorization of legitimacy, guilt, and surveillance following a commitment by the target.

6.3.3.3 Effects of power

The success of any exhibition of power can be judged by whether the target's will or actions have become aligned with the goals of the agent, as well as the speed and longevity of this alignment. But any interaction between agent and target which involves the exercise of power also changes the dynamic between the two parties. Both the direct and indirect effects of power may be positive or negative when assessed objectively, but details remain case specific and so require exploration in the context of case studies.

6.3.4 Community-based monitoring in Guyana – the case study

The CMRV project was set up to feed information into the national Low Carbon Development Strategy (a bi-lateral version of REDD+) as well as provide relevant data for community management. Holmgren (2012) differentiates between 'strategic' and 'operational' level data for REDD+, the former being tied to IPCC guidelines on data quality from professionally run sample plots, and the latter being more general, low quality but wide-spread information tailored for local implementation. We postulate that the main function of this operational level data is to provide simple indicators, red or white flags revealing whether 'all is well' or if significant resource loss is occurring, stimulating management action.

The CMRV project was conceived by an international NGO from the UK (the Global Canopy Programme, henceforth 'iNGO') and funded by the Norwegian Government. A partnership was formed between the iNGO and a regional and a national NGO (together forming the 'project partners'). A local project management team (PMT) of five local people have been employed to run the project on the ground and 32 community residents from the various communities in the area were selected to be the community monitors, named Community Resource and Environmental Workers (CREWs). Village leaders have also been involved in the project alongside the PMT and CREWs, collectively being referred to as the 'local participants'. There have been six specific work streams running for the two year duration of the project which have been: biomass monitoring; wellbeing monitoring; natural resource monitoring; community mapping; farm surveys and a ground-truthing exercise. In order to carry out these tasks, the project has been through the phases of visioning, assigning leadership, design of methods, data collection, database management, data analysis and presentation, and finally data use. Lastly, the CMRV project has based the monitoring system upon smart phone and cloud technology, capitalising on the relative short data transfer process (downloads into prepared databases in comparison to paper-based transcriptions) and the multi-media potential of these technologies.

Considering the advantages associated with increased local involvement in monitoring schemes, and that the policy context in this instance requires high quality but not professionally rigorous data collection (as for a scientific study), it is acceptable to make the value-judgement that for this particular community-based monitoring project, a high level of participation is appropriate. Using Table 6.1 as a reference, a category 4 scheme is the most participatory goal that is possible for the iNGO insofar as the project was initiated by an external body so cannot be a category 5 scheme (self motivation).

6.4 Methods

A variety of ethnographic methods (participant observation in community workshops and evaluations, and document analyses) were conducted in order to collect data for this paper, to bring the 1st phase of the CMRV project to a close, and write a CMRV practitioner's handbook (Table 6.2).

Table 6.2: showing the various project activities and documents that form the main source of information for this paper.
The relevant research questions are also mentioned. *iNGO – international NGO. Due to confidentiality issues, only edited documents can be made available, and only on request.

Title	Dates	Contributers	Details	Relevance
Project proposal	2010	iNGO*	Explains the vision, plan and goals of the project from GCP's perspective.	Q3
Memorandum of Cooperation (MoC) with Government of Guyana	Aug '11	iNGO and Government	Contains information on the obligations of both parties under the agreement, and how the Government of Guyana were expecting to benefit from the CMRV project.	Q3
Kick-off workshops	Nov '11	All local participants and project partners	Includes the main design phase for the project by establishing: resource priorities; what communities wanted to monitor; what are basic local needs and what are considered local luxuries; a monitoring framework including national/intl. interests; and monitoring methods. Used focus groups, questionnaires, and consultative meetings.	Q2, Q3
Annual narrative report	Sept '12	iNGO and Norwegian Government	Details the events and implications of the project over the first 12 months, including management, training, monitoring design, data collection, analysis, and outreach.	Q2, Q4, Q5
Review and Planning workshop	Feb '13	iNGO, PMT and project partners	Explored 'what went well' and 'what went badly' in each of the project work streams. Used consultative meetings.	Q4, Q5
Technology review	Apr '13	iNGO and CREWs	Assessing the capacity built and the problems encountered by the CREW in using the technology. Used focus groups and individual assessments.	Q5
Project evaluation	May '13	All local participants and project partners	Investigated the successes and shortcomings of the project according to all the local participants. Used focus groups, individual assessments and questionnaires.	Q2, Q3, Q4, Q5
CMRV Handbook	2013	iNGO and project partners	A write up of the lessons learned from the 2 years of project operation.	Q4, Q5
Proposal for 2nd round of funds	2013	GCP	A visioning paper for the next phase of the project, highlighting project details from the 1st phase.	Q2, Q3

The author was involved in every one of these project stages, as a practitioner and author, as well as an ethnography researcher. As such, in addition to the official narrative that the project activities and documents build, the field notes that the author kept from observations and related informal conversations (guided by Alasuutari et al., 2008) allowed him to contribute factors from his own experience, drawn from his unofficial narrative, into each of the analyses.

In order to answer the research questions, with participant observation (Kawulich, 2005; and see sections 1.5 and 1.6) underpinning the planning and analysis, the following mixture of quantitative and qualitative methods were followed:

6.4.1 Question 1: What additional stages can be added between levels 3 and 4 of the typology of participation in Table 6.1?

From the combined scale of local involvement (Table 6.1) that was drawn from Danielsen et al. (2008) and Pretty (1995), it was clear that additional detail was required between category 3 monitoring schemes (functional participation) and category 4 monitoring schemes (interactive participation). As such a more detailed, gradated scale of local participation was constructed that spanned the gap between these. This was done by:

i. First identifying the main stages and roles within a monitoring scheme and establishing generalised difficulty levels that these pose for local people. The degree of difficulty for local people to be actively involved in any particular stage was based on the common availability of the required skills in rural communities and how these may relate to traditional livelihoods (such as farming, hunting, fishing). One particularly important aspect in determining the difficulty of each stage was the base-level technical and IT expertise required in order to be actively involved. However the technical expertise inherent in the scientific discipline is not the only skill required in a monitoring scheme – skills necessary to successfully run other aspects of scheme are commonly found in traditional communities (such as coordination of personnel, organising information, and setting goals).
ii. Secondly, from these details three intermediate categories were formulated between category 3 and category 4 schemes which provide a step-by-step transition from a externally dominated scheme to a locally led one. These were named 3E, 3M, and 3L (3 External, 3 Mixed and 3 Local) in order to show the increasing level of local participation in direct relation to the existing nomenclature used by Danielsen et al. (2008). The contents of these intermediate categories were based on the complexity of the stages and the skills commonly

found in local communities engaging in traditional livelihoods. To specifically differentiate between the categories in this graduated scale, three different types of local-external dynamics were included, in line with Danielsen et al. (2008): externally run (including some nominal local involvement); externally run with significant local involvement; and locally run with external support. These methods and results were then verified by four independent rural development and environmental practitioners with experience in Peru, Brazil, Uganda, Vietnam and Russia. Meetings were held in person where the details were explained, commented on, adapted immediately, and then verified.

A colour-based indicator system was devised to keep track of the apparent level of participation in the CMRV project as it was discussed through the course of this analysis. This helps explain to the reader the influence of each incident or piece of information, relating back to the graduated scale.

Category 2		Category 3	3E	3M	3L	Category 4

For example, if we start with a category 3, collaborative monitoring scheme, the indicator will look like this:

Category 2		Category 3	3E	3M	3L	Category 4

However, if the results raise a piece of evidence that reveals local people were more actively involved in the monitoring scheme, it would change to this:

Category 2		Category 3	3E	3M	3L	Category 4
		→				

By creating a more detailed participation scale it is hoped that professional researchers helping to implement monitoring schemes will be able to be more strategic in their planning of capacity building and the devolution of project responsibilities. It also provides a more detailed framework against which to analyse participation in the CMRV project in Guyana.

6.4.2 Question 2: Where does the CMRV project lie on the more detailed typology conceived in Question 1?

A description and categorisation of the CMRV project was carried out, in its state as of July 2013, using document analysis of the Annual Narrative Report, the Kick-off Workshops, and the Project Evaluations. In the production of the last of these, local participants were engaged in interactive interviews and asked whose interests they thought the CMRV project was primarily addressing. Particular project characteristics were gleaned from the documents and then compared to the formulated scales of participation. First, using the broader definitions from Table 6.1, details (such as plans / decisions / actions / opinions / statistics) were drawn out from the documents that bore similarities to category 3 monitoring schemes or category 4 monitoring schemes. Then a more detailed analysis was performed where each stage of each of the 6 project work streams was surveyed for the degree of local involvement, using the pre-defined types of responsibility specified in Danielsen et al. (2008) - externally run / externally run with significant local involvement / locally run with external support. Additionally, the most common types of participation were included; highlighting which type of responsibility was the most common among the work streams and among the different project stages. This helped to reveal which areas of the project were being locally led, pushing the participation level higher, and which were more dominated by external agendas.

6.4.3 Question 3: What was the desired level of local participation from the perspective of the different stakeholders, and so who has realised their expectations?

The expectations of local involvement from each of the different stakeholders were gathered from questionnaires and informal conversations during the Project Evaluations at the local level, from details in the Memorandum of Cooperation at the national level, and from statements in the original Project Proposal at the international level. Each of these was assigned a particular value on the scale of participation then compared to the CMRV project classification result from question 2. As such, it was possible to infer which stakeholder's expectations had been met, and so hypothesise who may have attempted to manipulate the CMRV project in their favour. When these results were analysed, the type of analysis used here was authoethnographic, more commonly seen in co-constructed narratives which are used to explore relational dynamics and how each of the participants in the relationships cope with collaborations.

6.4.4 Question 4: What 'power plays' were made by stakeholders during the course of the project which may have affected local participation?

Using the results from question 3 as a guide, the activities of the three project partners and the Government of Guyana were investigated to see if any significant 'power plays' had been made, where initially local project responsibilities shifted away from local people towards the other more powerful stakeholders. The criteria used that defined a 'power play' in this context were: a plan or decision by the abovementioned stakeholders that was not fully co-operative, but instead controlling; this plan/decision directly led to an action within the project; that action had a significant bearing on the participation of local people in the project; the result was greater power over some part of the project by the stakeholder in question and disempowerment of local people and/or a lower degree of local involvement in the project. Using the narrative ethnography of the Narrative Report as well as document analysis of the Review and Planning Workshop, the Project Evaluations, and the CMRV Handbook, two specific events were identified that fitted these criteria, one associated with each of the key national and international stakeholders (the Government of Guyana and the iNGO). For each, the experienced 'situation', the subsequent 'action', and the resulting 'effect' were narrated using the author's field notes from his participant observation, concluding in a summation of the shift in the level of participation in the project.

6.4.5 Question 5: What other barriers affected local participation and what factors contributed to the continued involvement of external researchers?

In order to collect information on other barriers to local participation, the sources used were used: the results of informal conversations with the local participants in focus groups and questionnaires used during the Review and Planning Workshop; the content of the Technology Review; and the Project Evaluations. The following criteria were used to identify these barriers: any 'power plays' from question 4 that were not deemed suitably significant for inclusion above; any experience or opinion of the local participants that involved a perception that an action or event had directly or indirectly inhibited their interactive participation; any actions or events during the project that led to the local participants playing less of a role in the project. In addition, the Annual Narrative Report and the CMRV Handbook were consulted. Also during this document analysis, additional details were lifted out concerning those factors that facilitated the implementation of a category 3 scheme rather than acted as barriers to a category 4 scheme i.e. factors that positively necessitated the continued involvement of external professionals.

6.4.6 Question 6: What participation issues are shared between the CMRV project and other CBM projects?

Using a simple e-questionnaire (Appendix F) which examined the issue of expected and actual participation, the lead practitioners of three comparable community-based monitoring projects were consulted as to their thoughts and experiences on barriers to local participation in such projects. These project are run by the Durrell Wildlife Trust in Madagascar, the Wildlife Conservation Society (WCS) in Cambodia, and Fundacao Amazonas Sustentavel (FAS) in Brazil, and are the only comparable CMRV projects that are focussing on holistic monitoring schemes rather than subject-specific monitoring (e.g. biodiversity or carbon). This questionnaire was sent out in order to compare and contextualise the findings from the CMRV project to those lessons being learned in other parts of the world.

6.5 Results

6.5.1 Creating a more gradated scale of participation.

Before adding intermediate categories that show the transition from externally coordinated schemes to locally coordinated schemes, it is first necessary to define the constituent parts of a monitoring system and specify the relative difficulty local people may have in coordinating these stages. A description was made of how the different stages of a monitoring scheme may prove more or less challenging for local communities to carry out (Table 6.3). This is a broad but verified generalisation based on the author's experience with indigenous peoples who still largely depend on traditional livelihoods. It is applicable in rural Guyana and but may differ in other cultural scenarios.

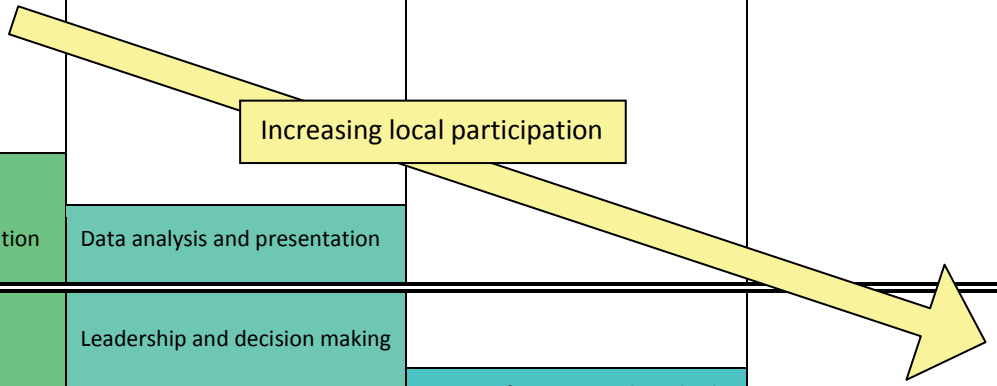
Having specified the differences between each of these stages, a gradated scale of local participation was then created that serves to provide intermediate categories between 3 and 4 (Table 6.4). These intermediate categories show a gradual transition from externally run to locally run for all the stages of a monitoring scheme, with the project stages being sequentially devolved based on the relative difficulty of that particular stage. For example, the last stage to progress from being exclusively externally run to involving local people is 'Data Analysis and Presentation' as this involves advanced computing skills that are rarely found in such rural communities. The first stage that can be devolved to local leadership is one that represents the most significant empowerment without being very technically demanding – visioning.

Table 6.3: showing the details of the stages and roles common to monitoring schemes. The relative ease by which these stages can be carried out by local people in rural Guyana is also included. This was informed by the author's experience and that of other practitioners.

Stages and roles in a monitoring scheme	Details of stages	Important requirements	Experienced difficulty level for local people with traditional livelihoods (+ notes)
Visioning / direction	Establishing the overall goals and initiating specific work streams	Understanding local and policy context, long term vision	**Medium** (a common local practice but the abstract nature of a monitoring scheme can be difficult for people with traditional livelihoods)
Leadership and decision making	Managing the personnel involved and the progress of the work streams, reporting and taking decisions where necessary, reviewing and adaptive management	Strategic vision, people management, coordination and delegation, discernment and transparency in democratic and executive decisions, reflection and evaluation skills, close understanding of entire project	**Medium** (this role is partially fulfilled in any political power structure, though the complex oversight needed for project management is a learned, not inherent, skill for any individual)
Design of content and methods	The establishment of what is important to monitor, how it will be monitored and when.	Understanding how the data will be used, ability to consult various stakeholders to collect information	**High** (one of the most complex stages needing methodological experience)
Data collection	Surveys, observations and questionnaires, entering data into the appropriate system	Closely following instructions, attention to details, ability to interview.	**Low** (carrying out practical tasks potentially aligned with traditional skill sets)
Database management	Ensuring the right amount and type of data is in the system, inc. auditing and feedback	Basic computing skills, understanding of collection and analysis processes in use	**Medium** (simple organisational process but requires computing skills)
Data analysis and presentation	Statistics, mapping and visualisation, and collation into reports	Moderate to advanced computing skills, close understanding of target audience to present data appropriately	**High** (complex, technical, often abstract, relating to project design and data end-users)
Data use	The application of the data in practical contexts such as community/national management or academic research	Access to and influence with decision makers, ability to translate information into management strategies	**Low** (existing component of traditional societies – using appropriate information to make community decisions)

Table 6.4: showing a gradated approach to local participation.
Included are details of intermediate categories between category 3 (collaborative monitoring) and category 4 (community-based monitoring). Asterisks show when each of the stages or roles shifts in responsibility.

	Category 3 Collaborative monitoring	3E	3M	3L	Category 4 Community-based monitoring
externally run	Visioning / direction Leadership and decision making Design of content and methods Database management Data analysis and presentation	Database management Data analysis and presentation	Data analysis and presentation		
externally run with significant local involvement		Visioning / direction* Leadership + decision making* Design of content + methods*	Leadership and decision making Design of content and methods Database management*	Design of content and methods Data analysis + presentation*	
Locally run with some external support	Data collection Data use	Data collection Data use	Visioning / direction* Data collection Data use	Visioning / direction Leadership + decision making* Data collection Database management* Data use	Visioning / direction Leadership and decision making Design of content + methods* Data collection Database management Data analysis + presentation* Data use



The implementation of a community-based monitoring system (that may involve such aspects as biodiversity, carbon, wellbeing, ecosystem services etc.) needs to be a gentle process of devolution from external responsibility to local responsibility, and Table 6.4 can specifically inform work plans and goal setting for this process. For example, a category 3E scheme might be chosen as an appropriate goal for the end of a 6 month project period, and so the participants would, from the start, be actively drawn into the process of visioning for the project, the design of the content and methods, and also the decision-making processes. Although still led by external staff, the local contributions would be treated with the same significance as the external inputs, with a genuine obligation to incorporate local preferences and opinions. Efforts would then follow to facilitate and empower the local participants to assume leadership over the data collection as well as planning for the local use of the data. The specific gradation shown in Table 6.4 is drawn from the practical information in Table 6.3 which may not be applicable in other local contexts – the relative difficulties of each of the project stages can be changed and the consequent process of devolution adjusted appropriately (e.g. in a very authoritarian society where leadership experience is not widespread but there is moderate computer literacy, the transition between category 3 and category 3E could see database management moving to 'externally run with significant local involvement' while leadership and decision-making could be left to be externally run). Furthermore, additional categories may be added to further grade the devolution (for example ensuring only two discrete responsibilities or stages are devolved to local people at any one stage in the process, rather than 3).

6.5.2 What category does the Guyanese CMRV project fit into?

The author's impression from his field notes and participation as a practitioner, without analysing any of the official documentation or using the gradated scale in Table 6.4, was that the CMRV project sat somewhere between a category 4 and category 3 scheme, with more similarities to a category 3 scheme i.e. closer to functional participation than to interactive participation. The CMRV project is clearly not a category 5 scheme (autonomous local monitoring) as it was externally conceived and external parties have been actively involved in the project for its duration. It is also not a category 2 scheme, as the local participants have been involved in more aspects of the project than the data collection. A number of different project characteristics were highlighted that show the CMRV project to be between a category 3 and a category 4 monitoring scheme (Table 6.5). This alone doesn't allow for a specific categorisation of the CMRV project so an additional analysis of the specific work streams of the project is shown in Table 6.6.

Table 6.5: showing broad details of the different characteristics of the CMRV project.
The characteristics shown are those that relate to category 4 and category 3 monitoring schemes.

Stages and roles in the project	Category 4 Characteristics (community-based)	Category 3 Characteristics (externally led collaboration)
Visioning / direction	The majority (approximately ¾) of the local project participants (the local project management team, the local monitors, and the local community leaders) thought that the project primarily addressed local interests and also considered their involvement in the direction of the project to be medium-high (on a scale of none/low/medium/high). Also some local participants were involved heavily before the project began to bring a local voice to the planning process.	The CREW monitoring activities over the first year of operation were not determined by the locally defined monitoring framework, but by work commissioned by the national government.
Leadership and decision making	The selection of the local project staff (including the project management team and the local monitors), was a locally led process whereby the two Guyanese partner organisations used local and regional staff to interview and select the PMT. Additionally the CREW were nominated by their own village leaders, based on a few guidelines supplied by the local NGO.	Despite the feelings of the project participants, the ultimate decision making for the majority of project issues, outside the daily operations, has continued to lie with the iNGO and to a lesser extent the project partners (such as the project workplan, investment in major project infrastructure, nature of national linkages, project wage structure, final content of the monitoring framework etc.). The local project participants have been consulted at almost every stage but the external decision makers have not been obliged to incorporate or allow for their opinions.
Design of content and methods	The monitoring framework (what indicators to monitor as part of the monitoring scheme) was initially built through a locally-led process where all the local project participants were brought together and, in focus groups, outlined all their resource priorities in the region as well as their monitoring preferences. Only after this were national and international interests integrated into the initial framework following communal discussions and contextualization. The majority (97%) of the local project participants also considered their involvement in the design of the project to be medium-high (on a scale of none/low/medium/high).	The large initial list of indicators was necessarily reduced in size by a prioritization exercise. This was conducted externally by the project partners but then presented to the local participants for consultation.

Data collection, data analysis and data use	Almost all of the monitoring data was collected by the CREWs (for 5 of the 6 project themes). The majority (93%) of the local project participants also considered their involvement in the analysis of the project to be medium-high (on a scale of none/low/medium/high).	A small part of the data collection was delegated to a different local research group (who collected data for the farm survey, 1 of the 6 project themes). The analysis (data handling, statistics and presentation) has, for almost all the information collected thus far, been conducted by the external project partners and not the local team. During the Project Evaluation, the local participants expressed a desire for greater autonomy to see and analyse the data produced. They also expressed the need to increase the community ownership of the data collected.
Policies and guiding documents	The iNGO project documentation for the upcoming second phase clearly states that "REDD+ in community lands should be *guided* by communities", implying in depth involvement of communities in the design and direction of the monitoring programme is a priority.	The roots of the project lie in the climate change policies of REDD+, a UN derived funding tool that draws upon nation to nation funding for tropical forest preservation and depends on monitoring (MRV). REDD+ is ultimately based on carbon accounting, and as MRV is a national-level responsibility, the motivation for the project and the bottom-line policy is something that is not on the immediate agenda of the local participants.

Table 6.6 goes further and describes the degree of local participation that occurred in each stage of the different project work streams. Using modal values as a guide (i.e. which classification was the most common), it shows whether each stage of each project work stream was predominantly externally run, externally run with local involvement, or locally run with external support. The work streams that most effectively involved the local participants were natural resource monitoring, wellbeing monitoring and the community mapping, and the stages/roles that saw the majority of the local consultation and participation were data collection, and data use. This information points directly towards a category 3 scheme (Table 6.4).

Table 6.6: shows the degrees of local participation in each of the stages of the CMRV project and for each project work stream / component
Best fit categories are included for clarity, based on the closest match between the work stream and the more detailed participation typology. The 3E, 3M and 3L categorisation is not used for the stages and roles as these relate to the overall classification of a monitoring scheme, so simple participatory details are given. The project work streams can use these as they can be treated as separate monitoring schemes. Legend: * = externally run; ** = externally run with significant local involvement; * = locally run with some external support.**

	Project work streams								
		Monitoring Framework							
Stages and roles in project		Natural Resource monitoring	Biomass/Carbon monitoring	Wellbeing monitoring	Farm survey	Ground-truthing exercise	Community mapping		**Most common type of participation**
	Visioning / direction	***	*	***	*	*	*		*
	Leadership and decision making	*	*	**	*	*	**		*
	Design of content and methods	**	*	***	*	*	*		*
	Data collection	***	***	***	**	***	***		***
	Database management	*	*	***	*	*	**		*
	Data analysis and presentation	*	*	***	*	*	**		*
	Data use	**	*	***	*	*	***		*
	Best fit category	3M	3	3L	3	3	3M		

The local perception, revealed in the evaluation workshops (shown in Table 6.5), is that of a project closer to an interactive, community-based category 4 scheme, which indicates a good degree of local ownership and general involvement. However, the author's observations and step-by-step descriptions of the current project operations suggest the CMRV project matches a category 3 scheme, the key details being external responsibility for project visioning, design, data analysis and decision making. The best fit categories are the

Category 2		Category 3	3E	3M	3L	Category 4

Key quote

"If the project partners withdrew their support now, then the project would be nothing. It would fall down. We can't run it by ourselves", one of the senior staff from the local project management team, May 2012.

6.5.3 Stakeholder expectations

6.5.3.1 Local Participants

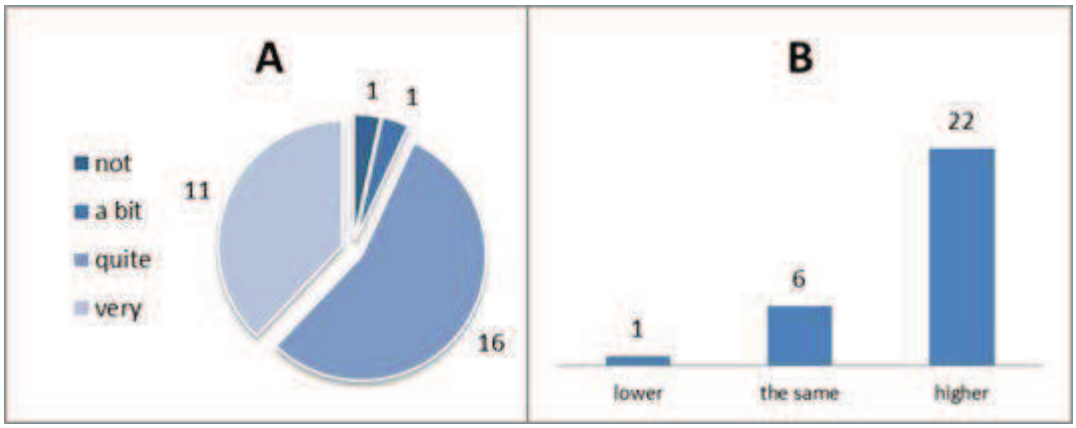


Figure 6.1: Questions and responses from local participants in focus groups held during the Project Evaluations, May 2012.
Numbers represent the actual number of responses with n = 29: A) Perceived significance of local contributions to the direction of the project; B) Comparison with the level of contribution the local participants expected to make at the beginning of the project.

The local participants currently perceive the project as something close to a category 4 scheme, with 27/29 feeling their contributions have been 'quite' or 'very' influential in directing the project (Figure 6.1A). However, they still expressed desire for greater levels of participation (Table 6.5). Their original expectation in terms of participation was lower than their experience, 22/29 local participants expressing that their participation in the CMRV project was higher than they initially expected (Figure 6.1B). Thus we can infer that they were expecting to be involved in a category 2 or 3 scheme.

6.5.3.2 National stakeholder – The Government of Guyana

The following are the key CMRV project activities that the Government of Guyana details in the Memorandum of Cooperation that was signed between the project partnership and the Government of Guyana in order for the project to commence:

1. Determine the drivers and processes of [forest] change in community lands;
2. develop an implementation framework for community REDD+ activities;
3. conduct monitoring, reporting and capacity building on carbon stocks and safeguards;
4. integrate CMRV into the national MRV framework;
5. comply with IPCC good practice guidelines.

These expected activities all involve the CMRV project providing information to the Government to help fulfil their own obligations under the LCDS and REDD+, as well as developing guidance on how

the government can best engage communities in this national development programme. Any answering of local interests, in terms of designing the monitoring activities, might come into point 2, but this is not specified and there was no guarantee of this. A Government representative ran a seminar for the local participants in February 2012 on the national MRV programme, during which it was clearly expressed (as reflected in point 5 above) that the CMRV project would be providing highly detailed and accurate tier 3 data (IPCC, 2007) to be fed into the national MRV framework (point 4). Taking these factors into account, it is fair to deduce that the Government were expecting a category 2 scheme, where the local people would act solely as well-trained data gatherers, thereby directly partaking in the national level MRV.

6.5.3.3 International stakeholders –Norwegian Government and the international NGO (iNGO)

The **Norwegian Government** offers very few conditions or expectations with respect to community participation in the projects they fund, with the Climate and Forest Initiative application guide 2010 simply stating; "the grant is primarily to support civil society activities and community capacity building". Projects that engage and create partnerships with indigenous groups (among others) are also 'encouraged'. Local participation that ranges from consultative to interactive (from category 2-4) would fit these criteria, so no good deduction can be made of the Norwegian Government's expectations for participation in the CMRV project.

In the original **iNGO** proposal to the Norwegian Government, the project 'sub-goals' specify developing a Community MRV methodology and model as well as creating training and employment opportunities for communities. With emphasis placed on training local people to collect information appropriate for national level REDD+ (these people are termed 'service providers' at one point), the details on project activities imply the establishment of a externally led category 2 scheme. However, looking into the methodologies specified, there is a section on 'community consultation, consent and participation'. This mentions 'soliciting community feedback on the project concept and adjust as appropriate' (community involvement in project direction), and 'establishing how communities want to participate… and [identifying] parameters the communities decide to measure' (community involvement in project design). These are collaborative methods and noting the continued use of collaborative language, e.g. '…work *with* communities…' (5 appearances in 15 pages) throughout the document, we can deduce the iNGO's aim of creating a category 3E/3M monitoring scheme.

Although at the time the iNGO's project lead for the CMRV project talked at length about community-led programmes and the ideal of category 4 monitoring schemes (re-iterated in May 2012 by the current project lead), there is, nonetheless, a significant amount of pre-decided information about the content and the running of the project in the proposal, highlighting the absence of devolved decision making, a characteristic at the heart of interactive, category 4 schemes.

6.5.3.4 Summary

Local – Project participants

Category 2		Category 3	3E	3M	3L	Category 4

National - Government of Guyana

Category 2		Category 3	3E	3M	3L	Category 4

International - Norwegian Government and iNGO

Category 2		Category 3	3E	3M	3L	Category 4

It is clear that the national government expected an externally driven category 2 scheme and the main international stakeholder (the iNGO) originally intended to create a category 3E/3M scheme. This was also in line with the local expectation. The project, can currently be classified overall as a category 3 scheme. Taking these statements, we can see that local participation in the project is slightly higher than the expectations of the national government and lower than the initial intentions of the iNGO. It is thus worth exploring whether these two powerful stakeholders have taken any actions during the project narrative that brought the project more in line with their own requirements (primarily the production of high quality data). The local participants have clearly not yet been able to steer the project towards greater levels of participation, towards the more attractive, interactive category 4 scheme.

Key Quote

"In an ideal world we would be pushing towards a category 4 scheme but we have obligations [to the funding body]", The iNGO project manager, February 2013.

6.5.4 Stakeholder 'power plays' that affected local participation

It might be that the CMRV project has been maintained as a category 3 scheme as a result of the Government of Guyana's actions and their tendency towards more top-down, externally run programmes, despite the apparent desire for greater local autonomy from the iNGO and local participants. To test this we look at a few 'power plays' made by key stakeholders. First we look at a power play made by the Government of Guyana in an attempt to fulfil their interests, and secondly look at a more surprising power play made by the iNGO which contributed to maintaining the current category 3 status. The investigation explores stories of these events as they were remembered by the different stakeholders, analysing how they contributed to the disempowerment of the local participants.

6.5.4.1 The Government ground-truthing exercise.

Situation

In order to launch the CMRV project in Guyana, a Memorandum of Cooperation needed to be signed between the Government and the iNGO, detailing the conditions of acceptance, how collaboration was to take place and what the government expected of the CMRV project. This relationship was strained at the beginning due to a variety of misunderstandings about current themes in REDD+ (namely the importance of social and biodiversity safeguards) as well as the prohibition of civil society funds being handled by the government. Once 'signed off', the project had been locally active for 4 months when the Government made a request for the CMRV project to ground-truth a satellite map of forest disturbance in the region.

Action

Despite not yet having the local or technological capacity, the iNGO didn't feel they could refuse the request by the Government whose clear strategy and continuing un-stated threat had been to delay project activities until their needs were met. As such, the design and implementation of the monitoring framework (what the communities want to monitor, and how, including national interests) was put on hold shortly after a basic baseline was collected. The CMRV project was, at that point, assuming the character of a category 3M scheme. The subsequent 8 months of project work was spent externally designing and locally implementing this commissioned study for the Government. This was occurring alongside another additional farm-related commission that answered one of the Government's other main questions - whether or not rotational farming by the indigenous communities is a driver of forest change.

Effect

This had a profound effect on the local project participants as the work that they were taking part in was not in line with the original vision of the CMRV project that they had bought in to. Conducting surveys which they hadn't helped envision or design contributed significantly to a sense of confusion and misunderstanding within the project. People didn't know why they were carrying out certain tasks: "We don't know why we are doing what we are doing, or where this project is going", a community monitor said during the Project Evaluations. Also the results were exported to the government and the national partner to be used in more complex external studies, and the local participants have yet to see or benefit from any results of their work. This was a category 2 piece of monitoring work (externally commissioned, analysed and used, but collected by local people) which contributed to a dislocation between the local participants and the project itself, the participants feeling like a project was 'being done to them', instead of them carrying out a project, ultimately jeopardising the long-term local ownership of the project. By commissioning the local monitors, the government was able to capitalise on the presence of expertise on the ground in this particular region, fulfilling their own obligations while saving their own resources for further ground-truthing exercises. However, since this work has been completed, the monitoring framework has been readdressed albeit with significant amounts of information and understanding lost over the delay, and so the local participants are engaged once again in the creation of their own community monitoring system.

Identified power dynamics

The power dynamics present were that of the government operating under legitimate national power, voted in by the population (including the local electorate), and therefore given representative decision making power over specific issues such as resource management. In relation to the iNGO's activities, the government acquired a sort of legitimate reciprocal power where a 'favour' had been done by granting the CMRV project permission to proceed, with the iNGO feeling somewhat indebted. There was also coercive power in operation where the Government could withdraw this permission or delay project progress at any point. Simply put, the national stakeholder had specific power over both the local and the international stakeholders, as well as different goals for ground-level monitoring.

Subsequent effect of the power play on the power dynamics

The consequent effects of this power play on the power relationships may be positive or negative: there may have been a level of appeasement, the government having a sense of having their needs

being met and subsequently expecting less, or indeed providing the iNGO with legitimate reciprocal power in future negotiations; or alternatively the practice of commissioning work without discussions could become habitual and this cycle could continue.

FROM

Category 2		Category 3	3E	3M	3L	Category 4

TOWARDS

Category 2		Category 3	3E	3M	3L	Category 4
←						

6.5.4.2 Hiring an external 'field director' by the iNGO

Situation

After 1 year of the CMRV project actively running in the area, it was apparent that the incumbent project manager functioned as a very able operations manager but there was a significant deficiency in strategic project management. There was little to no local activity in terms of allocating tasks to the project management team members, setting clear work plans and deadlines, maintaining continued dialogue with the project partners, exploring project failures, and producing community reports. This was not helped by the ambiguity spread by the changes in project direction discussed in the previous power play. As such, without the local PMT driving the project forward it was losing momentum in the communities. There was also time pressure to ensure the project was functioning as the external funding was coming to an end, and in applying for a second round of financial support, the specific deliverables detailed in the original iNGO proposal were necessary to produce on time and delivered to the Norwegian Government at a high standard.

Action

Taking note of the declining project support, internally and externally, and the necessity to deliver results to the funding body in a short time period, the iNGO advertised for a new position of 'field director' to remedy this situation, essentially taking the role of project manager without directly disempowering the existing manager. There were a number of capable local applicants for the role as well as some qualified international applicants. The iNGO, without the input of any of the project partners or local participants (unlike for the original local management appointments), hired one of the international European applicants, who was based in Guyana but not in the area. This person

then received significant orientation from a trip to the UK to meet with the iNGO team and thorough in-country briefing from some of the other project partners. Instating an external field director into the local PMT, as a direct iNGO employee, can be seen as a power play by the iNGO to ensure their project responsibilities to the Norwegian Government were delivered.

Effect

As the project partners were not involved in the appointment, this only reinforced the external leadership role of the iNGO in the project, and the local partners have continued to leave the majority of the decision making and support work to the iNGO. Regarding the presence of an external staff member, much decision-making was made by the field director which served to reflect their strong quantitative background and experience in externally-led category 2 monitoring schemes. Producing highly accurate, scientific data that could be used in the national MRV system was prioritised over locally relevant and easily understandable and utilizable data. There was very little devolution of work to other team members as it was being made too technical, and as such the other project management team members perceived the field director as an expert conducting work that was impossible for them; something that was untrue and unnecessarily disempowering, contributing to a regression back towards a category 3 scheme.

Identified power dynamics

There were two predominant power dynamics in play. Firstly there was expert power of the iNGO over the local participants which had three components: (i) the habitual deference of the local communities to international workers with technical expertise - the local participants perceived a greater level of participation (cat 4) than was clearly happening (cat 3), revealing that the levels of participation in analysis and design was much greater than their previous experiences in externally-dominated projects. This was corroborated by the local participants expecting to be involved in a category 2, externally-driven scheme (Figure 6.1B). The local participants are accustomed to being instructed during work on research projects that have little local relevance and which they may not always fully grasp (e.g. Rahnema, 1992; Read et al., 2010); (ii) the often exaggerated praise of the iNGO staff expertise by the partner NGOs who, operating in a hierarchical society where respect is a central accolade, desired to elevate and honour the guest staff as much as possible, and induce appreciation among the communities that such well qualified people should sacrifice their time to work in their communities; and (iii) the subtle expression of underlying NGO staff culture which consciously or unconsciously positions themselves as experts (Mandel and Steinberg, 2009). The second power dynamic was the legitimate formal power of the iNGO over the other project

partners. The iNGO was the founder of the project concept and drafted in the other Guyanese partners, retaining ultimate decision making power over project operations and fund distribution. The project partners honoured this status accordingly.

Subsequent effect of the power play on the power dynamics

This power play served to entrench the iNGO-local participant power dynamic, widening the gulf in perceived and experienced expertise between the local participants and the technically versed field director. Primarily this was played out among the local project management team who, not being included in the analysis or presentation of some of the more technical data and being daunted by the complex information that the 'expert' field director was producing, continued to capitulate delegated responsibilities back to the iNGO and project partners, having the sense of their own capabilities depressed. In terms of the iNGO-project partner power dynamic, the same disempowerment can be said to have occurred, with the project partners perceiving additional coercive power, where the iNGO could cut them out of other decision making processes in the future.

FROM

Category 2		Category 3	3E	3M	3L	Category 4

TOWARDS

Category 2		Category 3	3E	3M	3L	Category 4
			←			

6.5.4.3 Summary

Two significant power plays were successfully made during the CMRV project, one in project direction by the Government of Guyana and the other in project staffing by the iNGO; both reducing the participation away from a nascent 3M scheme. The manipulation of the project direction by the Government of Guyana had significant effect and caused confusion throughout the project hierarchy, almost completely losing the sense of local ownership, as well as the support of the project partners. This may or may not have been preventable by strong and diplomatic leadership within the project, serving to convince the Government that the local team were not ready for such tasks, postponing it to a later date. For this reason, we can speculate that the first power play may have instigated the second, which involved a change in local leadership. But on closer inspection the

externally-led appointment of an external field director was not to add strength to the negotiations with the Government, but instead to produce particular project deliverables within the limited project timescale. This second power play served to disempower the project partnership in terms of decision making as well as creating a greater sense of inadequacy amongst the other PMT members due to the complex language, data and reports that were being produced by the field director (i.e. removed the local people from participating interactively with the technical delivery of the project). This could have been avoided by following the original staffing procedures – specifying the job description and necessary qualities before leaving selection to a local panel – and then concentrating on training that person in key project management skills.

Key Quote

"what does it matter what I think? The people will come from the capital and do what they need to do anyway. I just try and make the most of it", community monitor, 2012.

6.5.5 Other barriers and factors that affected local participation

6.5.5.1 Barriers to local participation

The following factors acted as barriers to interactive local participation by, among other things, generating a heavy dependence on external leadership and support:

- **Gradual and intangible project benefits** – the CMRV project provides an information system for villages and the government to use to strengthen their land and community management. As such it is not a traditional conservation or development project that immediately delivers 'solid' products such as a protected area or a school building. Instead it provides data on what the communities have and what is changing in the community lands which the village leadership then decide how to interpret and use. The generation of this information is not easily observable by the communities themselves and the benefits are not immediately experienced or straightforward to explain. This has led to difficulties in fully communicating the project rationale and benefits to communities and the community monitors have reported a local reticence to take part in CMRV project meetings and consultations;
- **Over complicated monitoring framework and data production** – the content of the monitoring framework and the subsequent data that needed analysis was not decided in complete conjunction with the local communities. As such some of the indicators used were

not easily or intuitively contextualised by the local participants (it was not obvious why they were asking certain questions) and the data generated required analytical skills that were not available or easily built into the PMT, e.g. questions and data on freshwater fish catch per unit effort;

- **Insufficient capacity of the local project management team** – related to the above point, as well as the technical demands (e.g. with GIS, data handling, cloud technology) going beyond the PMT, there was a lack of strategic management skill and inbuilt communications procedures. The lack of capacity wasn't addressed at the beginning of the project and so led to frequent bottlenecks and delegation of project activities to external project consultants;
- **The use of high-tech equipment** – The project uses SMART phones, bespoke data collection software, mapping tools and cloud technology for monitoring, so is largely drawing upon non-traditional skills. The poor infrastructure and the minimal previous exposure to computers and the internet has meant that, despite a significant amount of training, there is still a heavy dependence on external technology support to keep the project functioning;
- **Powerful project advisors** – presented as community specialists, a few of these people dominated discussions during workshops to the point that the community voices were drowned out (an example being the hand-drawn project logo that was designed through a local competition then taken away by one of the project partners, redesigned and presented as the final version);
- **Full-time employment was not possible to commit to** – everyone in the local communities had other commitments, most commonly to their farms and families, which meant they were not always able to contribute and participate fulltime in the project work;
- **Delayed feedback of data** – project participants didn't see the information collected until a year afterwards so they couldn't see or experience the benefits of such an information system in terms of their community management. As such they were less willing to contribute and it was hard to continue to rally support for the project among the communities;
- **Insufficient contact time with the monitors** – the CREWs felt there could have been more workshops or meetings where their contributions could be heard and training could be delivered;
- **No sense of team identity** – the CREWs and PMT has no uniform or way of identifying themselves in the communities. This would boost prestige and therefore motivation to engage in project activities;

- **Project fatigue** – there were a number of other development, environment and research projects going on in the region at the time which for the most part involved similar people (community leaders and articulate community members) and similar activities (interviews). This led to a real reticence for all local people to attend consultations, contribute to project design, facilitate activities, and feedback on project work.

Considering this particular selection of barriers, the maximum level of participation possible with these still in place, would be a category 3 scheme, which correlates with the current classification of the CMRV project.

6.5.5.2 Factors influencing the project towards a category 3 scheme

There were a number of factors that required the more in depth support and leadership by external 'experts' that cannot be simply considered as negative factors because they entailed lower local participation. These are factors that must be included in order realistically to analyse the degree of participation that was possible and appropriate in this project:

- **An international policy context that provides the foundation for the project** – The CMRV project is essentially answering a call for national level REDD+ monitoring by satellites to be complemented by ground level monitoring information from communities. As the information generated is required to fit into the national MRV systems, it is generally assumed (though potentially incorrectly; Holmgren, 2010) that it needs to be the right type and quality of data to be comparable (accurate and robust), necessitating the leadership of a well-versed researcher or scientist, who is unlikely to be found locally. Also, this still incomplete international policy tool relies on nation to nation funding and so requires operation at the international level to tap into these monetary streams, a task generally limited to national and international practitioners;
- **Dynamic and high quality resource maps –** Interactive GIS maps are very useful to communities as they are able to observe change over time and layer-in different landscape and resource features. These are difficult to produce accurately and require not only significant skills, but continued support and training as the software rapidly advances. To benefit from this technology, communities, for the most part, need support that goes beyond occasional advice from external tech experts;
- **General community capacity for non-traditional activities is low –** by increasing the involvement of external experts, the contact time increases between the local people whose

capacity is being built and those with the expertise to train them, serving to enhance the long-term development prospects of the communities.

6.5.5.3 Summary

All of these factors have contributed to either reducing or limiting local involvement in the CMRV project, but three of the key barriers that have had the most wide-reaching and long-standing effects are: gradual and intangible project benefits, insufficient capacity of the local project management team, and delayed feedback of data. With respect to the categories that facilitate increased external involvement, the international policy context is the most significant factor.

Category 2		Category 3	3E	3M	3L	Category 4

Key Quote

"CMRV is really complicated! We've had to allocate more time to it than we ever could have imagined", project advisor in the iNGO, 2012.

6.5.6 Experiences from other CMRV projects

Having explored the operational details of the Guyanese CMRV project and identified specific key factors that have affected local participation, practitioners from other comparable CMRV projects worldwide were consulted to see if there were common themes emerging in relation to difficulties with local participation. The following outlines their responses:

6.5.6.1 Brazil – FAS's 'Bolsa Floresta' monitoring program

Aiming for category 3

Have achieved category 3

Key factors that contributed to the project achieving (or not achieving) the desired level of participation:

- One of the main goals of the monitoring program is to conduct externally relevant analysis relating to the land use changes in the protected area, without excluding the community from this process. Community participation and local relevance is indispensable but having internationally recognized monitoring institutions guarantees the technical accuracy and precision necessary to feed data into land-use change analyses and support government enforcement activities;
- An extensive outreach programme in community meetings and in schools has helped local people understand the project and so willingly participate in it;
- By only selecting willing and motivated individuals to participate as monitors, it has been straightforward to ensure significant local contributions are made to the project in terms of data collection and data use;
- Monthly cash rewards for monitors have been essential to maintain participation;
- The use of new technology is attractive and has drawn many young students to participate in the project.

Category 2		Category 3	3E	3M	3L	Category 4

6.5.6.2 Cambodia – WCS's ibis nest monitoring in the Northern Plains

Aiming for a category 3 or 4

Have achieved a category 2

Key Factors that contributed to the project achieving (or not achieving) the desired level of participation:

- Monitoring wildlife populations requires a higher level of accuracy than livelihood projects, a level that is not currently possible with local people due to low education and capacity in small villages. But there is hope to soon progress to category 3 programmes that involve them more through protected area committees, and one village is implementing a category 4 programme through a community run eco-lodge that coordinates related monitoring of endangered species' nests.
- Communities need to fully understand how the project is going to affect them; what benefits they will get from being involved. The larger and more immediate the effects the more people want to participate. Providing monitoring data for communities, albeit beneficial, will never be as strong a motivation for participation as money or loss of land.
- Tangible threats make the projects more relevant to communities (such as economic land concessions being granted) and result in more participation from the local groups as they can witness and fully understand how decisions regarding protection and ownership will affect them;
- Laws can sometimes restrict how community-based certain activities can be. Local groups may have some jurisdiction within community lands to stop people from clearing land etc. but they require outside support to arrest people and stop illegal activities.

Category 2		Category 3	3E	3M	3L	Category 4
	→					

6.5.6.3 Madagascar – Durrell Wildlife Conservation Trust's ecological monitoring

Aiming for category 3

Have achieved category 3

Key Factors that contributed to the project achieving (or not achieving) the desired level of participation:

- 45% illiteracy and low capacity of the local population mean it is impossible to ask the local people to engage in the coordination, analysis, technical reporting and data management plans. They can however be readily engaged in consultations and data collection.
- Building capacity through experience of patrols and monitoring with external staff is invaluable as it has facilitated greater debate with government and mining/oil companies. There is hope that most of the tasks and responsibilities will be devolved to the local teams.
- There is minimal governmental support for resource management in the rural areas. NGOs have endeavoured to fill this gap, necessitating the hands-on action and coordination of external researchers and practitioners.

Category 2		Category 3	3E	3M	3L	Category 4

6.5.6.4 Summary

Two of the three featured projects aimed for a category 3, collaborative monitoring scheme and reportedly achieved that particular level of participation. There was nonetheless mention of a desire for greater levels of participation in all cases. The main barriers that are raised by at least two of the above project descriptions are: lack of understanding of intangible project benefits within communities; producing high quality data to feed into larger scale analyses not possible without external leadership; and a corresponding lack of capacity among local people to actively engage in projects of this type.

Key Quote

"Local people will always require outside support to arrest people and stop illegal activities", project manager of one of the other CMRV projects, July 2013.

6.6 Discussion

6.6.1 The gradated scale of participation

Community-based monitoring schemes, even those that come under international environmental policy instruments, have the potential to aim for a category 4 level of local participation (see Tables 6.1 and 6.4), and are actually defined as such by Danielsen et al. (2008). However, whatever the intended level of participation, the gradated participatory scale for community-based monitoring has been proposed to encourage monitoring practitioners to be more considered and intentional in their involvement of local people. It also helps counter the misuse of the terms 'participation' and 'community-based conservation'. It was borne out of difficult experiences with implementing a community-based monitoring scheme in Guyana, a project that had the best of intentions in terms of empowerment and local leadership. It provides some additional details to help strategic planning and implementation without claiming to be a complete guide to the process of local participation in CBM, and can also be used to frame discussions on power plays and barriers.

Even though this analysis has been treating 'local participants' as a single stakeholder group, it is nonetheless important to differentiate between the different groups of local participants (the local project management team, the community monitors, and the village leaders) and consider how each of them will individually participate in the project. This is important but not the focus of this paper. However, there is another issue of local differentiation. It is often the case that conservation projects utilise the more capable local elites who already monopolise job and capacity building opportunities (Sommerville, 2010). Selvey (2013) identified this trend in the CMRV project in Guyana. However, the selection process for the local staff was dictated locally, attempting to encourage ownership and to respect existing governance structures. It is evident therefore that this is a difficult balance to strike; respecting local decision-making processes while also promoting benefit sharing and equality through the project. It remains vital not just to address the technicalities of local participation that this paper focuses upon ('pro-people'), but also avoid exacerbating existing societal inequalities ('pro-poor'; Blomley and Franks, 2009). This challenging issue is also out of the scope of this paper.

The gradated scale has been drawn up theoretically here, identifying areas where implementers need to add additional details, but it needs practical testing in the planning and implementation of a community-based monitoring scheme, as well as wider validation to evaluate its applicability to a range of different types of community conservation programmes.

6.6.2 Power plays that have reduced local participation in Guyana

One of the central reasons for a reduction of local participation in the CMRV project was the lack of specific consideration given by the iNGO from the start as to how the local people would be involved and integrated into the different project stages; an unhelpful ambiguity that the gradated scale might help to rectify. In addition to this, the author witnessed two instances where more powerful stakeholders exerted their authority in the project narrative which directly resulted in decreased local participation. It is not uncommon for national governments or NGOs to exert this kind of power during conservation initiatives (Pimbert and Pretty, 1995) so following from the type, background and relational impacts of the power plays which took place, we will discuss here how these dynamics might be more favourably managed in the future (e.g. Few, 2000). As part of these management solutions, human virtues that might be positively influential in these contexts will be referred to; power is rooted in personal choices scaled up into institutional settings (Clegg et al., 2006), so it then follows to amplify personal virtues to influence these larger dynamics (as argued by Macqueen (2013) on using love in forest management).

6.6.2.1 The national government

As this paper takes the stance that more participation is better in community-based monitoring, what strategies could be employed to more favourably manage the legitimate and coercive power dynamics employed by the national government? The multi-faceted gap between the authority and the subjects of that authority remains the central issue when resolving adverse power dynamics (Bonito, 2004) and this can be potentially addressed by closing the gap or openly discussing its existence (Mermet et al., 2013). Generally, the government-electorate power is operating within a democratic system that contains elements of representative and direct democracy, the latter being the more empowering type. The power differential can be reduced in this case through the iNGO facilitating advocacy by local communities, emphasising the importance of government representation of local interests as well as the appropriateness of direct democracy in the right circumstances. The relevant human virtue to draw upon here would be empathy, encouraging a deeper understanding of another person's experiences to the extent that the empathiser emotionally enters into their context. In terms of addressing the government-iNGO dynamic of coercion and circular reciprocity, transparency, or honesty, is a key method of bringing destructive agendas to the surface and reducing their impact; mutually sharing information on plans and motivations to built trust and lessen the cultural and operational divide between the two parties. This needs to be led, potentially self-sacrificially, by the iNGO as they will most likely be significantly

smaller, institutionally, than the government, and so be more flexible with respect to changing their approaches and official practices.

6.6.2.2 The international NGO

Addressing the expressed power dynamics, and again in pursuit of greater levels of participation, what approaches might encourage the iNGO to relinquish or redirect the expert and legitimate power that it wielded in this instance? The first and most obvious consideration is that in the context of a monitoring system where nature and society are being monitored, the experts in this scenario are the local people themselves (Tidemann and Gosler, 2010). External experts are versed in particular techniques and may have broad experiences but this is no substitute for the intimate understanding of a resident in their own environment, in terms of such details as social issues, resource priorities, appropriate techniques that tessellate with traditional livelihoods, optimal timings of data collection and indigenous capacity. This cultural and educational gap can be bridged only through a genuine appreciation of these differences and the valuing of other knowledge types, and this appreciation can only be acquired through relationships, through concertedly getting to know the local situation, employing the anthropological method of ethnography (Clifford, 1983). This requires patience but also a humility (that seems counter to the reason we build expertise) which can genuinely facilitate the devolution of responsibilities. It may be necessary for external experts to receive additional training on the value of different knowledge and accepting expertise that may not necessarily fit within their own specific paradigm. Another consideration is to be more intentionally democratic in the original establishment of project partnerships, creating an obligatory decision-making protocol that actively involves all parties, placing the transfer of decision making power right at the centre of community-based projects (Arnstein, 1969).

Throughout the entire project narrative there were no evident power plays made by the local participants where their own agenda was actively pushed to some effect. There clearly are differences between the ultimate goals and desired processes among the different stakeholders but the local participants have lacked any means or leverage to realise their own agendas. Given the external goals of the iNGO and their central place in the project power structure, this remains another example where the voices of local people are drowned out by those with more power (Scheske, 2012), and potentially an example of ‘facipulation’, a recently coined term to describe manipulative behaviour dressed up as facilitation (Shack, 2011).

6.6.3 Barriers to local participation in monitoring

As well as power plays, there were a number of other factors that contributed to reducing local participation in the CMRV project, factors that were not attributable to a specific power dynamic. We will focus on the three factors that were common to the CMRV project and the other community-based monitoring projects which were included in this investigation.

6.6.3.1 Intangible project benefits

Community-based monitoring schemes generate information; data that can then be used to influence management decisions (Danielsen et al. 2010) or indeed feed into larger analyses (such as by Read et al., 2010). Within communities that depend on traditional livelihoods, oral learning traditions are often dominant (Tidemann and Gosler, 2010) and even though the current education system in the Guyanese communities investigated is paper-based and archaically didactic, this style of education has only been present for approximately 40 years since missionaries established schools in the region (Watkins, 2011). This style not yet being culturally embedded, the provision of data in reports is not easily appreciable for a farmer, fisherman or hunter in comparison to the directly experienced benefits of a new road or designated ecotourism area. The consequence of this abstract characteristic is that local people are less likely to contribute to something they are unable to perceive as beneficial, a commonly experienced problem in the fields of conservation and development (e.g. Newmak and Hough, 2000). The local monitors and project management team are remunerated for their efforts so there is an additional tangible benefit for these groups, but the challenge lies with the wider communities upon whom the staff rely for community consultations, project designing sessions, facilitation and data presentations.

During the beginning of a project there may be some grace for practitioners as their presence and activity are novelties to communities, but unless the issue of intangible project benefits is addressed, a spiral of disenchantment is largely unavoidable. Monitoring projects require significant cooperation from the communities and unless they fully understand and subsequently experience the benefits of a project, the perception of the project can quickly shift from collaborative and altruistic to extractive and exploitative. Losing community support like this is very difficult to remedy as bad news spreads much more effectively through communities than reconciliatory good news (Naveed et al., 2011). It has even been known for the dissatisfaction with beneficial but poorly communicated projects to spread from local communities into local governance and for practitioners to be asked to leave (e.g. Hall, 2009).

There are three clear ways to 'scale this barrier', overcoming this problem to ensure wider communities are not just willing but actively desire to participate. Firstly the local project staff (the monitors and project management team) need to be thoroughly and articulately versed in explaining the project, being ready to defend it against unfounded criticism as well as relating the project benefits in language befitting the communities. Secondly, an effective and ongoing outreach programme which presents and explains the background, rationale, and current activities of the project provides an importantly constant project 'presence'. Lastly, following launching a monitoring programme and a round of data collection in the communities, it is essential that the information is analysed quickly and returned in a suitable format for community leaders to utilise. This facilitates the making of more considered management decisions that the wider communities may witness and discernibly experience benefits from. But a warning: during outreach and community education, it is centrally important that local expectations are not raised unrealistically so disappointment doesn't follow, and community members can make properly informed decisions about participation in such projects.

6.6.3.2 A lack of local capacity

There are many different stages, tasks and responsibilities within a monitoring project and each of these may prove of differing difficulty to the local people who are participating in the project (Table 6.3). As this paper is addressing the enhancement of local participation to a point where a monitoring scheme can be locally self-sustaining with minimal external involvement (i.e. a category 4 scheme), the key capacities to develop are project design and management skills and the use of advanced technologies, the former being critical for continued local coordination and project iteration, and the latter not being particularly commonplace in traditional communities. The potential lack of knowledge and understanding of the project among local participants figured in the discussions of the other community-based monitoring projects, but it is the impact of deficiencies in these skills that were cited as additionally critical. Unless the monitoring project is confined to a single or a very limited number of communities, it is likely to provide design and management challenges in the shape of multiple monitoring interests, varied data collection methodologies, a multi-faceted outreach programme, diverse stakeholder demands, a sizable staff team, significant project infrastructure and integration with existing local systems. As such, coordinating a monitoring scheme requires an advanced set of skills that must be acquired. Without an appropriate leader (or leadership team) steering the project's multiple streams, it will struggle to gather stakeholder support, to take an appropriate form to function well, and to produce data suitable for the end-users. With respect to technology, the rationale for using high-tech equipment such as handheld

devices and cloud technology is to reduce data loss during transcription, enable more sophisticated analysis, and aid speed of data transfer and management. The barrier that such technology poses to local participation is obvious – the world of virtual information is difficult to conceptualise for people whose life and experience revolves around audio-visual data flows, such as word of mouth and postal deliveries. It is very possible for traditional communities to become efficient at utilizing such equipment (Skutsch et al., 2010), but it takes a while for that previously absent capacity to be built and can be perceived as both very daunting, and potentially a very exciting prospect for the participants.

The responsibility for building capacity is the duty of the supporting organisations (the iNGO for the CMRV project, with the national project partners providing invaluable local contextualisation). In general, where local participants take time out of their lives to attend training workshops, it is imperative that these sessions are treated with the utmost respect; the teaching prepared for thoroughly and with a concerted effort to engage in appropriate pedagogy – essentially recognising that the time of the local people is just as precious as the time given by the experts who are delivering the training. Project management and design are very complicated subjects within monitoring projects so unless an appropriately skilled local person is immediately available who needs just a little additional training, one of the most effective ways of capacity building in this respect is to have an experienced external taking the responsibility with a capable local person in an apprentice role. Enhancing capacity to be able to both understand and fully utilise the technology is possible through simple exposure to the devices and systems, gaining significant experience and having sufficient contact time with trainers to allow the more subtle problems to emerge. Some of these may be solvable (eye care and so the quality of vision among older persons in traditional communities is not often high - the use of hand held devices with larger screens resolving this) whereas other problems may not be (the calloused finger tips that come from a lifetime of farming don't operate most touch screen devices).

6.6.3.3 Producing data for larger analyses

This is perhaps the most controversial and difficult of the barriers discussed. The information that external bodies want and the data that they therefore need from monitoring systems are often very different from the information that local people want and the data that they need. It is a delicate balancing act for the project management team and the supporting organisations to integrate the varying needs of the different stakeholders during the design phase, thus producing data that feed these interests (Reed et al., 2006). If one stakeholder is emphasised more than another and the data

produced doesn't obviously meet everyone's needs, then there will inevitably be some disgruntled participants. This is what happened with the local participants during the CMRV project and the negative impact on project ownership and therefore motivation was significant. If the monitoring project is not seen primarily to be addressing local needs, there is a danger that the local role will be perceived as diminutive and token, consequently reducing local engagement. Pratihast et al. (2013) provide an up to date parallel of a top-down REDD+ approach, ensuring standardised, comparable methodologies but misusing the term 'community-based' when describing externally driven category 2 monitoring.

Two actions may aid navigation of this barrier to local participation. Firstly, the specific data needs of the external organisations involved in the monitoring project must be established. What questions are they trying to answer and so what data are they expecting from the monitoring project? Clear management is needed here to realistically manage expectations, emphasising that the local monitors are not scientists and shouldn't be treated as such, and that by placing unrealistic technical demands on the data production, there is a danger that the practitioners may ignore traditional skill sets and don't capitalise on these when designing the monitoring methodologies (appropriately considering local methods is emphasised as a prerequisite for success by many authors such as Holck, 2008; Jones et al, 2008; Rist et al., 2009; and Waylen et al., 2010). Focussing on locally unfamiliar scientific methodologies also extends the capacity building timescale. Secondly, with this in mind, a helpful design process might be to initially focus on local data needs, facilitating the construction of a system appropriate for these. Following this, as capacity continues to get built external needs can then be more gradually integrated (a method advocated by Stuart-Hill et al., 2005). This narrative would be far more acceptable in a project labelled as a community-based monitoring system, showing a clear prioritisation of the local needs and context, while transparently but subsequently including externally relevant data collection.

Larger analyses are necessary to realise landscape level conservation and national environmental strategies. These may need ground-level scientific data that goes beyond the remit of community-based monitoring, as highlighted by the practitioner from FAS in Brazil. This is where a slightly different vision for community-based monitoring can be described. The core of any monitoring system is composed of the periodic monitoring of locally and externally relevant indicators, utilising methods that emphasise cultural relevance as well as scientific integrity (Garcia and Lescuyer, 2008). In addition to this, and only when a system is well established, additional commissioned scientific

studies can be undertaken at the discretion of the local team, additional capacity added and tasks carried out in addition to the normal monitoring work.

6.7 Conclusions

The main practical output of this study has been a gradated scale of local participation to reduce ambiguity in the planning of community-based monitoring projects. The additional details add to earlier attempts at participation typologies by Pretty (1995) and Danielsen et al. (2008), particularly emphasising the gentle devolution of specific project responsibilities and the difference between external and local leadership. We encourage any practitioners currently conceptualising a comparable community-based monitoring programme to trial this scale and share their experiences, and also to be more considered in their use of 'community-based' monitoring, which, strictly speaking, should only be applied to category 4 schemes.

Focussing on the case study, the author's participation in and investigation of the CMRV project clearly showed that the intended level of local participation was not achieved and a plethora of reasons were cited for this. Among them, power plays by the national government and the international NGO were identified, both exerting power over the local participants to meet their own needs. To address these all-too-common power differentials a few different ideas were proposed, bringing the personal values of humility, honesty, and empathy into the institutional sphere, an alternative approach that Macqueen (2013) is currently employing to improve the situation in the forestry sector. Other key barriers that contributed to reducing local participation in the CMRV project as well as other community-based monitoring projects across the world were: the intangible benefits of a monitoring system; the lack of management and technological capacity in communities with traditional livelihoods; and trying to produce data for external analyses as well as local use. The last of these raises a specific need for further work in the context of CMRV and REDD+: given the progression of REDD+ policy outside of the confines of the multi-national UNFCCC sphere into multiple bi-lateral agreements, what are the current data quality demands on local operational monitoring, in complement to national strategic monitoring? Has there been progress since Holgrem's (2010) original MRV vision?

The common theme that ties together all the solutions to these problems with participation is the more direct valuing and empowerment of local people, something that forms a central discourse in conservation science and yet is still startlingly absent in the practical application of conservation

initiatives. It is hoped that by sharing difficult experiences from community-based monitoring schemes in Guyana and further afield, and rooting them in the broad fields of participation and power, fellow practitioners may glean a few principles, ideas or warnings to aid their own engagement with community-based monitoring.

7 Working towards CMRV sustainability using Systems Thinking

7.1 Introduction

Depending on ephemeral projects to address conservation problems is not an effective conservation strategy (Pooley et al., in press). In ground-level projects it is all too common for the story to be one of initial hope, enthusiasm and resources being poured into a particular vision by external personnel, only for the money to run out, the project to close down (regardless of whether it is functional or incoherently complex) and all the participants to wistfully rue what could have led to genuine positive actions over time. For implementation-focussed projects which aim to facilitate local/national in-country change, this is a major issue. It is often unclear whether conservation projects have succeeded or failed (Salafsky and Margoluis, 1998; Waylen et al., 2010; Brooks et al., 2012), and it seems many do fail, insofar as they terminate without having fully achieved their goals and have no lasting beneficial effect.

The future of conservation simply can't be a series of project-based short-term fixes. Despite their direct or additional benefits, the closure of projects means the loss of precious institutional memory (Pooley et al., in press), and that is problematic in the long term. The old English proverb, "give someone a fish and you'll feed them for a day, but teach them to fish and you'll feed them for a lifetime" (an adaptation from Ritchie's 1885 novel, *Mrs Dymond*) has been repeated many times in the world of conservation and embodied in the growth of community-based conservation in the 1980s (Western and Wright, 1994). Why is it that in 2013 it is still very difficult to find examples where this is actually happening? We need to step back and look more carefully at the systems we are habitually setting up, and their apparent lack of sustainability.

The most widely used definition of sustainability stems from the Bruntland Report, *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs", the surrounding report also integrating concepts of the needs of the poor and the limitations of society, technology and the environment (WCED, 1987).* Plenty of analysts and practitioners have explored the concept of sustainability in conservation, including economic sustainability (e.g. Tisdell, 1996), social sustainability (e.g. Buchan, 1997), political sustainability (e.g. Adams and Hutton, 2007), ecological sustainability (e.g. Callicott and Mumford, 2002), cultural sustainability (e.g. Berkes and Folke, 1994), balancing multiple objectives (Garnet et al., 2007), and multi-disciplinarity (Pooley et al., in press), all of which are considered vital

by Robinson (2011), a supporter of the pluralistic approach to sustainability. This inclusive perspective is seeking to succeed the more linear approaches that some suppose to actually impede sustainability (Bell and Morse, 2005). With colleagues covering various subsections of this subject, this paper seeks a broader and more simplistic start point for the discourse. For a project to be sustainable it must in its very nature be sustained over a period of time. For a project to have any meaningful ground-level effect (on social and environmental systems with long timelines) a project will often need to persist beyond the normal grant-based funding cycle of 3-4 years (Conservation Finance Alliance, 2002). Sustainability needs to be considered as more than a utilization threshold or a set of economic limits (Brown, 2002). With this in mind, will the project actually continue in any practical way after the official intervention finishes? Will it have longevity outside the passions of the external conservation enthusiasts who got it going? Will it have a beneficial legacy? This paper looks at project longevity as one of the most valuable and fundamental visions for project sustainability, showcasing the use of a particularly holistic evaluative approach (Systems Thinking, see later), and explores the broad issues of functionality and longevity through a specific case study from the interior of Guyana.

7.2 Sustainability in a community-based monitoring case study

The author has played a longstanding advisory role in the establishment of a Community Monitoring Reporting and Verification project (CMRV) in Guyana. This has taken the form of an externally proposed, ground-level conservation project which primarily operates in local communities but also includes national and international involvement. Specifically it is a community-based (also called locally-based) project that, like the plethora of community-based conservation projects around the globe, seeks to combine conservation and development, devolve control of natural resources and actively engage local people (reviews include Danielsen et al., 2005; Gruber, 2010; and Brooks et al., 2013). This is the populist paradigm of conservation, contrasting the classic and neo-liberal approaches, which respectively see the exclusion of local people or correcting institutional, market or policy failures as the primary solutions to conservation issues (Blaikie and Jeanrenaud, 1997). The CMRV project initially generated much eagerness, being theoretically beneficial and conceptually appealing to almost everyone involved, offering: (i) a communally designed monitoring system that provides information on local, national and international management issues; (ii) an additional livelihood option for local people as monitors, playing an active role in advising their community leadership; (iii) a reporting system that links the local communities to the national government and international community, allowing communities to advocate for themselves by using organised data

to face external extractive pressures (legal or otherwise); (iv) macro-level information that helps the national government to take advantage of international conservation funding, in this case REDD+; and (v) a progressive, high-tech and holistic approach to monitoring that balances multi-stakeholder processes and can act as a model for community-based monitoring farther afield. For more details on the project and its broader governance and policy context, see chapter 2.

Surely the CMRV project is a recipe for a sustainable initiative? In a country where development and natural resource exploitation are accelerating (Watkins, 2011), being informed about what you have and how it is changing appears to be beneficial at all levels of society. Given that the stakeholders at all levels have directly expressed this sentiment to the author during the course of the project, it is also possible to envision financial and institutional longevity in this context. However, Selvey (2013) in a recent and independent social evaluation of the CMRV project, highlights that the overall goal of the project, "to empower forest-dependent communities in Guyana to benefit from future REDD+ payments through community-based forest monitoring, reporting and verification of biodiversity, ecosystem services and human wellbeing", has to date not been achieved. The author suggests that the CMRV project not only has fallen short of the overall goal, but is also quite a distance away from a sustainably functioning state. This claim comes from some basic observations:

- Additional to Selvey's conclusion on the project falling short of its primary goal, she also observed that there is a very heavy local and national dependence upon the iNGO for project coordination, management and strategy, through conducting a social network analysis. This corroborates with the experience of the author of this paper;
- There is no indication of willingness or means, at national or local level, to fund the local project management and monitors after the iNGO's withdrawal, with the iNGO's involvement concluding when the project finishes in July 2014;
- Therefore it follows that CMRV lacks both the financial and institutional longevity to continue past the project end date.

"If the project partners withdrew their support now, then the project would be nothing. It would fall down. We can't run it by ourselves." One of the local project management team, May 2012.

As mentioned above, complexity is inevitable and can serve to hamper even the most honourable of efforts. The CMRV project is one of great complexity and various unsuccessful attempts have already been made by the project stakeholders to 'fix' the problems encountered. These efforts have come

from within the system of CMRV, from actors who are immersed in its complexity. They have addressed the problems in isolation and have been 'instinctive', an approach which leads actors to intuitive solutions that don't necessarily consider alternatives (Jones, 1995; Pullin and Knight, 2001).

Systems Thinking is an approach to problem solving and evaluation that explicitly addresses complexity (Meadows, 2008). It works on the basis that complex systems work counter-intuitively, so no matter how much hard-thinking you pour into the problem, high leverage, appropriate solutions will rarely surface (Forrester, 1971; Harich, 2011). The structured systems thinking approach helps take a broad perspective, highlighting the range of alternative solutions through the deeper investigation of interrelationships and underlying problems. Although the Systems Thinking approach has been applied to numerous sustainability problems over the past decade, only a few have used it specifically in the field of ground-level conservation (e.g. Cleland and Wyborn, 2010) as opposed to strategic conservation planning and conservation frameworks (e.g. Salafsky et al., 2002; Luckett, 2004). The current situation with CMRV warrants an attempt at the application of this approach. Furthermore with CMRV being a new composite field (composing of local carbon monitoring, local natural resource monitoring and local social monitoring) and there being very few examples across the globe (Fordham et al., 2012) there have been no systematic or empirical evaluations of the issues involved in such initiatives. The broader community-based conservation literature also shows a distinct lack of empirical evaluations (Brooks et al., 2013; e.g. Gruber, 2010). Thus we have defined a particular gap in community-based monitoring for structured evaluation and a case study with which to trial a particular approach that could fill this gap, all the while addressing complexity.

Research Aim

Explore how the Systems Thinking approach can help adapt CMRV towards sustainability

Questions

1. What problems are being experienced in the CMRV project that compromise its sustainability (in the sense of ability to continue after the project end date) and what are the underlying causes of these problems?
2. What leverage points are available that could enable these problems to be addressed?
3. Does systems thinking reveal any systemic problems with CMRV as an approach or with community-based conservation initiatives in general?

7.3 Background

7.3.1 Systems Thinking

When a conservationist, or any interested party, regards a system, only a little discernment will reveal that it is not just random chaos. An ecosystem is not just mayhem, nor is the human digestive system, nor indeed is the British education system, although they might often seem that way. Systems are made up and defined by the presence of three distinct components: *elements*, *interconnections* and their mutual interaction towards a *purpose* (Meadows, 2008) and these will be organised in some way at any given moment in time, giving rise to dynamic and adaptive behaviour. A system is more than the sum of its parts and it is this basic property which makes Systems Thinking so valuable in trouble-shooting. Elements, because of their interconnectedness, will not behave independently and so system problems cannot be solved in isolation (Senge, 2006). The complexities of systems are such that they often work counter-intuitively (Forrester, 1971), misleading those actors who are involved within the system, causing them to choose intuitive and often less effective solutions to presented problems.

Systems thinking has the quality of regarding a whole system while also analysing constituent parts, thus proving useful to scrutinise the multi-faceted subject of sustainability (Harich, 2011; Smith, 2011). It provides structure to manage change, mapping complexity to reveal virtuous or vicious dynamics, guiding investigators towards effective places for constructive interventions. With this ability to reduce the ambiguity of the complicated multi-stakeholder and multi-scale challenges found in economics, society, ecology and politics, it has increased in popularity and has recently been applied in a diversity of fields from health (Lee, 2009) to innovation (Galanakis, 2006) to human resource management (Quatro et al., 2007) to environmental conflict (Elias, 2008). Originally conceived by Ludvig Von Bertalanffy, a german biophysiologist from the 1950s, General Systems Theory sought essential laws and principles to explain all interrelated systems and was the forerunner of systems thinking (Hatch, 1997). This is a field that now has a number of different thought schools (see Global Association for Systems Thinking, 2013) but this paper focuses specifically on Systems Dynamics. Pioneered by Jay Forrester, Peter Senge and Donella Meadows, Systems Dynamics has been followed more closely in this paper due to its pragmatic acceptance of causality in systems and emphasis on creating practical systems models that provide snapshots in time against which observations and management ideas can be compared.

A helpful way of framing the systems thinking approach is the four levels of thinking model (Maani and Cavana, 2007), which can also be shown to represent an iceberg (Figure 7.1). It is often used to shape the methodology of investigation, leading investigators down through the different levels and into greater depths of understanding (e.g. Bosch et al., 2013).

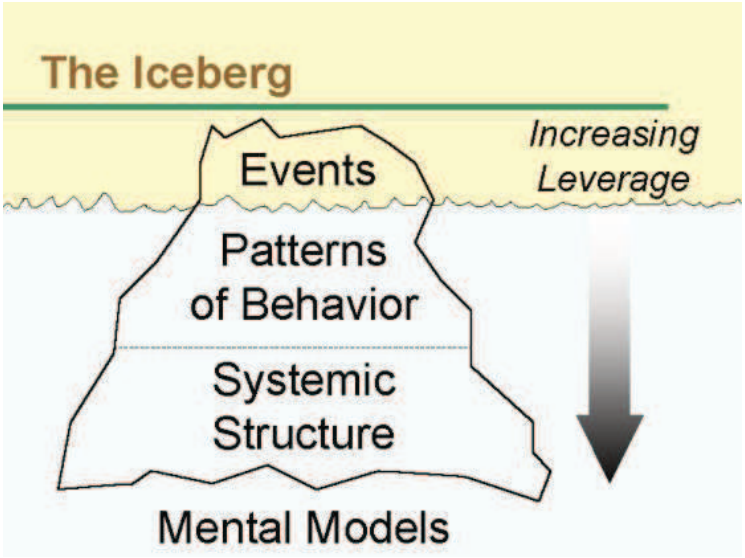


Figure 7.1: The Iceberg, adapted to show the four levels of thinking model as defined by Maani and Cavana (2007)

The iceberg is given as an analogy because the first level of the thinking model is events, the day to day realities of a system. These are the tip of the iceberg, the observable symptoms that are the most common and immediate targets of management interventions. However there are always underlying causal factors to these and methodical enquiry helps reveal them. The second level of thinking is patterns of behaviour. This shows how particular characteristics, events or groups of events may change over time and demonstrates that these changes often follow simple patterns. Twelve problematic but recurring system patterns have been identified in Systems Dynamics (Bellinger, 2004; Senge, 2006; Meadows, 2008), and the characterisation of these 'archetypes' can "reveal an elegant simplicity underlying the complexity of management issues…" (Senge, 2006, p.93) Causal Loop Diagrams can be used to portray these patterns, where variables are linked by arrows representing either positive or negative relationships and often combine to form reinforcing or balancing loops (e.g. Figure 7.3). The third level of thinking is systemic structures; serving to reveal the complex interconnections between the many variables within the system, including how patterns may be causally related to each other. It is during this stage of enquiry that full systems models may be constructed, elaborate Causal Loop Diagrams that visually show where there may be particular system nodes or bottlenecks, how changes can cascade through systems, and serve as a basis for identifying intervention points. It is here that the important boundaries of the system can

be defined (Midgley, 2003); who or what are within the system and who or what are not (a practice that is not central in the school of Systems Dynamics). The fourth level of thinking is mental models. This level includes the mostly unexpressed beliefs and world views that shape the behaviour of the actors involved in the system; behaviours that profoundly influence the variables present. These are not easily defined but underpin the causal framework drawn up in the systems model and are essential to delve into when engaging in systems analysis and project improvements.

7.3.2 Leverage points and root causes

The purpose of analysing systems is to bring about changes that result in more effective system functioning. With complex systems there may be numerous places to intervene but discerning which points will bring about the most effective and efficient changes is a matter of understanding leverage. Low leverage points are places where large deliberate changes bring about small results and high leverage points are where small deliberate changes bring about big results. Donella Meadows (1999) looks closely at this concept and from her lifetime experience in the field, defines a ranked list of leverage points:

#1 – The power to transcend paradigms: the ability to remain unattached to the world view and paradigm that an actor holds, to more fully appreciate or indeed enter into alternatives.
#2 – The paradigm of the system: the shared ideas in the minds of the actors (not necessarily all of them) that inform and shape systems. These can shift quickly in individuals, but the more actors that share a paradigm, the harder it is to change; such is the power of inertia.
#3 – The goals of the system: produced directly from the paradigm, there are whole-system goals which are not always explicit but are obvious from what the system *does*, as well as lower operational goals which are obvious from what the system *says*. All system components are manipulated to conform to these goals.
#4 – The power to change system structure: the ability to alter anything lower in this list. This power can be self-organising, insofar as systems can respond appropriately to changing surroundings in order to survive. This so-called 'resilience' is a particular characteristic of biological systems, one that depends on a level of system dynamism. Which actors hold this power is the key to this leverage point.
#5 – The rules of the system: these are the constraints and the hard principles that govern how a system functions. In the same way that goals shape the direction of actor behaviour, rules shape the boundaries of actor behaviour, influencing how they act rather than why. As such, power over the rules is also a high leverage point.

#6 – The structure of information flows: the actual flow of information in a system, dictating who knows what. The philosopher Francis Bacon famously coined the phrase 'knowledge is power' (Bacon, 1597), while other actors advocating change in complex social systems have also used this idiom (e.g. Malcolm X, Dick Gregory, Robin Morgan). Actors behave differently in light of different contextual information.

#7 – The stability of growth: a positive feedback loop, one that reinforces its own growth will ultimately become chaotic and destroy itself if unregulated. To promote the stable growth of a particular outcome in a system, these growth cycles can be directly slowed down before difficult regulating actions come into play. Oscillations in population and economic growth dynamics follow this principle, with fast growth leading to 'boom and bust' cycles.

#8 – The regulation of growth: not as effective a leverage point as directly slowing growth, negative feedback or regulating loops bring about a reduction in growth of a particular outcome through additional chains of events. These are the main features that keep systems within safe bounds, and a temperature thermostat is a common example.

#9 – Delays in feedback: when an outcome is growing in a certain way towards a certain level, the provision of feedback about the course of progress is essential to keep it 'on track'. Delays are inevitable, but the length of them is crucial: too short and the system might overreact correcting a problem that's not really there; too long and production might overshoot causing unhelpful oscillations. This would be listed as a higher leverage point but for the fact that these are mostly unchangeable.

#10 – The physical structure of a system: this is more about infrastructure and how material (or 'stock') actually flows around a system, so includes such things as transport arrangements, communications strategies and waste disposal. Once a physical system is in place it is very hard and/or expensive to change so the leverage is in correct design in the first instance, avoiding bottlenecks and strains.

#11 – The size of buffers: a buffer is something that guards against fast changes in a system. They reduce sensitivity of a system and so increase stability. The stability of a stock in a system will be greater if there is more of that stock, the amount of stock acting as a buffer, much like the amount of water in a lake and its changes in water level from river inflow/outflow. Large buffers can be unhelpful as they foster inflexibility, and the capacity of buffers is often inflexible and so considered a low leverage point.

#12 – The numbers, standards and rates in a system: probably the most popular intervention point, questions of how much and how fast are deemed low leverage points as they adjust small details and so make small differences. They rarely change the behaviour of actors, for example spending

more money on policing doesn't make crime disappear; criminal tendencies are still present. Changing these doesn't alter the surrounding system, unless they have critical values that stimulate one of the items higher in the list. For example, changing an HR director doesn't necessarily change the communications speed in the company, unless of course they have a different vision for communication in the organisation (#2/3).

Points 12 – 9 are largely physical attributes of systems and points 8 – 1 focus more on information and control. These provide an insightful analytical tool for defining leverage points in a systems model, and also relate to the four levels of thinking model shown in Figure 7.1. Jay Forrester goes further in recounting the subtleties of his experience in this topic, saying that highly capable and sensitive people involved *within* systems may identify high leverage points but it is only too common to push these in the wrong direction (Forrester, 1971). Hence there is a need for an accompanying understanding of systems dynamics to contextualise leverage points. Alternatively, a more basic exercise defined by Harich (2011) outlines the Root Cause Analysis which also helps identify high leverage points. Harich argues that the majority of management interventions only address symptoms or intermediate causes, rather than root causes, and so gives a few criteria for identifying these more fundamental and high leverage areas:

i. It is clearly a major cause of the symptoms;
ii. It has no worthwhile deeper cause;
iii. It can be resolved, in so doing helping define unchangeable factors that only satisfy 1 and 2;
iv. Its resolution will not create other equal or bigger problems, after considering side effects;
v. There is no better root cause, after considering the alternatives.

Harich's thesis revolves around the entire sustainability issue, and in observing the lack of progress in the field of environmentalism and the low leverage of the most common environmental action (campaigning, whose ineffectiveness is also discussed by Song and M'Gonigle, 2001) he outlines a System Improvement Process that is based on systems thinking and includes a more detailed Root Cause Analysis as part of a larger method.

7.3.3 The potential value of systems thinking in community-based conservation

Community-based conservation, of which CMRV is a variety, is multi-dimensional and multi-scalar, including the fields of development, politics, sociology, economics and ecology. Conservation practitioners, who are often natural scientists, need to ensure their work can integrate into existing political and economic structures (Song and M'Gonigle, 2001) and the systems thinking approach offers 'big picture' analyses that can facilitate this productive interdisciplinary exchange (Nassauer,

2006). By focussing on the breadth of a system as well as the interconnectedness of the components, systems modelling can reveal the vast array of alternative strategies and tools available from different disciplines and project stages, facilitating the solving of conservation issues (Salafsky et al., 2002) and the better management of stakeholders with different mental models (Smith et al., 2007). Furthermore, the systematic approach to identifying possible places to intervene in a complex, dynamic system can aid conservation managers in optimising decision-making and coping with uncertainty (Williams and Johnson, 2013). Lastly, the additional benefits of a community-based project may be deemed more important than the main outcomes, such as the facilitation of local rule-making proving more important than monitoring data for local forest governance (Andersson et al., 2013), and system modelling is a valuable tool that can help map and thus capitalise on potentially favourable co-benefits that might have been missed by more narrow methodologies.

7.4 Methods

A recent and notable example of systems thinking applied in conservation is Nguyen and Bosch (2013) with the Cat Ba Biosphere reserve. Their methodology, rooted in the three deeper planes of the four levels of thinking shown in Figure 7.1 (Maani and Cavana, 2007), has formed the basis for this study's methodology as both the CMRV and the Cat Ba Biosphere reserve are multi-stakeholder systems with central conservation goals and are both struggling with sustainability. These four levels help structure the path of investigation but as with most guided studies, the reality is a bit messier with the differentiation between levels not always being clearly distinct and the order of exploration not always being linear.

A general methodology will be explained here, with additional details about how the data were gathered, while some additional content can be found in the process-based results section.

1. **Identifying key issues, challenges and mental models**. From an evaluation workshop where all the project participants from local, national and international level were present, an extensive list of problems, issues and challenges was compiled, keeping track of which stakeholder recognised each point. In order to further elaborate the understanding of the perspectives present, and augment the list, a Social Network Analysis being run concurrently by Selvey (2013) was drawn from as well. In addition, an adapted Most Significant Change study was conducted (see Appendix G) where the workshop participants were asked by semi-structured interview "what has been the most significant change as a result of the

CMRV project?" (Davies and Dart, 2005). This was embedded within interactive interviews where the author and interviewees were collaboratively trying to solve the problems with the CMRV project. Other national and international participants gave their contributions over email and quotations from these additional studies were all recorded. Rather than simply looking at the first level of systems thinking (events), the additional methods used in this stage helped investigate the fourth level of thinking, 'mental models', not only exploring perceptions of how the CMRV system works, the barriers, drivers and solutions, but also helping to reveal the beliefs and assumptions underlying the behaviour and decisions of the participants. The identification of these mental models was significantly influenced by the author's continuing ethnographic research in the area (see sections 1.5 and 1.6) and provides essential context for the subsequent construction of a systems model.

2. **Root Cause Analysis**. To aid the construction of the full systems model, a Root Cause Analysis was conducted using adapted criteria from Harich's (2011) System Improvement Process. All the listed issues and challenges were analysed, determining whether they:
    a. are caused or influenced by another of the issues listed but don't then cause any other identifiable issues (a symptom);
    b. are caused or influenced by another of the issues listed and also cause other identifiable issues (an intermediate cause);
    c. are not caused by any of the other issues listed but cause other identifiable issues (a root cause);
    d. fit the criteria for a root cause but are either genuinely an unchangeable factor, or are unchangeable within the bounds of the system, see below (an unchangeable).

3. **Constructing a Systems Model**. The list of issues and challenges were first converted into variable elements for incorporation into a systems model. The results of the Root Cause Analysis were then used to guide the creation of the systems model (constructed in VenSim PLE due to this software being free and also highly recommended by many systems thinking forums) in conjunction with the causal loop modelling process (Maani and Cavana, 2007): the root causes and unchangeables were the source of causal arrows; the symptoms were the final destination of causal arrows; and intermediate causes were conduits for causal arrows. The type of nomenclature used for these arrows were 's' and 'o', meaning 'same way' and 'opposite way'. 'Same way' means if the variable at the arrow tail increases / enhances / improves / grows, so does the related dependent variable at the arrow head

(and vice versa for decreases). 'Opposite way' means if the variable at the arrow tail increases / enhances / improves / grows, the other at the arrow head responds to it in the opposite way by decreasing / degrading / reducing (and vice verse for decreases). The result is a complex system constituted of various reinforcing loops (variables interacting in a circular manner with positive feedback that lead to a growing action) and balancing loops (variables interacting in a circular manner with negative feedback that lead to stabilising actions). The boundaries used in the model were: infrastructure, resources and information whose primary users are participants in the CMRV project; actors who are considered stakeholders in the project documentation; actions which are classified as driven by or related to CMRV actions within the organisations or social groups participating; and any interactions between variables that influence behaviour in the system. Some of the variables and relationships included were on the borders of the systems model scope and not necessarily identified as key issues or challenges, but were included if deemed useful to consider in the analysis, such as the employment strategy in the international NGO. After the systems model was constructed, it was iterated and then verified by local, national and external participants in the project, as well as proofed by external practitioners in systems modelling. The model was current as of November 2013, and in its very creation is addressing the third level of systems thinking, identifying the systemic structures in place that allow the interaction between different social, political, economic and environmental factors and outcomes.

4. **Identifying system archetypes**. After careful analysis of the systems model, particular patterns were identified, lifted out of the system and analysed. The investigation of these commonplace patterns (archetypes) represents the second level of systems thinking, that of patterns of behaviour, and allows us "… to see more places where there is leverage in facing difficult challenges, and to explain these opportunities to others" (Senge, 2006, p.93). The group of 12 systems archetypes (Bellinger, 2004; Senge, 2006; Meadows, 2008), the generic structures that seem to be encountered again and again, was used as a reference list against which to identify the archetypes in the systems model. After each identified pattern was lifted out, a theoretical overview was given before making a detailed explanation of the specific mechanism of that particular archetype in the situation of CMRV, showing how each acts as a 'trap' for well meaning practitioners. Finally, the redeeming management principles were raised for each archetype, explaining in context how to 'spring the systems trap', as Meadows (2008) phrases it.

5. **Identifying leverage points in the CMRV system**. To gauge the relative leverage strength of potential intervention points, Meadows' 12 point scale (Meadows, 1999) was used. Firstly the current actions being implemented within the CMRV project were analysed, getting an idea of what system improvements are currently being made by those within the system itself. Plans for these actions were found in project documentation. Then, including the results from the archetype analysis, the systems map was surveyed in its entirety for high-level leverage points, drawing out and explaining approximately five that, when acted upon, might enhance the sustainable functioning of CMRV.

6. **Identifying systemic problems with CMRV and community-based conservation**. Using the systems model, the identified archetypes and the leverage points, commentary can be made on the site-specific problems and those that are more generic, in so doing identifying systemic problems with CMRV and community-based conservation programmes.

7.5 Results and Analysis

7.5.1 Identifying key issues and the Root Cause Analysis

Using the criteria outlined by Harich (2011) in his Systems Improvement Process, the plethora of problems identified by stakeholders in the CMRV project were listed and then categorised as a symptom, an intermediate cause, an unchangeable factor or a root cause (Table 7.1).

Table 7.1: showing the key issues and challenges, the ID of the source who recognised the problem, and the results of the Root Cause Analysis.
Legend: loc (raised locally by communities or local team); ntl (raised nationally by project partners or government); itl (raised internationally by the iNGO); idt (raised independently by the author or in Selvey (2013)); and from the Root Cause Analysis, 'S' (symptom); 'IC' (an intermediate cause); 'RC' (a root cause); 'U' (an unchangeable factor).

Key issues and challenges identified	causal level	Information source			
		loc	ntl	itl	idt
Low participation from project partners	S			x	
Low Government support and poor local-national relationship	S			x	
Low project morale among local participants	S	x			
Theft and loss of project equipment	S	x			
Project fatigue among communities	S	x			x
Misuse of project infrastructure (vehicles and motorbike)	S	x			x
Overall conservation objective of CMRV not reached	S				x
Unclear project direction	IC	x	x		x
No participatory objectives among the project goals	IC				x
Monitoring framework too complicated for effective feedback or local use	IC	x			x
Disorganised capacity building of local monitors	IC				x
No clear role of partners	IC		x		
Low local empowerment and ownership	IC	x			x
Low management capacity of local project team	IC	x	x	x	x
Low quality of community monitor selection	IC	x		x	x
Minimal training for local management team after staff selection process	IC				x
Delayed feedback of results to communities (but not to government)	IC	x		x	
Poor communication within and between in-country participants	IC	x	x	x	
Segregation of community monitors, local project management and national partners	IC	x		x	x
Poor project outreach to communities (awareness high but understanding low)	IC	x			x
Poor 'in situ' support of local monitors	IC	x			x
Reliance on external staff during workshops	IC			x	
Government desire control of project	IC			x	
Low community support / poor local reputation	IC	x			
No sense of team identity	IC	x			
Community concern for national/international misuse of their data	IC	x			
Results not usable for local management actions	IC	x		x	x
No integration with other projects in the area	IC			x	
Poor outreach to national level	IC		x	x	
Competing local-external interests in content of monitoring	U	x			x
High turnover of international NGO staff in post	U				x
No community management training for iNGO staff	U				x
CMRV has intangible benefits	U	x		x	x
Limited funding period	U			x	x
Use of high tech equipment in a low tech environment	U	x			
Full time commitment from local staff not possible	U	x			
No functional GFC staff present locally	U	x			
Transportation is difficult	U	x	x		
Poor internet and communications infrastructure	U		x	x	
Low management capacity in the iNGO	**RC**				**x**
Largely externally directed project / vision not for local empowerment	**RC**	**x**			**x**

The 'low management capacity in the iNGO' and the 'external vision for the project' were identified as the root causes. The local participants identified the most key issues and challenges, which is logical given CMRV's greater significance at the local level both in terms of man-hours allocated to it as well as the majority of project operations occurring at a local scale. The national level stakeholders (a partner NGO and the government) raised the fewest problems, possibly due to the more politicised relationships which would induce these parties to keep a positive view in front of the iNGO who has been providing the funding for the project. The independent reviews shared many opinions with the local communities as these assessments and studies were conducted over an elongated period of time while living in the communities themselves.

7.5.2 Mental models

From the initial focus group, the evaluation workshop and the Most Significant Change study (Appendix G) the following stakeholder quotes have been lifted out to represent the most frequently expressed opinions, and so give some indication of the different mental models present at each level. The identification of these mental models was assisted by the author's participant observation of collective activities at each level (see Kawulich, 2005). Together they help build a concept of the synergies and conflicts among the different actors that are operating in the CMRV system, in so doing providing essential foundational information for the construction of a systems model. They are included as exploring them was a key part of the systems thinking process, however the author urges readers to hold them lightly and reminds that his own mental model and professional identity will have had some influence on these analyses (Midgley et al., 2007).

7.5.2.1 Local communities

"*The most amazing thing for me is to see our people grow in confidence*" – community leader.

"*It has helped my personal development, through building confidence and being involved in the village council meetings*" – community monitor

"*I have become deputy village leader and am educating my community*" – community monitor.

"*I've been learning about climate change, how it has been caused by outsiders and how people are now paying money to stop it. We now know why we should keep the forest standing*" – community monitor.

"*I now have respect for myself and in the community. I have stopped drinking because of my project responsibilities*" – community monitor.

"*I have learned how to monitor, what to monitor and why. I've learned how to use the handheld device and how the technology helps the monitoring. I can also go back and tell my people, who then have greater trust,*

belief and respect for me, especially when I show them the maps and pictures I make as part of my work" – community monitor.

"*I was a logger, and a drunk. I used to go out and trash the forest for fun, poison fish and burn the savannah for no reason. Now I'm working with the community, advising people about the sensible use of the forest and helping teach the children at the wildlife club. Personally I have learned a lot and am a different person*" – community monitor.

"*CMRV has brought jobs and income for the participants, but I'm not sure there has been any change in the community or the community rules. It's a capacity building project*" – project field coordinator.

"*Previously we've been acting blind, but now we know how much we are harvesting and what's going on with our resources. We used to get hog meat in the village. Now we don't, but it's only because of the project that we've noticed*" – community leader.

"*As a community we now know more about our resources and lands and history as the project has helped us talk to the village elders and we've been recording the information*" – community monitor.

The quotes suggest a lot of personal development and fulfilment from the capacity building process but very little emphasis on the main component of CMRV; the establishment of a functioning information system. This disconnect reveals the dominant mental model of the local communities, within the bounds of the CMRV project, to be one of external provision and local receiving, where the local people are accustomed to viewing projects as temporary entities, being run for externally important and far-reaching goals, and from which they hope to draw resources and skills for themselves and their own communities. They are opportunities to earn additional sources of income in a job-scarce environment and furthermore bring the different local communities together to share experience and coordinate management. More peripheral to this mental model are more abstract and less immediate factors, such as the value of accumulating information about their local resources, as well as increasing faith in the national government through learning about the national level development strategies and activities. To corroborate this, the majority of the local participants interviewed in the Most Significant Change study (18/36, Appendix G) saw the CMRV project as a capacity building project, providing employment and primarily helping them develop skills and knowledge.

7.5.2.2 Regional NGO

"*The relationship between us and the national government has changed and improved as a result of the project dialog. They now know what's going on here and trust in our ability to manage projects like this*" – chief executive of NGO.

"*It has been great being able to conduct ground-truthing exercises for the government, which the government didn't expect us to be able to do*" – NGO project manager.

"*It has been important to develop of a simple framework for communities to be able to monitor threats*" – NGO administrator.

"*For communities to be able to manage our own resources without the help of outsiders [has been a step forward]*" – NGO board member.

"*The methodology seems to have also helped the regional NGO continue serve as a hub for collaboration between communities*" – the director of a related regional/national NGO.

The regional NGO provides the de-facto governance forum for all the local community leaders but although locally-facing, has some marked differences in their conceptualisation and assumptions surrounding the CMRV project. There is a clear outward focus in their mental model, seeing projects with national connections as a chance for networking activity and strengthening of political partnerships. There is an underlying endeavour, as with all the NGOs involved in this project, to gain expert power, attracting attention through seeming as technically and institutionally proficient as possible, sufficiently so to play managerial roles in community level actions. Through attracting projects and researchers to the region, this NGO is also acquiring resources for local development, much like the local communities' approach but at an organisational scale.

7.5.2.3 National NGO

"*The knowledge acquired by the communities on climate change and the national development strategy has been the most important outcome of the project*" – NGO project advisor.

"*We are using technology coupled with local knowledge to understand what drives deforestation*" – NGO technical manager.

"*Having close to 40 local people benefitting from training is significant*" – NGO science coordinator.

"*By developing and testing practical ways to do CMRV by and for indigenous & local communities, we are exploring ways that we can benefit and participate in REDD+*" – NGO project advisor.

The national NGO is an independent organisation that manages the largest protected area in Guyana and has a history of supporting research. The mental model that they've shown over the project duration has been one of governmental collaboration, ensuring CMRV can be included in the national MRV system. They have also been positioning themselves as local experts, based on the body of research they have been involved in locally. There has been another more subtle philosophy of local encouragement, inspiring local people within the project to make the most of training opportunities and aim for higher positions of employment and influence.

7.5.2.4 National Government

"*The CMRV project has created a greater awareness of what monitoring, reporting and verification for REDD+ entails at the community level. We have also seen that the CMRV project has created a space for discussions on drivers of forest change both in terms of deforestation as well as forest degradation*" – forestry commission secretary.

Following initial wrangling for control of the project funds, the government's approach has been one of passive expectation, requesting that CMRV leads the way in showcasing a methodology for community involvement in REDD+, while also asking the project to provide information on local drivers of deforestation and to ground-truth satellite maps of regional forest degradation. The mental model has been extractive; the CMRV project and local communities are expected to serve the national MRV programmes first and foremost, with the data collected for enhanced national management taking precedent over any additional benefits that CMRV may have.

7.5.2.5 International stakeholders

"*In an area where paid employment is scarce and affluence is growing, providing wages for workers and their families allows the communities to avoid the loss of young able people from emigration*" – iNGO project advisor.

"*The realisation of titled land demarcation by communities is the most significant change. Through field checks, communities realise what area of the land they use to sustain their livelihoods and understand the importance to maintain the natural resources. The monitoring and mapping of titled lands also enables communities to start the process of advocacy for extending their community lands*" – iNGO technical advisor.

"*The project shows the government and the international community that local communities can be involved in all aspects of MRV*" – iNGO project coordinator.

"*The most significant change in the project so far seems to be the fact that the agreement with the Government ensures a formal link between the community-based MRV and the national MRV strategy so communities in the future can make informed decisions on whether to engage with Guyana's Low Carbon Development Strategy*" – project funding body.

The iNGO identified CMRV as a nascent field and have been instrumental in establishing a community MRV network around the world. Their mental model centres on developing CMRV into a viable methodology for use elsewhere, combating climate change by helping communities produce quality scientific data to plug into national MRV and so take part in REDD+. Although there is an appreciation of a bottom-up approach and the significance of local operations, the project design

remains top down as the iNGO holds on to expert power, producing its deliverables and maintaining its reputation as a leading organisation.

7.5.3 The systems model

Using the identified key issues and challenges and the root cause analysis as the structural basis (Table 7.1), the mental models provided helpful background during the creation of the systems model (Figure 7.2). The systems model is made up of variable elements within the CMRV system and how they are connected through causal relationships. It shows which elements are symptoms, intermediate causes, unchangeable factors and root causes, though the complexity of the system doesn't allow this to be kept as a strict classification. It also shows the key leverage points and the highly influential causal loops (there are 236 loops in total but nine have been identified as particularly significant in determining the dynamics within the CMRV system). It is worth noting here that the two root causes identified also double as the top two leverage points, represented by orange text and the labels 'L#2' and 'L#3'.

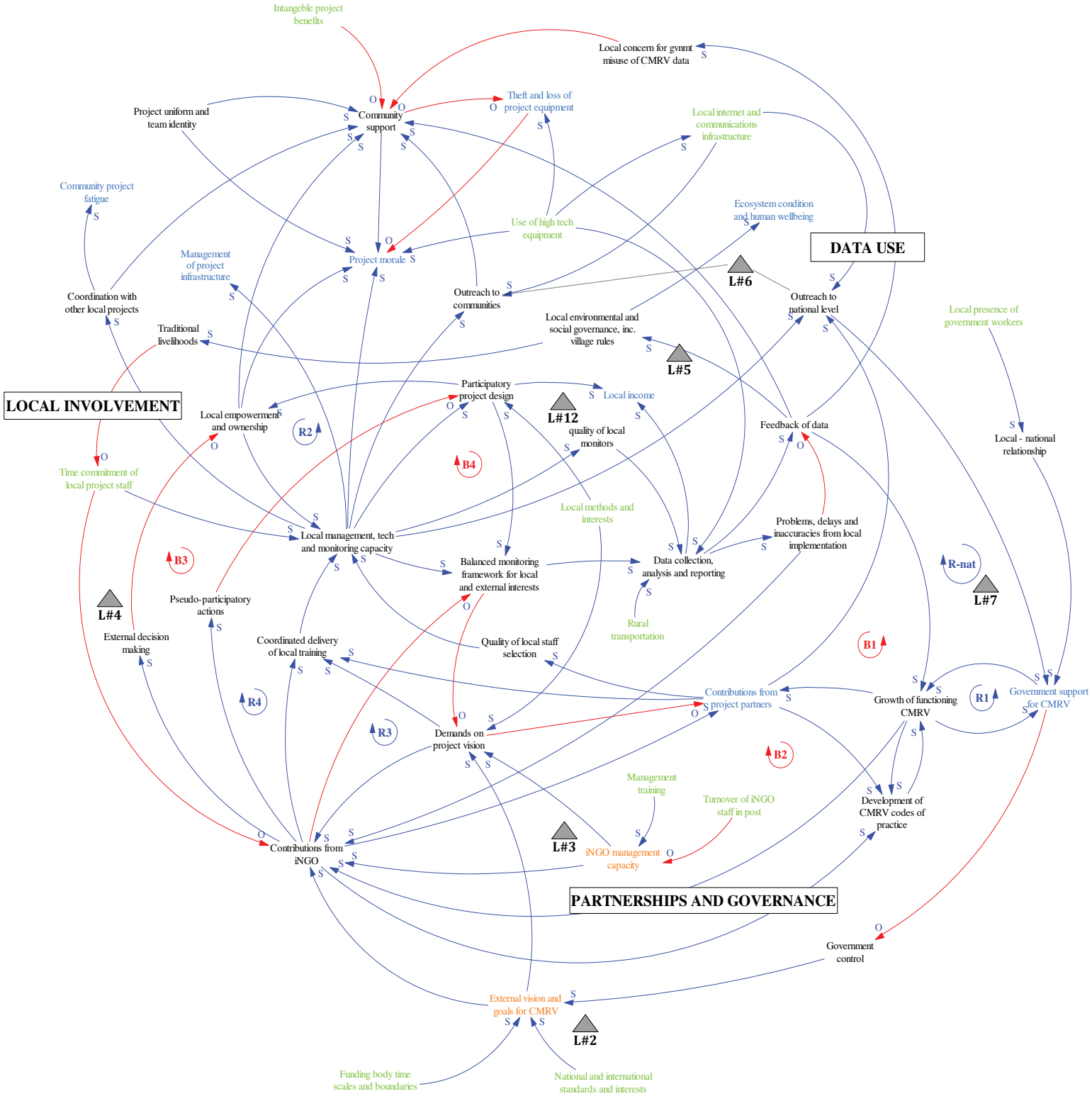


Figure 7.2: the systems model of the CMRV project, current as of November 2013.
Legend: orange text (root causes); green text (unchangeable factors within the CMRV system); black text (intermediate causes); blue text (symptoms); 'S' and blue arrows (positive or 'same way' relationship); 'O' and red arrows (negative or 'opposite' relationship); 'R1' (a reinforcing loop); 'B1' (a balancing loop); shaded triangles (identified leverage points to intervene in the CMRV system, numbered in relation to Meadows' (2008) list); 'CAPITALS' (general areas of the CMRV system).

'Nodes' are elements that are particular focal points for relationships (or causal arrows) within the model. These show which elements, including their associated actors, are particularly central to the CMRV system dynamic. The most distinct single node in the model is 'contributions from the iNGO', an observation which supports the supposition of Selvey (2013) that the CMRV project is overly dependent on international support. The national partners have less numerous interconnections than the iNGO and the government even less so. Local capacity seems to be another important node while community support and project morale have the most causal linkages as symptom nodes. Causal relationships can vary in strength, and although this is not depicted in the systems model (Figure 7.2) due to potential over-complication of the graphic, it is raised in the analysis of the systems archetypes.

7.5.4 Identification and analysis of systems archetypes

7.5.4.1 Limits to Growth: R2 vs. B3: CMRV vision and goals have been shaped to meet external needs

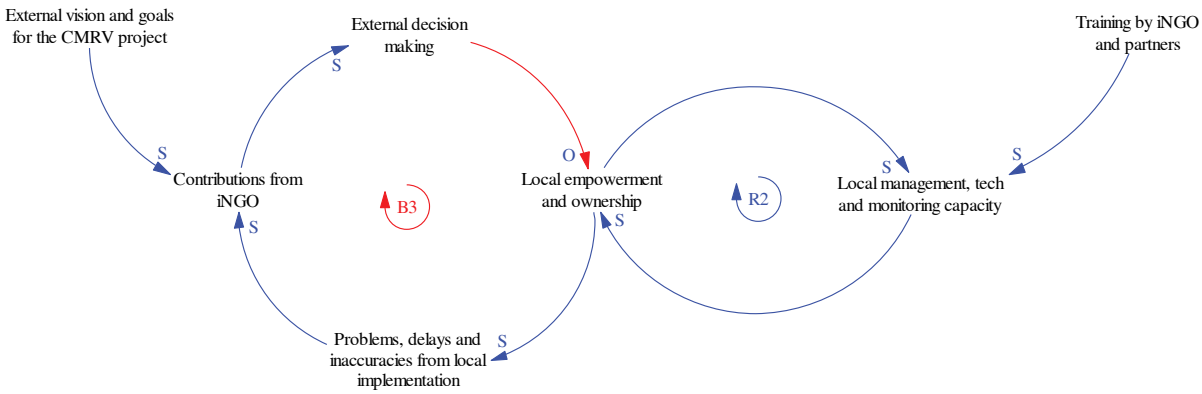


Figure 7.3: Local empowerment as a 'limits to growth' systems archetype.
Legend: 'S' and blue arrows (positive or 'same way' relationship); 'O' and red arrows (negative or 'opposite' relationship); 'R2' (a reinforcing loop); 'B3' (a balancing loop).

Overview

This archetype is defined by a reinforcing loop promoting the growth of a particular stock, the growth of which then stimulates an associated balancing loop which acts to limit that particular stock (Figure 7.3). It is associated with situations where people unexpectedly encounter a slowing or a limit to their desired outcome after some success. In this case the desired outcome is local empowerment and ownership, which has not grown as hoped, the reinforcing loop including capacity building and local empowerment (R2) being negatively influenced by the balancing loop of data standards, time restrictions and external visions for CMRV (B3).

Details of the archetype

The iNGO and partners run capacity building workshops to train the local monitors and management to coordinate, collect, and process information for CMRV. This is intended to enhance local empowerment and ownership, as their increased capacity would lead to more delegation of responsibilities from the iNGO and greater self-organisation. The more empowered the local team feels, the more likely they are to engage with CMRV, taking initiative and deepening or expanding their own roles, thus further increasing their capacity (closing the reinforcing loop R2). However, as local empowerment and ownership increases through the growth of capacity and the CMRV project in general, the incidence of problems, delays and inaccuracies from local implementation will also increase. The data produced and systems used in the local implementation of CMRV are currently judged next to national and international data and process standards, as well as the timescales detailed by the donors, all of which are embodied in the external vision and goals of the CMRV project (the limiting factor in this archetype). The *perceived* problems with the local data and the external vision then interact to create a large capacity gap which has to date been filled by active contributions from the iNGO. They have been coordinating and making external decisions in order to ensure quality and appropriate deliverables are produced within the funding period. This has prevented the desired growth, instead disempowering the local team and decreasing the sense of ownership (completing the balancing loop B3).

Redeeming management principles

Often the reaction to a non-functioning reinforcing loop (R2) is to expend effort pushing it further, in this case by increasing the training of the local team. This is what has been proposed by the iNGO and partners as one of the key solutions for the next year of project operation. However, unless the limiting factor is addressed, the balancing loop (B3) will continue to inhibit the intended growth of the desired outcome (Senge, 2006). In order to facilitate the growth of local empowerment and ownership, the external vision and goals need to be more accommodating of locally appropriate methodologies and livelihoods, and the consequent limits to the information that can be accurately produced from these. The current monitoring framework is too complicated and abstracted for continued local management and implementation in the absence of significant external support. As such, a simplified monitoring system which doesn't require local people to become accomplished technical experts to conduct, needs to become one of the central goals, reducing the incidence of problems, delays and inaccuracies, reducing the perceived capacity gap, and thus allowing the growth of empowerment and potential long-term sustainability of CMRV by removing the unhelpful balancing loop (B3).

7.5.4.2 Fixes that fail 1: B4 vs. R3: A flawed understanding of 'balance' in multi-stakeholder forums

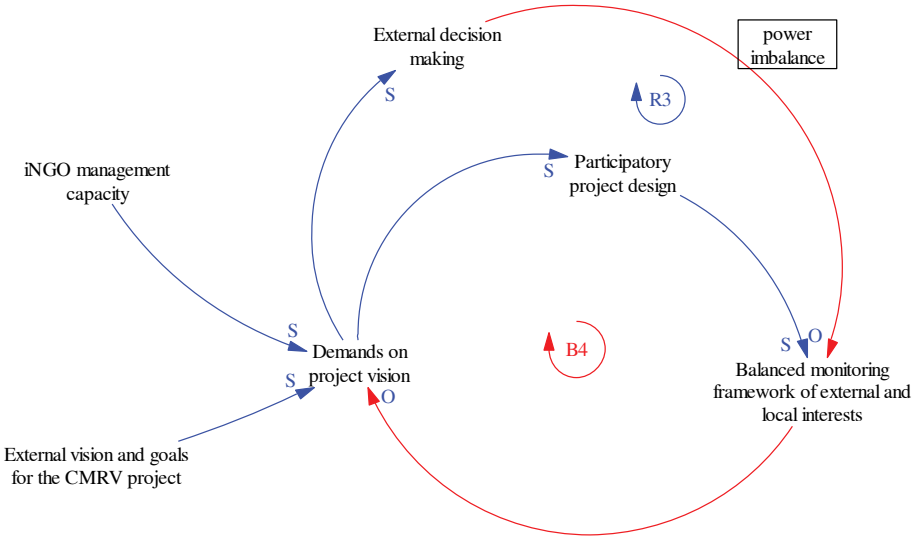


Figure 7.4: Balancing stakeholder contributions as a 'fixes that fail' systems archetype.
Legend: 'S' and blue arrows (positive or 'same way' relationship); 'O' and red arrows (negative or 'opposite' relationship); 'R3' (a reinforcing loop); 'B4' (a balancing loop).

Overview

Characterised by an intended balancing loop that is undermined by a reinforcing loop of unintended actions or consequences (Figure 7.4), this archetype is experienced when individuals or organisations address a specific problem with a specific solution and yet after a time the same problem reoccurs. Here the balancing loop that attempts to ensure that the interests of different stakeholders are well catered for (B4) is countered by a reinforcing loop that ensures, through a flaw in the project methodology, that the external interests are more strongly represented (R3).

Details of the archetype

There are competing demands on the overall vision for the project, originating from inherent (classified as unchangeable in this context) differences in interest at the local, national and international levels. The conflict has been managed and mediated by the iNGO, attempting to create a balanced monitoring framework of the multiple stakeholder interests through the practice of participatory project design. With a balanced framework, the pressure on the project vision is reduced, thus completing the balancing loop (B4). However, the power disparity between stakeholders and a simplified understanding of balance in the iNGO have led to a very subtle but inhibiting reinforcing loop. The iNGO's proposal to keep each of the stakeholders engaged was to equally portion their contributions towards the vision, framework design and decision-making within

the project steering committee. There are five different stakeholder groups involved in this steering committee – the iNGO (the final decision maker), the national government, a national NGO, a regional NGO (the chair), and the local community leadership – four of which were regional, national or international in scale and can be considered external, despite some having a deep understanding of the local context. The communities, including the local project team, are the only genuinely local stakeholder. As such, 4/5^{ths} of the structure and content of the monitoring framework was determined externally, concentrating power on the already more powerful stakeholders. This was evidenced by the CMRV project answering discrete national level research questions for the majority of the project's operation (verification of satellite disturbance maps, investigating rotational farming as a driver of deforestation, and biomass calculations for regional carbon estimates), and most of the local participants perceiving CMRV not as a local/national management information system but simply as a capacity building project. This is an example of external decision making and resulted in a strong sentiment amongst the local participants that the monitoring framework and content of the work was imbalanced, causing increasing conflict over the project vision, completing the unintended reinforcing loop (R3).

Redeeming management principles

This archetype is rooted in the unintended consequences surrounding a balancing loop and the most effective solution to this archetype is careful and advanced planning, maintaining a long-term focus over short term fixes (Senge 2006). Meadows (2008) talks about 'letting go'; how the actors that are pulling the system in different directions must lay their specific agendas aside and rally together under a clearly redefined and potentially larger goal. The key influences here are the capacity of the iNGO to manage this multi-stakeholder process effectively and how sophisticated an understanding they have of balancing local and external interests towards local and national sustainability of CMRV. There is a need for a more nuanced approach here: given that the CMRV project constitutes a full livelihoods option for over forty local people, can have considerable local management implications at the village scale, and provides a rare advocacy channel for local-national dialogue, it makes significant contributions to the holistic wellbeing of the local stakeholders, individually and institutionally (see chapter 5). To further evidence this: (i) in the Most Significant Change study (Appendix G) the majority of the local participants expressed that the CMRV project was the most significant event that had occurred in their lives over the past two years; and (ii) the local participants identified the highest number of key issues and challenges, implying a very close relationship with the project. CMRV contributes relatively less to the individual or organisational wellbeing of the regional, national or international stakeholders. As such, local interests and

methods need to be represented by a majority proportion of the project design (the local participants thus feeling that at least half their time is dedicated to working on locally designed and relevant work streams), the remainder being open to the influence of external interests. In visioning and designing, using a decision-making balance proportional to the contributions that CMRV makes to the individual and institutional wellbeing of each stakeholder would facilitate a nuanced and sensitive approach to a local-external monitoring framework. This would reduce the incidence of external decision making, in so allowing a balanced and justified monitoring framework to reduce the competing demands that have created an unclear project vision and general insecurity about the CMRV project, removing the unintended reinforcing loop (R3). In this context a first step would be restructuring the steering committee so that local communities make up a majority representation. This is an ethos closely supported by Mistry et al. (2010), who work with the same Amerindian communities.

7.5.4.3 Attractiveness principle: R1 vs. B1 and B2: CMRV is more complicated than first anticipated

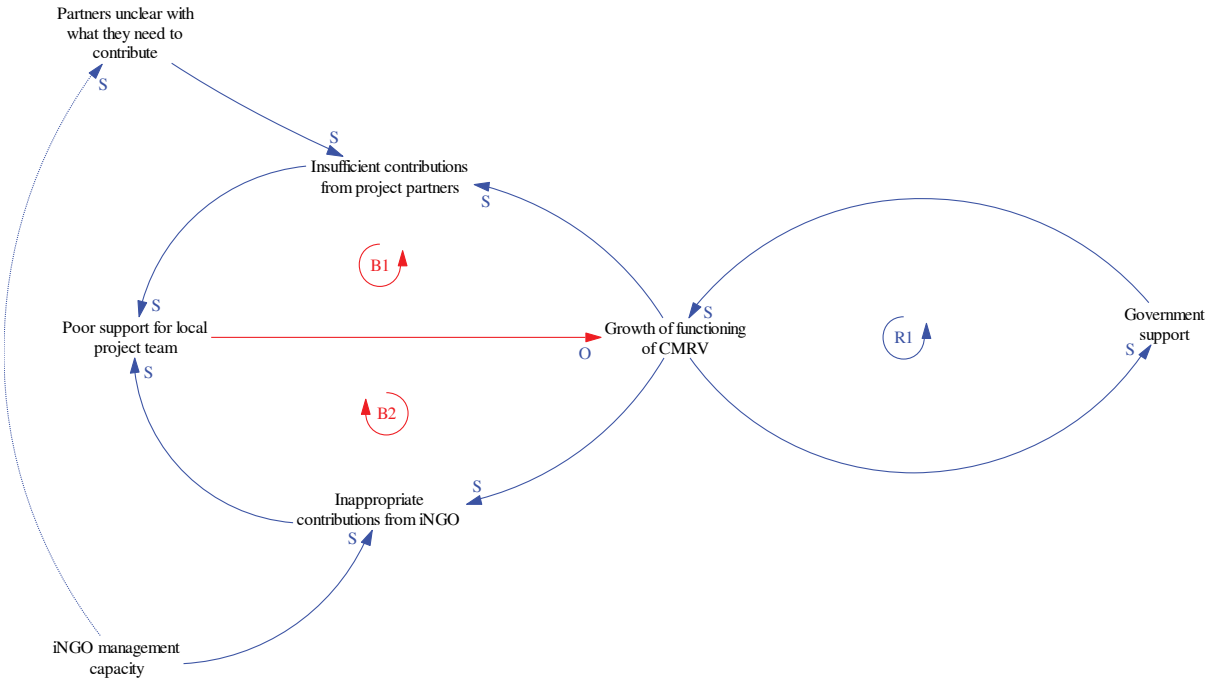


Figure 7.5: Healthy growth of CMRV as an 'attractiveness principle' systems archetype.
Legend: 'S' and blue arrows (positive or 'same way' relationship); 'O' and red arrows (negative or 'opposite' relationship); dotted arrow ('same way' relationship but outside the conventional archetype diagram); 'R1' (a reinforcing loop); 'B1' (a balancing loop).

Overview

This is a variation of the limits to growth archetype where initial progress is slowed or blocked, but instead of one, two balancing loops moderate the desired outcome from the single reinforcing loop (Figure 7.5). With this example, the reinforcing loop of governmental support and the growth of CMRV (R1) is offset by the respective balancing loops relating to the ability of the iNGO and national partners to actually provide appropriate support for CMRV to function and grow (B2 and B3).

Details of the archetype

As iterative design and implementation continues, the CMRV project continues to grow, producing results which have been fed back to the various stakeholders through the reporting process. With the national government having received monitoring information from the project that answered some of their management questions, government support has increased which in turn both encourages and facilitates the growth of a functioning CMRV system through fewer delays during governmental discussions and increasingly open methodological support (R1). But as CMRV grows, the ability of the iNGO and the national/regional NGOs to provide adequate support for the local project team has diminished. The high complexity of the multi-stakeholder inputs, the layered training programme, the participatory design process, the data management systems and the tailored reporting has significantly stretched the capacity of the iNGO (identifying itself as a think-tank, not an environmental development organisation) and as such has resorted to taking much of the project management responsibility upon itself rather than the more challenging approach of facilitating and enabling local management and problem solving. The partner NGOs have also been unclear about the amount and type of contributions to make due to the project vision not being very clear throughout (see Fixes that fail – managing stakeholder interests, below), a result of poor process management by the iNGO. Here, the management capacity of the iNGO is the archetype's limiting factor. As a result of both NGO groups failing to provide adequate and appropriate support to the local project team as CMRV grows, the local systems have not functioned as well as they could have leading to growing problems, delays and inaccuracies and therefore a decrease in the growth of a functioning CMRV, completing the balancing loops (B1 and B2).

Redeeming management principles

As for the previous limits to growth archetype, the way out of this deleterious archetype is not to push more forcefully at the reinforcing loop (trying to grow the CMRV project more), but instead to concentrate on where the real leverage is: the limiting factor(s) in the balancing loops (Senge, 2006), in this case iNGO management capacity. The skill set needed to advise on specialist science and

policy is very different to that required to manage and coordinate community projects. As such, anticipating the complexity of CMRV was not internally possible for the iNGO at the time of project inception, an example being the significant period necessary to equip the local project management team to cope with the coming tasks before the start of project operations. The consequent problems could be remedied with a seasoned community project manager who would coordinate the relative contributions of the project partnership as they support the local project team, also being committed to mentor a local manager in a 'buddy' system until they are equipped to take over. This removes both balancing loops (B1 and B2) by providing appropriate support for the local project team, allowing the desired reinforcing loop to function (R1).

7.5.4.4 Fixes that fail 2: B4 vs. R4: Not using a definition of participation in a participatory project

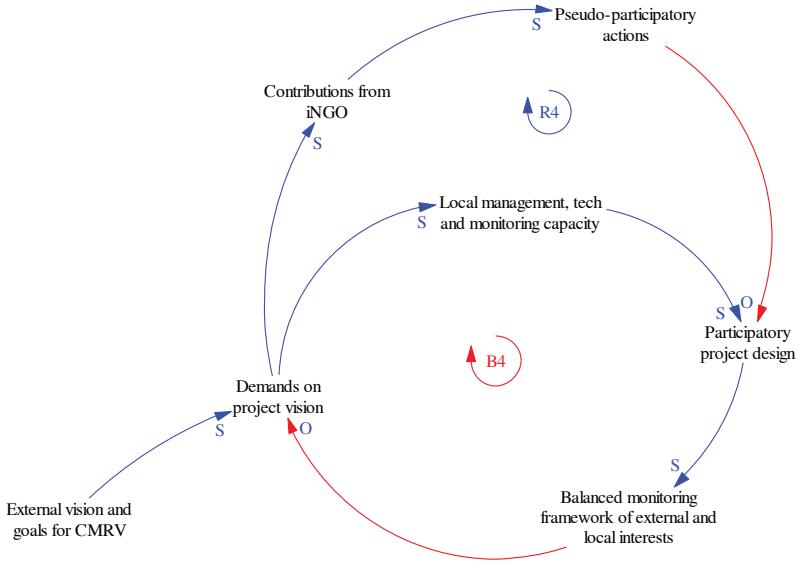


Figure 7.6: Participation as a 'fixes that fail' systems archetype.
Legend: 'S' and blue arrows (positive or 'same way' relationship); 'O' and red arrows (negative or 'opposite' relationship); 'R4' (a reinforcing loop); 'B4' (a balancing loop).

Overview

Similar to Fixes that fail 1 (Figure 7.4) and closely resembling it, here the balancing loop that attempts to ensure sufficient levels of local participation (B4) is counteracted by a reinforcing loop that reduces local involvement through pseudo-participatory actions (R4, Figure 7.6).

Details of the archetype

Implicit, but not explicit in CMRV, an example of 'locally-based monitoring', is the outcome of local empowerment and ownership through participation. Starting with the demands being placed on the project vision from the variety of stakeholders, part of the external vision are *intentions* to ensure effective participation. As such the vision has led to the coordinated training and capacity building (by the iNGO in collaboration with the national and regional NGO partners) of local people to carry out monitoring and management. This enhanced capacity has allowed cooperative and participatory project design with the local team and other stakeholders, facilitating the creation of a mutually agreeable monitoring framework for locals and externals, thus reducing the pressure on the project vision and closing the balancing loop (B4). However, the external vision shared by the iNGO and other partners lacks a specific definition of participation and a strategic vision for how it may be implemented as a principle; there are no participatory objectives among the project sub-goals (Selvey, 2013). As a result the contributions from the iNGO also included actions that seemed to embody participatory principles but were in fact only pseudo-participatory actions (as defined by Pateman, 1970). An example would be consultation, where participants are asked for their opinions and so feel a part of the design process but where there is no obligation for the leader of the process to incorporate their suggestions into the plan. Meaningful participation must include some transfer of power otherwise it becomes a hollow term (Arnstein, 1969; Munro-Clark, 1992). These types of actions appear to be participatory, deceiving those involved in project design that this outcome is being well addressed when in fact it is not. This reduces the genuine local participation in the project design process, reducing the sense of balance in the monitoring framework and so increasing the conflict surrounding project vision, closing the unintended reinforcing loop (R4).

Redeeming management principles

In this archetype, those involved will often look to remedy the situation with quick fixes. When participation (and so local empowerment and ownership) is not as high as intended, it is thought that more participation needs to be built into the system. The quick fix to this issue, as decided by the iNGO and project partners, has been to ensure the subsequent project operations are more participatory through the increased training of the local team. However, this has not changed anything due to the concept of participation being ambiguous in the external vision and goals for CMRV. A more systemic change is needed here to address the cause, whereby a specific definition of participation is used that incorporates the concept of power transfer and the delegation of real responsibilities, alongside the overall vision for CMRV including the long-term empowerment of local people to run their own management information system. Also, as Mistry et al. (2010) and Wells and

McShane (2004) encourage, participatory objectives need to be specifically included in the project goals. With these changes, the demands on project vision should lead to local capacity building and genuine participation and not to external contributions and pseudo-participation, thus removing the undesired reinforcing loop (R4).

7.5.5 Where and how to intervene in CMRV

7.5.5.1 The intuitive steps - what those within the system are trying to do for improvement

Recognising that the overall goal was not being reached, the steering committee met and mapped a way forward in early 2013, strategising how to drive the CMRV project towards functionality during the 2nd phase. The resulting proposals and actions are shown below and have been classified using Meadow's (1999) list of effective leverage points (12 = low leverage and 1 = high leverage):

- The iNGO project management was changed for the third time in 3 years. Replacing staff has the potential for very high leverage through bringing in a leader with a different mind-set, vision and abilities (leverage point #2) but can also be the lowest listed leverage point if the new person comes from the same paradigm as their predecessor (leverage point #12). The actual action has been a mixture, with a scientific specialist being brought in to coordinate project management (a leverage point #12 action), but an experienced local mentor being brought into the project to 'buddy-up' with the local project manager to expand his responsibilities (working towards empowerment, leverage point #4).
- The training programmes for the local participants are to be stepped up hoping to enhance project participation and empowerment, but the focus of the training has primarily been on the production of CMRV data (#12) rather than imparting skills and power for self-organisation (potentially #4 or #6). The desired effect of the training has also been countered by the effects of the archetypes described above.
- The communications infrastructure has received significant external investment and has been successfully improved to a standard suitable for the data flows that CMRV requires (leverage point #10).
- Closing the first data collection and reporting cycle has been identified as a key factor for the project. This is fundamental as it is necessary to prove the concept to everyone involved, insofar as it involves finishing the construction of the CMRV system. This can either be classified as a #6 or #12 leverage point as it involves both finalising the path of information between different participants as well as the starting the flow of tangibles (e.g. reports).

The fact that the iNGO has managed to intuitively identify some high leverage points shows that the staff involved are intimately in touch with the project, as Forrester (1971) theoretically anticipates. However there is a clear possibility that some of the actions could also be less effective than expected due to similar but low leverage alternative actions being pursued instead. But the overarching difficulty that the iNGO faces in effectively strategising towards a sustainable CMRV system are the obligations to the financial donor and the Guyanese government, none of which address long term institutional or financial sustainability at ground level.

7.5.5.2 Areas to enact system change

From the initial root-cause analysis, the building and scrutinising of the systems model, and the subsequent archetype analysis, it has become apparent that the underlying causes of the problems with the CMRV project are a lack of specific 'in-post' management capacity in the iNGO and flaws in the external vision and goals of the project. All the experienced key issues and challenges can be traced back to these two factors, or other unchangeable factors.

External vision and goals for CMRV (L#2)

This is the highest leverage point identified in the CMRV systems model and a #2 leverage point as specified by Meadows (1999). It is shown in the systems model as 'L#2'. A change in the vision or paradigm that surrounds the CMRV project can give rise to a cascade of changes in the structure, goals and rules etc. involved in the system. The specific flaws in this vision have been alluded to above but will be specifically described and addressed here. Firstly, there were no details offered of what participation means in the visioning and proposal documents. This ensured that any planning or goal-setting for local involvement was vague, potentially leading to the absence of any participation or empowerment language in the project goals. Secondly, the vision for balancing the multi-stakeholder process favoured the already powerful actors by: (i) following a traditional top-down approach to project governance; and by (ii) not negotiating a more sensitive spread of decision-making power proportional to the impact CMRV has on the lives/organisations involved. Lastly, and most importantly, the vision for CMRV was largely short-term and project based, focussing on fulfilling external goals rather than focussing on building a simple community-run system that could function in the future, locally and nationally, producing data with little or no international support. With this as a conceptual basis for the paradigm, the other details then follow; such as being intentional about specific participation levels, and working to give an appropriately apportioned role in project governance to those whose individual/organisational wellbeing are profoundly affected by CMRV. This is discussed in more detail in chapter 6.

iNGO management capacity (L#3)

This is the second most important leverage point identified in the CMRV system, a #3 leverage point, and is shown in the system model as 'L#3'. The CMRV project was the first community project that the iNGO branched into, being a think tank which had previously only supported research and conducted policy analysis. At the project start there was a lack of suitable management capacity for a medium-scale community project. Consequently, as specified in the 'attractiveness principle' archetype above, the iNGO was not sufficiently prepared to undertake the CMRV project. It was pushed forward towards data collection activity before necessary capacity was built among the local monitors and management, with the applied principle of 'learning by doing' proving chaotic and difficult to coordinate by the iNGO. The language of 'adaptive management' was narrowly and therefore erroneously used here to lend gravity to this approach. This lack of institutional experience was exacerbated by two factors: (i) no management training was given to the manager in-post; and (ii) capacity has remained low as turnover of external managers has been high (4 external managers over the course of a 3 year project due to overly heavy workloads and appointments based on specialist knowledge instead of management experience). It is arguable that these are internal issues for the iNGO as it more broadly functions, and can be considered outside the boundaries of the CMRV system. Even so, these have been traced as root causes so warrant deliberation. In considering the possible management options to address this leverage point, the differentiation between the actions identified in the previous paragraph (external vision, 'L#2') and those appropriate here become less clear. The selected manager (management capacity) can be chosen in the light of the external vision, insofar as if the visioning for the project was more long-term focussed and sensitive to the realities of sustainable community implementation, the staff given the responsibility for CMRV would be either trained or already skilled in these ideas and concepts. Alternatively, the iNGO manager has significant influence on the external vision and is well positioned to advocate progressive changes to it.

It is clear from the overlap of these two leverage points that they need to be attended to concurrently, both the reshaping of the CMRV vision and the appointment of who fills the iNGO management role for CMRV, which has to date been the most powerful stakeholder position. With systemic change in these two areas, explorations of national and local funding sources to secure future CMRV work would be more highly prioritised, and with additional institutional functionality and simplicity, CMRV would be pushed towards feasible project longevity. However, these two high leverage points are difficult to change because altering the vision half-way through a project is not

straightforward (though not impossible), and changing the iNGO management capacity isn't strictly within the bounds of the CMRV system.

7.5.5.3 Areas for more immediate improvement of system function

While the above root causes are being addressed (changes that require a shift in philosophical approach by a number of the significant stakeholders) there are some other leverage points identified in the system (marked with L#) that may also be worked on to improve the functionality of CMRV as a local-national-international information system:

- **L#4**: The power to add, change, evolve or self-organise a system is leverage point #4 on Meadows' list, as it gives a system genuine resilience; a chance of survival in dynamic and changing surroundings. For CMRV this is relevant at all scales from local to national to international. While concurrently addressing the 'fixes that fail' archetypes to remedy the lack of local empowerment and ownership in the CMRV system, a relatively short-term but nonetheless high leverage action is **directly increasing local decision making power** to be akin to the external decision making power. This can be brought into effect by specifically increasing the local representation on the project steering committee, which is the guiding body for the project, as only one of the six persons on that committee is local and the iNGO possesses ultimate veto and implementation power.
- **L#5**: The rules that govern a system are #5 on Meadows' list, as they shape the behaviour of those under them. A number of the listed problems highlighted the ineffectiveness of the CMRV data in reaching the communities and a key link that has been overlooked in the community structure is the Village Rules. These are the rules and regulations that govern each village with title lands, a result of the Amerindian Act (2006), and provide a high leverage point within the system of local monitoring and management, of which CMRV is a part. By **linking the monitoring planning and results to the village rules**, they would address current local issues and have a long term impact on community governance that goes beyond the democratic cycle and the incumbent village leader and council.
- **L#6**: Changing the structure of information flows (rather than strengthening/weakening existing flows) is deemed a high leverage point as it creates new information links, allowing information to reach places it didn't formerly and so influencing the decision making of different groups. **Increasing the outreach effort to local communities and various national bodies**, explaining CMRV and its function, not only increases the probability of community and governmental support, but also opens up those communication channels for more

effective local-national dialogue and reporting. Locally this has to be championed not only by the community monitors (who are not always well equipped 'champions' to do this; Selvey, 2013), but by the local project management during community visits. Also through facilitating more communication *between* different but relevant national level bodies, the likelihood of system bottlenecks is reduced as responsibilities can be more widely and appropriately spread.

- **L#7**: As discussed in the Attractiveness Principle archetype above, the growth of a particular system or outcome can quickly outstrip the capacity of its support network, and unregulated reinforcing loops can lead to eventual system collapse. Easing reinforcing loops is Meadows' #7 leverage point, and she argues it is better to actively regulate the pace of growth rather than wait for the natural negative feedback to come into effect, at which point drastic oscillations in the system may be unavoidable. Although the shared vision is for CMRV to grow into a fully functional system, in order to drive the national level reinforcing loop (R-nat) that fosters national support and partnerships (essential for long-term financial and institutional sustainability), it is necessary to actually **slow the growth of CMRV a little**, allowing the partners to engage in their roles, and for the outreach programme to lead the way in opening up communications pathways and convey a realistic potential for CMRV. Acting on this leverage point, the management option here would be for work plans to emphasise refinement and consolidation of monitoring activities rather than any expansion, tying into the simplification option that addresses the Limits to Growth archetype above.
- **L#12**: Staffing has been mentioned a number of times already in this analysis, being shown to be a low leverage point for system change (the lowest on the list at #12). However, there is still a potential improvement that can be made here as identified by Selvey (2013), which may lead to wider reaching impacts. She argues that the project could make more **appropriate local monitor selections** so CMRV would not fall down due to poor appointments. Her study shows that the community monitors were not always appropriate for either completing the tasks or becoming community 'champions' for CMRV. The original selection process was to allow the community leaders to nominate the monitors, based on three basic requirements (they'd had a job before, they were literate, and they had some previous education in environmental work). This was primarily to respect and tessellate with existing local governance structures. Heeding Selvey's comments, there is clearly room to raise the selection standards within this empowering structure. This small sub-section example is a good model of how the CMRV project and wider initiatives can function *within* the existing community institutions while also expanding their functionality.

7.6 Author bias and the methodical systems thinking approach

Before moving onto discussing these results, it is important to first reflect on the influence that the systems thinking approach has had upon the author's analysis. It is impossible to fully divorce a researcher's personal biases from their interpretation of results but nonetheless the scientific method itself has been developed to provide methodical approaches that reduce the roles of opinion and speculation (Daston and Galison, 2007). Much of the analysis has been made from the perspective of being outside of the CMRV system, critiquing intuitive assumptions that have been made by partaking actors. However, it is obvious to the reader that the author is also within the CMRV system and so may well be suffering from the same problems. Two responses may be made to this to underpin the integrity of this analysis. 1) The focal point of the analysis is the systems model (Figure 7.2). This was constructed using a variety of evidence types from a variety of sources from a variety of authors. The actual structure of the model was also verified by stakeholders at all level of the project. This provides a robust basis for the consequent analyses to be based upon. 2) Drawing from this model, the systems thinking approach was highly structured and a number of the results elicited genuine surprise, indicating that the methods employed stepped out of the bounds of intuition and towards objective analysis and genuine discovery. Examples of unanticipated results that were revealed by the subsequent study of the CMRV model were: the identification of the village rules as a high leverage point in the CMRV system; that further capacity building was not the answer to enhancing local empowerment; that equal stakeholder representation could still lead to an imbalanced system; and that the externally-focussed goals of the CMRV project provided a fundamental root cause of the non-sustainability of CMRV. Reflecting back, at the outset of the exercise the author thought that the lack of local capacity was likely to be the main factor contributing to a lack of participation and non-sustainability in CMRV, an opinion shared by other CMRV practitioners (see chapter 6). It is interesting and poignant to reveal that the problems run deeper than this.

7.7 Discussion

The results and analysis section explores in detail the underlying problems and management solutions that the systems thinking approach has revealed in the CMRV project. Through creating a systems model the external vision and the iNGO management capacity were identified as root causes of the many issues and challenges encountered, thus being considered the highest leverage points for change towards project longevity. Other interventions identified to move CMRV towards

functionality and longevity were: devolving more decision-making responsibilities to the local staff; linking the production of monitoring data to the local customary laws; stepping up outreach efforts locally and nationally; slowing the growth of the project through simplification; and improving the selection process of the community monitors. Drawing from these results, the rest of the discussion will focus on what may be systemic problems with CMRV (and community-based conservation in general), the value of systems thinking in this field, and finally a reflection on a useful methodological output from this study that helps inform multi-stakeholder management.

The style and degree of external involvement were behind all four of the system archetypes identified so it is a safe assumption that one of the key systemic problems with CMRV and community-based conservation initiatives is that they are externally driven processes. This is inevitable given that CMRV is nested in the policy framework of REDD+, an international forest conservation mechanism, and that community-based conservation projects have high start-up costs (Topp-Jorgensen, 2005; Rist et al., 2009) and can be catalysed by international perspectives on ecosystem value. Brown (2002) also stresses that this is where problems with local project work start; that one of the essential ingredients – community empowerment – is very difficult to facilitate in activities that are primarily externally-driven.

As the external vision for a project is the starting point for any actions by an external agency, it is pertinent to discuss what shapes this vision. As NGOs pitching for project money will base their proposals on their evidenced expertise, the skill set of the staff will influence the angle of these proposals and consequently the project goals that are set. However, project goals are still a lower leverage point than the project vision (Meadows, 1999). The staff in post are clearly key individuals, but they operate within the boundaries of the organisation so will be constrained by what that organisation stands for. Thus the philosophical foundations of the NGO need to be questioned. What are the core values of the organisation? What is their bottom line? What reputation are they trying to develop? These are issues that genuinely shape the explicit or implicit vision of community-based conservation projects. If the mission statement is to advance best practice in the sector, then the bottom-line is likely to be deliverables such as guidance handbooks or methodological tools to facilitate the spread of knowledge. If the core values centre on geographically focussed community work, then their bottom line is more likely to be local functionality and longevity. This leads to the question of what type of organisations should be pursuing CMRV work or indeed community-based conservation? It is this author's sentiment that those organisations with explicitly community-centred core values are best positioned to undertake CMRV and community-based conservation

initiatives, over and above those who may only have the necessary technical and educational expertise. How this may be communicated in a conservation culture of funding opportunism warrants further discussion but cannot be dealt with here.

Additional to the style and degree of external involvement is the speed of externally-driven conservation initiatives, as experienced with the CMRV project. With conservation being widely considered a crisis subject (Soulé, 1985), and there often being political pressures to produce results in a climate of evidence-based action (Sutherland et al, 2004) and short funding cycles (Conservation Finance Alliance, 2002), conservation projects can be characterised by shortened planning phases and rushed implementation. Meadows (1999) talks of high leverage being found in the initial design phase, with Brooks et al. (2013) and Gruber (2010) also agreeing that taking time to vision and plan an appropriate project is the key for success in community-based conservation. Assuming the organisation coordinating the project is philosophically in the right place, and time is taken to both understand the local situation and actively integrate communities into the visioning and design stages, then community-based projects have the potential to prevail over pre-existing disadvantages in the national or local context (Brooks et al., 2013).

With the Guyanese case study featured in this paper there is unfortunately a low likelihood that the project can be redeemed towards sustainability, given the empirical basis of the iNGO's core mission statement (to demonstrate the scientific, political and financial case for safeguarding tropical forests), the insufficiently short planning and team capacity building phase, and the absence of consideration (previous to this evaluative analysis) of project longevity i.e. the reality of project activities after the NGO action finishes. So by paying closer attention to the core values of the leading conservation organisation and their consequent methods of implementation, at the point of awarding funding, significant progress can be made towards resolving the systemic problems surrounding CMRV and community-based conservation.

More generally, the investigations in this paper brought into sharp focus the value of systems thinking for CMRV and community-based conservation. Firstly it is important to state that the CMRV project in Guyana has already been moving on some of the products of this analysis: linking the monitoring work to the local customary laws; paying closer attention to the balance of external and local project contributions; allocating more time to coordinating local staff training than to a best practice manual; and having open strategy discussions on post-project realities. The analytical process followed in systems dynamics makes for compelling evidence upon which to take decisions

and make changes (Williams and Johnson, 2013), even if they do clash with the implementing organisation's core values. Secondly, the systems model creates a snapshot in time, a visual system-based baseline against which future progress can be compared (an important characteristic highlighted by Salafsky and Margoluis, 1998), its illustrative nature also allowing the engagement of multiple stakeholders during the evaluative process (Cleland and Wyborn, 2011). Maps provide a key interface between local and external actors, transcending language and technical barriers (Lewis, 2012) and the systems model has provided a valuable starting point for discussions on project function with the iNGO as well as the local participants. If it had been implemented during the planning phase it may have been useful for generating a shared vision, helping the variety of stakeholders to see the 'big picture' (Meadows, 2008), as well as perceiving the non-linear, nebulous nature of sustainability in project design (Bell and Morse, 2005), something which contrasts quite radically with the linear theory of change planning tools advocated by a number of big iNGOs (such as the Miradi adaptive management software; Dietz et al., 2010). Thirdly, but relating to the previous point, the holistic, big picture approach did indeed bring in influences from a number of different disciplines. The systems thinking approach, itself being a discipline, necessitated anthropological contributions (mental models), social science contributions (the Most Significant Change study), management strategy contributions (solving the archetype problems), and philosophical contributions (causal networks and the visioning discourse). Nassauer (2006) also points towards the importance of this characteristic of coalescing disciplines. Lastly, relating to the author's own professional journey, the practice of concertedly analysing causal linkage and methodologically seeking higher leverage points has built a deeper sensitivity for the complexity and interconnectivity of conservation problems, be they socially, politically or environmentally generated. It has helped reveal personal biases in decision making as well as disciplinary naiveties, and is thus a highly recommended process to follow as much for the practice as for the results.

Finally, an incidental but nonetheless important result from this paper relates to the management of multi-stakeholder processes, or more specifically, the management of decision-making power in community-based conservation projects which inherently involve multiple stakeholders. This builds on a specific analysis of participation in the CMRV project (chapter 6). It is all very well to critique decision-making processes and the dominance of external actors, but it is something more difficult and complex to provide a detailed methodological alternative to facilitate changing such a scenario. As discussed in detail in section 5.6.2, a possible route towards a more equitable and appropriate balance of local and external power may be drawn from the wellbeing discourse.

Wellbeing as a term has been incarnated in the conservation and policy literature as an holistic approach to beholding people, including the many dimensions that shape human lives (Gough and McGregor, 2007; Biddle, 2011; Coulthard et al., 2011; NEF, 2012; chapter 4). In observing the practice of equally balancing stakeholder contributions to project design, this approach was experienced to be inherently imbalanced in the context of the CMRV project. Firstly, the decision-making structures were designed by powerful stakeholders to favour powerful stakeholders despite the structure appearing to facilitate equal representation, such as the iNGO convening the CMRV steering committee but also being the final voice on decisions taken. Secondly, the weakest stakeholders were the local people, being institutionally ill-equipped to negotiate greater power sharing (also described by Blomley and Franks, 2009). Thirdly, the local people were also the stakeholders most strongly affected, positively and negatively, by the CMRV project.

Following the central tenet of community-based conservation – devolving control – the author suggests that rather than numerically balancing stakeholder contributions to decision-making, the power dynamics should be proportional to the amount that the project affects that stakeholder group (see Figure 7.7 for a graphical illustration). The wellbeing approach provides a methodology to explore this, to evaluate how much a project may shape the overall lives of the local, regional, national or international stakeholders (this can be individually, or cumulatively to consider stakeholder groups). As White (2008) theorises, broad categories that come into consideration are material wellbeing (including wealth, jobs, skills, and health), relational wellbeing (including relationships, networks, identity and insecurity) and subjective wellbeing (including morality, hopes and fears, trust, and satisfaction). Could contributions to stakeholder wellbeing help guide the stakeholder contributions to project decision making? Although it is not straightforward to measure wellbeing comparatively, the author sees the need for a tool or framework that would guide conservation practitioners through the process of assessing the relative contributions that a project makes to stakeholder wellbeing, and structuring decision-making frameworks accordingly. Following a defined methodology could also help prevent the monopolisation of well-intentioned decision-making structures by the more powerful stakeholders.

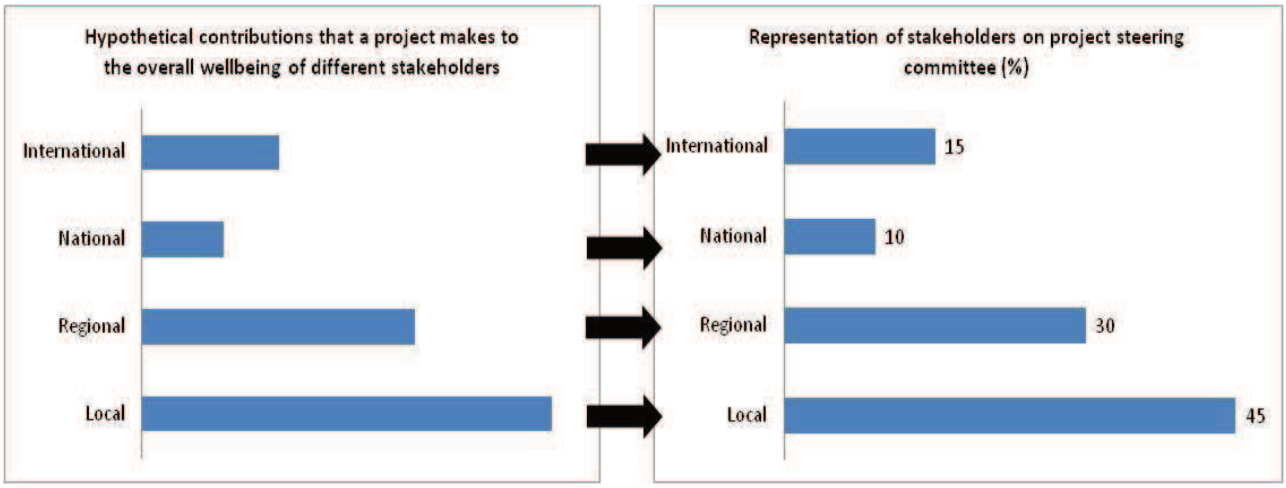


Figure 7.7: Two bar graphs illustrating the hypothetical practice of allocating project decision-making power based on the contributions that the project makes to the wellbeing of the stakeholders

7.8 Conclusions

From this paper one specific and three wider reaching conclusions can be drawn: (i) the CMRV project has been hampered by the coordinating iNGO, neglecting long-term vision and lacking in-post management capacity; (ii) CMRV and community-based conservation initiatives may suffer from systemic flaws if the core values of the coordinating organisation do not centre specifically on community work; (iii) systems thinking, specifically the systems dynamics approach, provides a persuasive and compelling methodology to navigate the complex issues and challenges associated with community-based conservation; and (iv) the wellbeing approach may provide a way of more appropriately balancing multi-stakeholder contributions.

8 Final discussion

This final piece is made up of two parts. Firstly, the practical outputs from the research, distilling the main arguments of the thesis alongside the main empirical findings. Secondly, an auto-ethnography that outlines the deeper personal learning from my PhD experience, which is best understood in light of the autobiography and positionality detailed in sections 1.5 and 1.6.

8.1 Main findings and further work

Table 8.1 shows what I perceive to be the key findings from these four years of study (Table 8.1). I always instinctively look to the end of any document for the 'take-home' message, so in order to indulge like minds, the summary of what I found in the substantive chapters is shown below.

Chapters 4 and 5 reveal the complexity of implementing wellbeing monitoring, both in externally and locally-led contexts. Through collaborative and individual study, I conclude that individual wellbeing cannot be easily depicted in simple metrics and any results will be radically influenced by assessment design and data collection. External (etic) and local (emic) assessments offer different benefits, local perspectives importantly identifying key wellbeing determinants, and so I offer some methodological guidance to combine these approaches. Chapter 6 was created from experiences and multiple data-gathering exercises conducted as a project advisor in Guyana. The existing relationships with project participants greatly aided the investigation, particularly the creation of a gradated scale of local participation (that guides the devolution of project power from international/national NGOs to local people, 6.5.1) and the identification of other barriers to local participation and empowerment. These are issues that are much talked about but frequently marginalised in the hectic work schedules of international development or conservation projects. Chapter 7 shows the most significant personal discovery as a conservation researcher, that is the systems dynamics approach to analysis and evaluation (see Meadows, 2008). I very much appreciated the inclusive and pictorial methodology, which would be equally applicable for a small business or as a relationship psychotherapy tool, and I feel that the deep insights from this evaluation may help a failing conservation project become more sustainable. I also feel the most significant piece of research is found in Chapter 7, although elements of this concept can be seen forming in the previous chapters. Using the wellbeing approach to assess the contributions that a project makes to stakeholder wellbeing, and then translating this into a proportional stake in the decision-making process seems to be a potentially progressive way of managing power differentials (see Figure 7.7). This simply looks at the impact that a project has on each of the stakeholders'

wellbeing and attempts to allocate power to them accordingly. It needs more conceptualisation and testing but has potential to be a force for betterment and equity in community project management.

Table 8.1: showing the main practical outputs from each chapter, as well as the further work suggested.

Chapter	Main outputs and *suggested further work*
3: Review of locally-based monitoring	Call to bring CMRV into the working policy of REDD+ MRV (3.4) *Need for more data-based comparative studies of locally-based monitoring and professional monitoring; need to explore locally-based social monitoring; need to find ways of integrating local knowledge into science-based policy frameworks*
4: Using wellbeing in conservation monitoring	A series of practical trade-offs for practitioners to consider when implementing wellbeing monitoring; wellbeing is not a simple metric that can be used to measure project impact but can help frame conservation interventions (4.4); wellbeing can be a vehicle to help local perspectives reach higher policy levels (4.4) *Need to explore how wellbeing monitoring can adjust to changes in a society's concept of wellbeing(i.e. shifting baselines)*
5: Comparing emic and etic approached to monitoring wellbeing	Local (emic) approaches to monitoring wellbeing are more sensitive to key wellbeing determinants although may be more subject to biases (5.5.2 and 5.5.3); practical considerations for creating emic-etic integrated approaches (5.5.4) *Need to investigate the role of intuition in wellbeing assessments; need more studies of locally-based social monitoring in general*
6: Investigating participation in CMRV	a more detailed gradated scale of local participation for locally-based monitoring projects (6.5.1); common barriers to local participation in locally-based monitoring projects (6.6.2 and 6.6.3) *Need to test the gradated scale or particiaption; Need to establish what international policy frameworks are actually expecting of CMRV in terms of data production*
7: A systems-based evaluation of CMRV	the systems dynamics approach is a strong evaluative tool for locally-based conservation projects (7.6); in locally-based monitoring projects, the core values of the implementing organisation must focus on the communities themselves (7.7); the wellbeing approach can be used to balance stakeholder contributions in decision-making forums (7.7) *Need to explore how to communicate recommendations on which organisations are best placed to run CMRV projects; need to trial the wellbeing approach to balancing stakeholder contributions*

8.2 Cross-cutting themes as an auto-ethnography

Over the four years of my PhD I have frequently mused on how my work may contribute to our understanding of the world. There are some parts that could be argued to be unique and others that are clearly not. But what is unique is the combination of my experiences and how I have interpreted them alongside the research data and literature. With this in mind, you may have detected a few powerfully recurring themes in the chapters preceding this, themes that locally-based monitoring has raised but which go beyond the scope of this particular subject. This is my reflection on those themes, informed by my journey. The preceding thesis takes a fairly realist approach, but as this approach alone never changed the world, I will take this opportunity to accompany it with some idealism. Writing down these thoughts in an evocative manner brings this final discussion into the realm of auto-ethnography (Ellis et al., 2011), using reflexivity, personal narratives and therapeutic witnessing to conclude my thesis. They are only generalizable insofar as I am sharing my personal narrative with readers and allowing them to judge its relevance to other contexts, and I use Wall (2008) as a model for this.

8.2.1 Paternalism

Reading over the earliest chapter of the thesis (chapter 3), the use of language is typical of my colleagues in the field and well represented my perspective on the subject at the time of writing three years ago. But when I re-read it recently, it startled me. It is imbued with the concepts of *using* local people, of squeezing the contributions of indigenous communities into the western scientific framework while also saving money. The piece remains relevant and apparently useful, having received over 60 citations since its publication, but it represents, to me, a traditional paternal paradigm. The same paradigm is revealed in the most recent publication by Finn Danielsen, the preeminent academic in this subject area (Danielsen et al., 2014) and my colleagues at the Global Canopy Program (Bellfield et al., 2015; who don't reference the co-authorship of the local team who actually generated the research data). Working with communities to help them meet our needs as external scientists and policy makers is something I am no longer happy to partake in. I have come to the reflexive conclusion that my colleagues and I shouldn't just be working *with* communities, but working *for* communities if we're interested in socio-environmental equity and believe locally-based monitoring has something to offer the world of conservation.

In its current state, locally-based monitoring, like some mainstream development and conservation efforts, is looking a lot like an extension of colonial era actions. The narrative synonymous with the

Victorian age of empire building was factual enlightenment, inherent superiority and consequent exploitation. There are early expressions of these sentiments in Chapter 3, being replaced by more critical accounts that observe these ideals playing out in others. Section 4.4 makes the first note of this when discussing the power dynamics within a hypothetical stakeholder group that is deciding how to implement wellbeing monitoring, while sections 6.6 and 7.7 both explicitly critique power plays and power structures formulated by dominant actors in order to meet their own needs. Chapter 7 makes it very clear that my co-workers in the Global Canopy Programme never intended the CMRV project to be paternalistic; the resulting paternalistic approach wasn't rooted in their personal approaches but was dictated by the surrounding institutional architecture. It was through my own engagement with the discipline of anthropology (see 1.6) and the work of Jerome Lewis at UCL (Lewis, 2012) that allowed me to discern and be more critical of the paternalistic style. Socio-cultural Anthropology operates out of a different academic paradigm to natural sciences, one that enters into the worldview of others, recognising alternative knowledge as equally valid (AAA, 2014). Conservationists would do well do be more mindful of this paradigm, as I have tried to.

The implication of employing an imperial-style approach in a project like CMRV has significant consequences for the implementing principles of partnership, facilitation and empowerment. Partnership, like participation, can be interpreted differently, but it seems best expressed when equality is one of the central values. The Interdev model of partnership is a superb example of building in values of equality, consensus and representation (Addicote, 2005) and has been successfully implemented in a number of different countries and cultures. Paternalism is inherently unbalanced with a clearly dominant member in the relationship, so can't really co-exist with effective partnership. Paternalism and empowerment are also mutually exclusive, with local empowerment coming through sensitive facilitation towards true participation. This involves a transferring of decision-making power (Arnstein, 1969), something that wasn't effectively carried out by the CMRV project staff and has had detrimental effects on the long-term prospects of the case study project (see Chapters 6 and 7). Facilitation is the action and empowerment is the consequence. Good facilitation fundamentally requires the facilitator to guide, analyse, synthesise and serve those they are facilitating, marginalising their own agenda rather than leading and dominating. I was able to practice this, albeit nominally through an academic study rather than an applied project, and the facilitation in Chapter 5 resulted in participants referring to the work as "our study", expressing strong feelings of ownership, and we are now together considering the joint publication of some of the findings in this paper.

As mentioned in section 1.6, the phrase 'locally-based monitoring' is being used less and less, being replaced by 'community-based monitoring'. This might seem semantic, but I feel it represents a shift away from the initial concept of empowering local people towards the external commoditisation of communities (mirroring the journey of the CMRV project, see chapter 6). A community can be externally defined, a discrete entity whose membership can be fairly easily judged and included in a project, the term often being used over-simplistically (Waylen et al., 2014). Using the word 'community' also can imply homogeneity of small social units, assuming the community members share social norms (Agrawal and Gibson, 1999). The term 'local' is different. It cannot be externally defined as it is more a comment on a person's identity and where they find meaning. I am a member of a number of communities but I only really feel local to one place where I know the subtleties and can most effectively apply any expertise that I have. Using 'locally-based' language recognises the importance of subtlety, of meaning, of identity in informing our understanding of an area. If this change in language is indicating a trend in reducing the substance of local contributions in monitoring, then this represents a significant loss to the nuance of subsequent information systems.

8.2.2 Slow and steady? Small and beautiful?

Conservation and climate change are widely regarded to be crisis fields as Soulé (1985) and Pullin (2002) warned, as the modern media continues to sensationalise (Channel 4, 2014), and as I expressed in chapters 2 and 3. But, as with the issue of paternalism, my attitude towards this has decidedly changed over the course of this thesis. This is exemplified in section 7.7 where the fast-pace (and hastiness) experienced in CMRV is considered a systemic problem, rather than a side-effect of necessarily quick work (e.g. Drew and Henne, 2006). This sentiment (that hastiness is not helpful, no matter what the 'crisis') is also reiterated throughout the other chapters, using the phrase 'requires careful consideration' numerous times. The analysis and recommendations state the need to give more thought to various issues relating to locally-based monitoring, much like the calls from those involved in conservation planning (e.g. Margules and Sarkar, 2007) and evidence-based conservation (e.g. Pullin and Knight, 2001). But more thought takes more time. Also, good community conservation depends on relationships with the communities. Relationships also take time. Time is not something that is often afforded in conservation.

This issue is rooted in the tendency for donor organisations to follow basic economic principles and award funding to projects that will do more with their money. As such the temptation is to be ambitious with the project proposals in terms of timescale and project size. But CMRV is highly complex, dealing with environmental, political, cultural, scientific and economic aspects, and is

relatively new as a holistic approach to community monitoring. It necessarily requires plenty of time, starting at a small scale. Would NORAD have awarded the GCP the project grant if it hadn't stretched to work with all 16 North Rupununi communities? Or have awarded a limited continuation grant if the monitoring system hadn't been pushed into operation after only one year? In essence I am saying it would be beneficial to be less ambitious and emphasise quality not quantity. But this requires donor organisations to change their approach. One such motivation for this change may be recognising a flaw in emphasising external validity in community projects, something touched on in section 4.3.2. If a project is being implemented primarily to create a model to be utilised elsewhere, then how can local sustainability and appropriateness be fully pursued? Surely resources need to be poured into proving it can function locally, focussing on internal validity, before it can be 'rolled out' as a concept in other areas?

Time not only needs to be allowed by donors, but also given by individuals and organisations. If practitioners are going to step out of their own locality and attempt community conservation in other parts of the world then they can't expect to do anything meaningful in a few weeks, or even a few months. Relationships with local people are necessary and these require significant commitment, often long term, a central tenet of the anthropological discipline of ethnography (Sanday, 1979). However, this clashes with the modern western concept of a person's professional life being a fast changing potpourri of different jobs. The high turnover of staff in the Global Canopy Programme prevented relationships forming and weakened the CMRV project, being identified as one of the root problems (see section 7.5.5). The importance of relationships is also well illustrated in chapter 5, where I was limited in my ability to do effective wellbeing monitoring as I was not informed by existing local relationships, whereas the well-versed local experts readily picked up on the key determinants of wellbeing through their knowledge and trust of the people.

Although an explicit critique of the implications of the 'crisis' attitude, a number of conservationists have reflected that effectiveness in their field takes decades (e.g. Durant et al., 2009), and engage in dialogues not dissimilar to this one. It is interesting that the CMRV project, a conservation project, has the atmosphere of a crisis situation and is under constant pressure even though there is not a pressing environmental crisis in the North Rupununi. This suggests that we may need to adjust our attitudes in conservation to also cater for non-crisis situations.

8.2.3 Striking a balance

A third, more practical theme that runs through my work is the balancing of different perspectives and working towards a resolution pleasing to all parties. This practice forms an inevitable part of locally-based monitoring insofar as it is by default a multi-stakeholder process and different stakeholders will hold different opinions. The subjects of facilitation and partnership discussed above also come into this and overall this aspect has presented the greatest challenge to me during my thesis.

Striking a balance has been touched on in every substantive chapter: the different strengths and weaknesses of local and professional monitors in section 3.2; the conflicting stakeholder interests in monitoring wellbeing in section 4.3; integrating emic and etic perspectives of wellbeing for a mixed monitoring system in section 5.5.4; the varied participatory expectations of the local, national and international participants in section 6.5.3; and the resulting conflicts due to different mental models of the CMRV stakeholders in section 7.5.2. However, the deepest engagement with this theme has come from chapter 5 where, rather than simply recognising and characterising the conflict, particular details were given to aid the reconciliation of the emic and etic approaches to monitoring wellbeing.

The practice of working through these conflicts and often having to find an acceptable middle ground was one of the key skills I developed from this whole process. Taking idealist views and allowing them to mentally coexist with the politico-economic realities is not commonplace among conservation practitioners, and I have yet to be able to truly practice such dualism. Individuals generally adopt a single position and may then seek to respect or understand contrasting opinions. But with conservation becoming increasingly multi-disciplinary, people who can genuinely adopt opposing views in the some mental space, thereby transcending paradigms (chapter 7), will become valuable assets in reconciling socio-environmental problems. This is an ability often ascribed to the mystic rather than the materialist (Chesterton, 1908).

8.2.4 Values

As I have mentioned, over the course of this PhD my approach to some of the subject matter has changed, and these changes run deeper than the methodologies I use. They are shifts in my philosophy as it relates to locally-based monitoring and conservation, and this shift can be partially explained by my personal values being brought into my professional, academic life. The importance

of bringing personal values into the institutional sphere has been raised in chapter 6 (section 6.6.2) but now I apply it to myself, my PhD journey, and the cross-cutting themes that I've raised.

Paternalism, a complex ideology which can be simply summarised by the phrase 'I know best', can be countered with humility and selflessness. Pride in one's own knowledge, shown in section 1.6 and in my approach to CMRV in chapter 3, yields when intellectual humility is present; a virtue which often accompanies wisdom. The more you know the more you realise you don't know. In this largely unpredictable world, you can never assume what you know applies to other situations, though sharing your experience of trends can be helpful to others. This is the heart of generalization in ethnography, writing to let others determine its relevance to themselves. I am older now than when I wrote chapter 3, and have experienced some very challenging personal and professional situations that have started me on my journey towards humility, which I hope is more apparent in chapters 5, 6 and 7. Paternalism is also fuelled by a selfish desire for control and power. As you might have picked up in section 1.5, I have developed a deep dislike for unjust power structures, and the desire to deconstruct these has been active for the duration of my work, in the practical application of CMRV as well as in academic analyses.

The hastiness described in the CMRV project and in the world of 'crisis' conservation can be addressed more simply. Patience negates hastiness and allows the practitioner to regularly take stock, to consider to the best of their abilities what the best way forward would be. It also provides numerous windows of opportunity to enter into dialogue with others. Personally I was highly involved in the slightly manic practice of conservation and climate change policy at the start of this PhD, having been a London-based biology teacher and a WWF policy advisor. Moving to live on a canal boat and finding a different pace of life diffused my freneticism which poured out into my work. Continuing patiently forward with the phrase 'sin prisa, sin pausa', translated from the Spanish as 'without rushing but without stopping' has definitely enhanced the quality of my academic observations, my ability to engage with other colleagues, and my judgement on what is a sustainable workload for myself and my Amerindian friends involved in the CMRV project.

Striking a balance, i.e. reconciling differences and mediating conflicts (or at an individual level, concurrently adopting conflicting views), is best informed by empathy. If you are able to step into the shoes of another person, not just observe their difference, then your capacity to understand their arguments and associated actions is much greater. My parents are both psychotherapists so I have grown up in a household of great emotional and intellectual sensitivity, being encouraged to

constantly question why I thought or felt things. With conflict so commonplace in locally-based monitoring, there have been many instances where I've needed to reconcile stakeholders with polarised opinions. Whereas before I had struggled to bring this existing personal virtue into the workplace, over the course of the thesis my application of empathy has improved though not yet to mystic standards.

So personally and professionally, the values which inform philosophies provide the difficulties and solutions to these cross-cutting issues. The practitioner and policy maker has choice in firstly embracing these values at a personal level and secondly in bringing these actively into the institutional sphere of conservation and locally-based monitoring. My experience shows that this is eminently possible.



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Appendices

Appendix A

Community survey of Surama Village, inspired by the Tearfund environmental assessment form

Date	06/02/2012
Location	Surama Village, North Rupununi, Guyana
Sources of info	Paulette Allicock (resident) Daniel Allicock (resident) Derek Gomes (resident) Gary Sway (resident) Lisa Kat Grund (anthropology researcher) Participatory Human-Resources Interaction Appraisal report 1999 (PHRIA) Surama CREWs baseline data 2011/2012

Part 1: Description of the village's physical environment

1	Topography and natural features of community lands (Is the area flat, sloping, hilly or very varied?)	Steep sided, forested hills (of the Pakaraima Mnts) surrounding 5km sq of flat savannah. On the border of the Iwokrama Forest.		
2	Village position in community lands	At the end of a 6km access road off the main Georgetown-Lethem road, the village gathers around the road as it approaches the Burro Burro and Surama rivers, in the small savannah areas between the hills.		
3	Local climate	Tropical and wet. Dry season = Sept-Apr, wet season = May-Aug		
4	Typical vegetation ground cover, e.g. scrubland, grassland, trees, woods, agricultural land, marsh, coastal scrub and mangroves		**Typical ground cover**	**% of each ground cover type**
		In village area	Savannah grasses and sparse 'sand paper' trees (pioneer)	80% grass 20% trees
		In the surrounding community area	Farms cut from forest Rainforest Wetlands	2% farms 93% forest 5% wetlands

5	Flora and fauna (*commonly visible* plants, wild flowers, grasses, animals)	Savannah grasses Orchids Sandpaper Trees Rainforest tree species (Mora, Cedar, Water Cedar, Greenheart etc.) Red and Green Macaw Toucan Rose collared parakeet Amazon parrot Night hawk Nightjar Black curassow Trumpet bird Screaming Peeha Social Flycatcher Jacana Crimson-crested woodpecker Hummingbird Black Vulture Monkey Eagle Agouti Howler Monkey Gecko House lizard 'Bush motorbike' lizard
6	Natural resources in the local area(s) that people use?	Fish Birds and mammals in hunting grounds Soil for farming Sand for roads and buildings Timber for houses and selling Palm leaves for thatching and weaving Fruit from fruit trees for local consumption Other NTFP (e.g. seeds for jewellery, cacti and other plants for stripping and weaving)
7	Current local use of natural resource management methods	Village rules for residents: - farms: don't cut more than you can use - timber: allowed to cut/use 500 BM/yr/family - hunting: no commercial use, species restrictions /yr/family (e.g. 3 tapir, 20 powys, 20 laba, no restriction on agouti) - fishing: no commercial use, 15lb/day/family, no fish poisoning - sand: dig sand/gravel only from allocated areas - palms: don't cut more than you can use, encourage more zinc roofing - fruit: no chopping trees to harvest fruit, only picking. - fencing: 1 acre can be fenced against livestock If village rules are broken, financial penalties are payable to council funds. Wilderness area allocated where no extractive actions can happen. Arapaima fishing moratorium

		No extractive activity on Amerindian land by non-residents without express permission of the village council. Strictly no commercial activity. River monitoring by villagers services the 2 points above Rotational farming - farms are cut into the forest verge and farmers move approximately every 4-5 years to refresh soil. Typically a family will be actively farming 1-2 acres. Once abandoned the forest then quickly regenerates. Savannah burning to keep grasses down around houses (to deter snakes) and to provide fresh pastures for cattle. Sacred species/areas have, in the past, been reasons for animal populations to remain high, despite the continued presence of humans.
8	Existing water and soil conservation methods or structures (e.g. water or soil conservation structures and flood diversion channels)	Housing: Rainwater harvesting, flood diversion channels. Farms: mulching, planting along felled trees Road and airstrip: drainage ditches, gravel surface laid on to reduce erosion
9	Source of and distance to fresh water in village: Surface water Ground water (well, borehole)	 Many creeks in immediate vicinity of village. Burro Burro 30 mins walk from village centre Shallow wells dug for almost all households
10	Surface water quality within the project site(s) (Note: <u>all</u> surface water should be treated prior to consumption)	❑ Poor (polluted with external materials) X Moderate (generally not using for domestic purposes) ❑ Good (using for domestic purposes)
11	Ground water quality within the project site(s)	❑ Poor (polluted with external materials) ❑ Moderate (generally not using for domestic purposes) X Good (using for domestic purposes)
14	Land or soil erosion on village site(s) or neighbouring land	Sand/gravel extraction areas next to road wash away very readily in the heavy rains and this lack of stability inhibits grasses from colonising.
15	Air quality in local area (pollution, dust, smoke, acidic rain, etc)	Pristine
16	Incidence of climate-related hazards (e.g. floods, droughts, storms)	Serious flooding during 2010 wet season

17	Are there any environmentally sensitive areas in the community lands?	The entire area is dominated by high biodiversity ecosystems, which due to their extent, are fairly robust.
18	Soil type and quality in the project site(s)	Sandy loam as well as latterite (gravel) ridges. Generally excellent drainage and very poor nutrient content. Some clay patches.
19	Crop pest levels on community farms	Low. Some leaf mining on cassava but not affecting productivity. Wood ants (termites) are a major pest to any wooden structure.
20	Crop failures and any changes in crop varieties planted locally, e.g. high yield varieties	Cassava partially failed due to flooding Corn grown less
21	Livestock health in local area(s)	Good - yard chickens fed at household by owners, cattle and horses cared for communally by the capitash.
22	Fish stocks quality and availability in local area(s)	High quality and quantity in nearby creeks and in Burro Burro river

Part 3: Description of the village's human and economic environment

23	Population in area(s) (male / female, adult / children)	302 (approx 100 adults and 200 children)
24	Social structure in local community, including elite and marginalised families. Influential locals Influential outsiders	**Family hierarchies:** 1) Allicock Family - the commonly regarded founders (brothers Theo and Fred who left Kwatamang in the 1974 due to cattle rustling) were/are Allicocks, and were the first village chairmen. All the senior councillors to date have been Allicocks. They are the most vocal members at village meetings and a large proportion of the Allicocks have jobs. 2) Captain Family - Some village councillors have been Captains, and they hold the positions of Policemen and Agriculture Officer. Most of the guides for Bushmasters (a survival tourism operator) are Captains. There is some subtle conflict with the Allicock family. 3) James Family - have contributed village councillors, church members and guides. 4) Among other families are the Andrews, the Cabrals, the Johns, and the Miltons, these latter two being the families who "built Surama", according to Daniel Allicock, but who are the poorest and most marginalised. **Particularly influential individuals are:** the senior councillor (Jackie Allicock); the Ecolodge director and NRDDB Chairman (Sydney Allicock); the headmaster (Cabash…?); the coordinator of community logging (Mark Simpson); the head of the culture group and church leader (Glendon Allicock); the coordinator of the Makushi Research Unit (Paulette Allicock); the original founder of Surama (Fred Allicock), the Ecolodge senior guide (Milner Captain).

		Particularly influential non-residents are: - Blue Paw Productions - a German natural history documentary production company who employ and train full time staff to keep a base in Surama. - Ian Craddock - an ex-military Englishman who runs Bushmasters, a survival tour company, which conduct their survival courses in the Surama lands near the Burro Burro. - Eerepami Regenwaldstiftung – a German NGO who have coordinated and funded specific timber harvest monitoring as well as cultural preservation and exchange projects.
25	Governance structure of village Village institutions	**Official elected structure on a 4 year democratic cycle:** Toshao of Annai district presides over Surama village (Mike Williams) Senior Councillor (Jackie Allicock) Village Council of 8 or so members The Village Council and Senior Councillor are fairly autonomous from the district Toshao, running village meetings and shaping the village rules, which are recorded and publicly available in the village office. They allocate the government's central funding for the village, democratically take decisions and coordinate community work on communal development projects, such as local bridges and the new village office. Organisation is coordinated from the village office. The Surama Amerindian Development Council (SADC) is the name given the the council. **Surama Ecolodge:** A community-based cooperative with 10-15 employees. Employment is, for the most part, rotational ensuring wide benefit sharing. This has created links between Surama and other tourism operators nationally and internationally. **Surama Church:** The only church in the village of primarily Christian people. The approach since the founding of Surama has been one of unity, welcoming anyone to come, worship and preach (if relevant), but not to build a competing church to catalyse division. This, according to the Senior Councillor of neighbouring Wowetta, is why Surama is "very progressive". Although not everyone attends and the priest lives in Wowetta, it remains a central force in the village. **Health Centre:** Funded by the central government, the doctor visits from Annai from time to time and the health worker runs the centre. **Primary School:** Funded by the central government, school activities (such as sports and Mashromani celebrations) provide a hub for the village society as almost everyone in the village has a child or grandchild who attends the school. There is one trained teacher and the others remain untrained. **Parents/Teachers Association:** Chaired by the headteacher, the PTFA have quarterly meetings to discuss relevant proceedings.

		Surama Culture Group: Exclusive to Amerindian residents, the culture group is widely considered the most accomplished in the North Rupununi so often tours for shows in other parts of the country. They are a main feature of the tourism experience in Surama and champion Makushi cultural preservation. **Women's Craft Centre:** Less active than in the past, the craft centre produces embroidery, jewellery, weaving, models, and other items that are sold from the centre as well as in the Ecolodge. This has been significant in maintaining traditional craft skills. **Youth Carpentry and Woodworking Project:** A well equipped workshop, a product of external investment, which makes furniture. It is, however, often closed as the carpenters are often out harvesting timber (rather than buying properly dried timber), or due to a lack of staffing. **Women's cassava making group:** Another cultural preservation community initiative, the cassava making process is central to the Makushi household, though the extra capacity become more significant when the cassava crop partially failed and the group were able to provide for others. Unfortunately the same problems of understaffing are being encountered by the cassava processing group due to insufficient pay for the significant labour involved. **Community Wildlife Club:** An Iwokrama initiative, the wildlife club engages school children and other residents in village clean-up campaigns and wildlife monitoring. Funded by Eerepami Regenwaldstiftung, the club has a sizable two story building to host activities. **Blue Paw Productions:** A German natural history documentary production company who employ and train full time staff to keep a base in Surama. They have kept a captive Puma for over a year now and have a significant pool of logistic and technological resources, carefully managed by Mike Allicock.
26	Education levels of local population	Almost 100% received primary education 10% received secondary education 1% received tertiary education
	Health levels in local population	6 cases of malaria in last month Diabetes frequency rising from increased sugar in diet Predisposition to cancer in the Allicock family
27	Relevant cultural values, customs and ways of life which are central to the community	Hunting with bow and arrow is still common, with only one shotgun in the village. Hunting is mostly seen as a pleasure activity by residents, and a way of maintaining their links with the nature surrounding them Fishing is practiced by almost every family to sustain their subsistence lifestyle. Hook and line, nets and bow and arrows are used.

		Rotational subsistence farming is also practiced by almost every family, mostly through work with hand tools, providing the majority of food in the village. Among other crops, cassava, pumpkin, banana, peppers, sweet potatoes, eddo, okra, and runner beans are grown. Pride is taken in running a good farm, and, for most people, their nutritional and financial wellbeing is directly proportional to the success of their farm. Yard chickens are also regularly kept at the households as a source of eggs and meat. Processing the cassava is a very unique activity that is celebrated and respected in the community, the farine (a parched granule) and cassava bread (large hard and thin cakes) produced remaining very sought after by residents. The Makushi language is only spoken by the current parental generation and as such is in rapid decline. This is due to it being discouraged in school and the resultant lack of motivation for parents to teach it to their children. The Culture Group have been lobbying for lessons to be taught in the school, and the decline has been one of the motivating factors for the involvement of Eerepami Regenwaldstiftung. No comprehensive record or extensive learning aids exist at present. Traditional music, dance and dress have all seemingly declined to such an extent as to be unobservable outside of a culture group show. Jobs are not necessarily wanted by residents as it takes them away from tending their farms and their families. The money earned would predominantly be spent on acquiring local food anyway, so many people opt for doing part-time or irregular work to bring in income for essentials such as salt, matches, medicines and kerosene.
28	Ethnic/religious composition, and sacred/spiritual sites	98% Makushi Amerindian with some Wapichan 2% afro-Guyanese, indo-Guyanese or portugese-Guyanese 80% Anglican Christian 20% non-practicing Anglican Christian Animism still very much in the community but has thoroughly mixed with Christianity over the past 200 years. A shaman still operates in the village but also is a Christian, his spiritual powers considered to be "gifted to him under God". The forest itself is sacred, though the 'Puma Pen' stream and previously 'Tiger Pond' are/were specific sacred sites which people would avoid. Some species have been preserved due to traditional sacred beliefs or fears - 'oma' is a scary animal. Arapaima, Banana Fish, Tapir and Laba have all been inadvertently conserved in this way.
29	Land ownership (male / female)	All land is community owned land, under the Surama title lands allocated to the Makushi Amerindians by the central government. The Village Council administers the land, and portions out areas for families to build a house, the small area around which they then own for they are living. Land cannot be sold. There is no male/female imbalance of ownership.

31	Livelihoods in village (with natural resource base they depend on) Other sources of revenue for villagers? Markets?	**On the community lands:** Subsitance farming (soil, pollinators, local climate) Subsistence fishing (fish populations, rivers) Ecolodge employment (wildlife, forest habitat and rivers) Wildlife guiding (wildlife populations, forest and rivers) Wildlife monitoring (wildlife populations, forest and rivers) *(NOTE - there used to exist an Iwokrama initiative called Community Environmental Workers, CEWs, responsible for community monitoring)* Building, including masonry and electrics (timber and sand/gravel) Carpentry (timber) School work Health work Boat captaining (rivers) Craft making and weaving (palms, seeds and other forest resources) Logging (forest trees) Driving vehicles Running a shop Assisting researchers (wildlife populations, forest and rivers) Documentary film production (wildlife populations, forest and rivers) **Outside community lands:** Iwokrama rangers (wildlife populations, forest and rivers) Gold mining (mineral deposits) **Markets (not including selling in village):** Lumber - any N.Rupununi Villages as well as Lethem crafts and weaving: Rock View Resort, Iwokrama Field Station and Lethem food: Rock View Resort, Iwokrama Field Station, Annai market
33	Village infrastructure and assets	**Infrastructure** One unpaved access road that runs from the main road to the village and through the middle of village. There are numerous wooden bridges over creeks No running water or electricity supply Boat landing on Burro Burro river Health centre, village office, primary school, craft centre, a few kiosk shops Some private fencing **Assets** Some private generators, solar systems, and water buttes. Computers, printers, satellite telephone and 2 generators for village office VHF radio in village office One boat engine Village motorcycle Two village 4x4s and one Bedford truck, all associated with the Ecolodge Tractor and plough

34	Level of community hygiene awareness Sanitary conditions in local area	Hygeine awareness is high, with hand washing before meals and bathing common practice. Because of a low consumption rate of externally manufactured products, litter levels are low. Each house also has its own rubbish pit to dispose of non-biodegradable waste. Shallow pit latrines with timber platforms are used throughout, with the occasional flushing toilet among the richer villagers. Water is abundant and clean.
35	Conflict in local community	In general, Surama is very peaceful and unified with villagers concerned to perpetuate this, in full knowledge it has been a major driving force in their progress. As mentioned above, there is some mild friction between the Allicock and the Captain families. The church and school promote unity, though developing and staffing the Ecolodge has led to conflict over management and allocation of village resources. From time to time there are alcohol related conflicts.
36	Community participation and cooperation	Community works are coordinated to improve an d maintain community infrastructure. 2 days/month are allocated and excuses must be given in advance for absence. Fines are imposed by the village council for unexplained absence. The Ecolodge is a cooperative venture by the village and has rotational employment to ensure benefits are shared throughout the community.
37	Local legal requirements or constraints – e.g. permits to abstract water or dispose of waste, or restrictions on land ownership (tenure)	- Non-resident entry onto community lands is regulated by permissions issued from Ministry of Amerindian Affairs, the Toshao of Annai District, and the Village Council. - No extractive activity on Amerindian land by non-residents without express. Strictly no commercial activity - No non-Amerindian permitted to settle in village or be allocated land without permission from the Village Council
38	Note vulnerable groups/members of the community(ies)	- physical disabilities particularly limit movement due to the lack of transport and rugged terrain. - marginalised families (such as the Miltons and Johns) are not involved much in the Village Council and often have less developed English language skills. - financially poorer families (those with no employment), who are entirely reliant on subsistence farming/fishing, as they have very little income to afford medicines and are vulnerable to climate shifts through crop failures.
39	Quality of buildings. Where do the building materials come from?	- brick walls from Kwatamang Landing burnt brick producers, or locally dried clay bricks (adobe). - Zinc roofing and thatched roofing from Kokerite Palm leaves. - Bullet wood house posts locally harvested and milled. - Other timber construction locally harvested and milled.

40	Regional or National Institutions and location / distance from project site(s)	**Institution**	**Location / distance**
		Bina Hill Education Institute NRDDB HQ Radio Paiwomak Annai Secondary School Annai Hospital	20km
		Iwokrama Field Station	80km
		Lethem Regional Democratic Council Lethem Hospital and Schools	150km
		Central Government in Georgetown	350km
41	Agricultural systems used locally	Rotational farming - farms are cut and burned into the forest verge and farmers move approximately every 4-5 years to refresh soil. Typically a family will be actively farming 1-2 acres. Once abandoned the forest then quickly regenerates. Hand tools are used for cultivation. Chainsaws are becoming increasingly common to aid the forest clearance. A tractor and plough is owned by the village which has been used by a few more wealthy villagers to cultivate open land next to their homes. No fertilisers or pesticides used. Fruit trees are kept around homes.	
42	Industry and other land use in local area(s)	- Earth airstrip freshly cleared, levelled and approved for chartered aircraft - Brick making and logging locally but both artisanal - No other industry for 150km	
43	Quality and availability of electricity supplies within the local vicinity	No municipal supply, only individual generators.	
44	Number of people displaced from homes in local population(s)	A few houses burned due to uncontrolled savannah fires	

Appendix B

Who/what/when/where/why/how of monitoring and environmental management in the North Rupununi

Compiled from a North Rupununi CMRV project team meeting on the 01/11/2011.

Personnel Present from CMRV PMT, NRDDB, VSO, Iwokrama and GCP

This is a working document continuously being updated by the project management team. This activity is being led by Vitus Antone and the document has already been sent around a number of local 'experts' based at the NRDDB HQ at Bina Hill, such as Deirdre Jafferally, a fisheries expert.

Project	What?	Who?	Where?	When?	How?	Why?
Project Fauna (Jose Fragoso)	Wildlife usage in 6 villages (Wowetta, Toka, Fairview, Katoka, Apoteri, Kwamatta)	Selected community members			Biodiversity transects nearby and far from the communities	Academic research
Arapaima monitoring	Arapaima fish					Community resource management
Wildlife Clubs (Iwokrama)	Birds, rainfall, phenology	Children from the communities with the help of the Iwokrama				Education and monitoring for communities
Iwokrama Forest monitoring program	Wildlife of all classes, including camera trapping of big mammals	Iwokrama rangers				
Letterwood resource	Letterwood growth, harvest and replanting		Surama			Community resource management

Project	What?	Who?	Where?	When?	How?	Why?
NRAMP: North Rupununi Adaptive Management Plans (Darwin Initiative)	Wetland areas in the North Rupununi					Improve management of wetlands in preparation for RAMSAR status
PMRU Pra'da'da Monitoring Resource Unit (UNDP)	All village natural resources: wild animals, fish, forest flora and fauna, tree use etc.	VEOs (village environment officers) patrol and report, village council with national police and CI/Iwokrama rangers to enforce.	All 16 North Rupununi communities as well as Karanambo and Point ranch	2006-2008	Iwokrama did capacity building	Management plans that involves bylaw regulations, permits and quotas to sustainably use village resources
PMRU: Community tree harvest monitoring (Iwokrama assistance)	Tree use: Paurine (Rupertee), Eta (Wowetta), Kokerite (Annai), Cedar (Masara)	VEOs	Rupertee, Wowetta, Annai, Masara			Providing incentives to keep a community conservation area
Community forestry concession: Forest inventory	Forest inventory and tree spotting for community forestry concession	Makushi Yemkeun Forest Management (MYFM) community loggers	Community forestry concession, between Surama and Iwokrama			Community management of a forestry concession
River monitoring	Black caiman numbers Otter numbers Turtle numbers		Rivers: Rupununi, Essequibo, Burro Burro, Rewa, Semoni			

Project	What?	Who?	Where?	When?	How?	Why?
Fisheries Management Plan	Fisheries harvest monitoring			2010/2011		
Community Resource Mapping (Iwokrama with EU/Bina Hill update)	Land use and natural resource use in community area	Community members	All 16 North Rupununi communities	2000 - present	Participatory mapping with GIS support	Community resource management, particularly helpful to highlight shared resources
Monitoring Iwokrama Forest road corridor	Road checkpoints looking at passage of people any commercial products	Iwokrama rangers and national police	Iwokrama Forest		Permanent road checkpoints	To monitor traffic flow and police the flow of commercial products
Nutritional Intake monitoring (MRU)	Monitoring the nutritional intake of households	Makushi Research Unit (MRU)				
Social monitoring (MRU)	Education initiative on social issues (alcoholism, child abuse, STIs, domestic violence, people trafficking), and tracking the impact of the project	Makushi Research Unit (MRU)			Using videos to explain and revisiting every quarter to keep track of changes in perception and behaviour	Help catalyse behavioural changes (which lead to improved social welfare) through education
Social monitoring project in Fairview (MRU)	General social monitoring, including a wide range of parameters	Makushi Research Unit (MRU)				

Project	What?	Who?	Where?	When?	How?	Why?
Indigenous Peoples Plan (IPP)	Monitoring the social impact of the road (and applying the International Development Bank's (IDB's) safeguards)	Vanda Radzik and the Makushi Research Unit (MRU)				
Issuing hunting and fishing permit (GoG Wildlife Division)	The number of permits issued indicate the legal pressures on the fish and forest fauna	Government of Guyana Wildlife Division (in the Ministry of Agriculture, previously under the Environmental Protection Agency, EPA)	Nationwide	Ongoing	Number of permits issued per month, for what activities, and for what specific area	Regulate pressures on fish and wildlife from a national level
Issuing permits to remain in Amerindian territories (GoG MoAA)	Records are kept of the number of permits issued to non-Guyanese, the area for which they are applying, and the activities they intend to undertake		Amerindian title lands nationwide	Ongoing	Number of permits issued per month, for what activities, and for what specific area	Monitor and manage the presence and activities of external people in Amerindian territories, ensuring they abide by national and local regulations
Fire monitoring (training from US Fire Service)	Monitoring the cause and area burned of every fire in a certain area	2 community members selected and receive a stipend, reporting to the village council	Annai, Surama, Wowetta, Toka	2011 – present	Observation by community monitor, case by case, with some interviews to establish cause	To regulate community forest fires and prevent excessive and uncontrolled burning

Project	What?	Who?	Where?	When?	How?	Why?
Climate and Rainfall monitoring (Iwokrama – Isabelle Bovolo)	Climate and rainfall data	Weather stations	Iwokrama Field Station and Bina Hill		Data collected remotely by computer controlled weather stations	Climate monitoring for Iwokrama, feeding into national and international data sets
Honey farming	Practice of bee keeping and yield of honey from hives	Community members		2003-2005		
General community surveillance	Any small or large scale extractive activities that attract the attention of the community, and involve access to or passage through title lands by external persons: - logging - oil exploration - mining - commercial fishing - commercial hunting	Community members	All North Rupununi communities	Ongoing	Ad-hoc observations and reporting	To sustainably manage and keep control of community resources

Appendix C

External Wellbeing Questionnaire

Date:……..

Name:…….. Village:……..

1. Have you (experienced) **x** a lot over the past 4 weeks?

Happiness	Y / N
Enjoyment	Y / N
Smiling or laughter	Y / N
Hope	Y / N
Worry	Y / N
Sadness	Y / N
Stress	Y / N
Anger	Y / N

2. Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top.
   The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you.
   On which step of the ladder would you say you personally feel you stand at this time?

0 1 2 3 4 5 6 7 8 9 10

3. Do you or your household have **x**?

□ a bicycle
□ a car or truck
□ a gas stove
□ a cutlass
□ a water system
□ a television
□ a music system
□ chickens
□ cow(s)
□ a motorbike
□ a bed (instead of a hammock)
□ a generator
□ a chainsaw
□ a zinc roof on any of your buildings
□ a cellular phone
□ a laptop computer
□ horse(s)

4. If you wanted, could you get a financial loan? Y / N

5. Do you have a regular financial income coming into your household? Y / N

6. What level of education have you received?

□ primary school
□ secondary school
□ other
□ university
□ professional vocational training

if 'other', please explain what the training was here: ……

7. How would you describe your health?

□ poor (I am sick a lot of the time)
□ ok (I seem to get sick easier than other people)
□ quite good (I am just as healthy as other people)
□ very good (I'm healthier than most other people)

8. Do you have physical exercise regularly? Y / N

9. Do you have 3 meals a day most days? Y / N

10. Do you have easy access to **x**?

□ clean drinking water
□ medicines
□ a nurse / medical worker
□ a doctor
□ a hospital

11. Are all your children still living? Y / N

12. Background info

Age …… Ethnicity ……

Sex Male / Female

13. Are you married / have a long term partner? Y / N

14. Do most of your family live in the village? Y / N

15. How would you describe your faith (i.e. additional strength to face the world)?

□ don't have □ not strong □ quite strong □ strong

16. Do you feel the community lands / resources are threatened by outsiders doing mining fishing, logging, hunting etc.? (or do you feel they are safe and secure?) Y / N

17. Do you enjoy traditional activities, like hunting, fishing, farming or processing cassava? Y / N

18. Do you speak your native language fluently? Y / N

19. Are you a member of the culture group? Y / N

20. How do you feel about the quality of the leadership in the village?

□ poor □ ok □ quite good □ very good

21. How do you feel about the level of cooperation in the village?

□ poor □ ok □ quite good □ very good

22. How often do you attend community meetings?

□ Never □ less often □ often □ always

23. What would you do to increase your happiness?

……

24. In 5 years time what do you want to be doing i.e. what are your aspirations in life?

……

Appendix D

Makushi Research Unit Wellbeing Questionnaire

1. What do you understand about 'wellbeing'?
2. How many family members are in your household?
3. Are you married?
4. Are you employed? And if so, by whom?
5. How often do you go to church? Which church do you go to?
6. Do you share with your neighbours?
7. Do you cooperate in your village activities?
8. Are you part of the village council, or any other organisation?
9. How often do you communicate with other village members?
10. Do receive any assistance from family members working outside the country?
11. Do you have a farm?
12. How far is your farm from your home?
13. Do you eat your food on time?
14. Do you own livestock?
15. In what way do you gain income?
16. How does your partner treat you?
17. Do you have violence in your home?
18. Do you have alcohol for sale in your village?
19. Do you ever have conflict with other village members?
20. How do you feel about noise pollution in the village?
21. Do you speak your native language?
22. Do you keep your culture alive?
23. Is there any thieving in your community?
24. What assets do you own?
25. Do you go hunting or fishing?
26. How do you depend on the forest?
27. How does migration affect your community?

Appendix E

Scoring of the external wellbeing questionnaire

Detail of the sub-section scoring and ranking. All the dimensions were equally weighted by being allocated a total of 10 possible points. Where dimensions contained more than one question, each separate question was scored out of 10 points, added together, and then averaged to give a cumulative score out of 10. If questions were elucidating the same subject, they would also be combined to contribute to the dimension score. The overall ranking was created by totalling the scores for each of the dimensions and ranking these accordingly. Adjustments to the scoring were made after data collection due to a few difficulties from the questionnaire and the assessment process. Details are given below.

Wellbeing dimension	Details of scoring	Adjustments and notes
1. Emotional wellbeing	Q1: each positive emotion scored +1 and each negative emotion scored -1, with no zero count. Q2: the answer given on the 10-rung ladder was the score assigned. Averaged to 10 by /2.	The life satisfaction question (Q2) was not used because it was not sufficiently understood by all the interviewees. Thus no averaging action.
2. Aims and aspirations	Q23+24: scored relatively into a ranking/10 based on the clarity of a person's aspirations and vision for improving their future.	Not utilized in any of the analyses as it was not well understood by all the interviewees.
3. Assets and finance	Q3 on assets: scored on household ownership of pre-defined and recognized assets of high, medium and low value. Q4+5 on financial security: 5 points for each 'yes'. Averaged to 10 by /2.	
4. Family	Q13 on partners: 10 points for 'yes'. Q14 on family support: 10 points for 'yes'. Averaged to 10 by /2.	
5. Faith and beliefs	Q15: 10 points for 'strong', 7 points for 'quite strong', 3 points for 'not strong', and 0 points for 'don't have' (rounded to whole numbers).	
6. Community safety	Q16: 10 points for 'yes'	
7. Culture	Q17 on traditional activities: 10 points for 'yes'. Q18 on native language: 10 points for 'yes'. Q19 on culture groups: 10 points for 'yes'. Averaged to 10 by /3.	Q19 on culture groups was omitted as not all communities had a culture group. Thus averaged to 10 by /2.

8. Community relationship	Q20 on community leadership: 10 points for 'very good', 7 points for 'quite good', 3 points for 'ok', and 0 points for 'poor' (rounded to whole numbers). Q21 on community cooperation: 10 points for 'very good', 7 points for 'quite good', 3 points for 'ok', and 0 points for 'poor' (rounded to whole numbers). Q22 on community participation: 10 points for 'always', 7 points for 'often', 3 points for 'less often', and 0 points for 'never' (rounded to whole numbers). Averaged to 10 by /3.	Q20 on community leadership was excluded because village elections had recently taken place so opinions had yet to be formed. Thus averaged to 10 by /2.
9. Education	Q6: Cumulative score of 1 point for 'other', 'vocational' and 'primary', 3 points for secondary, and 4 points for university.	The biggest differentiating gap in the communities is between primary and secondary, hence the larger score difference.
10. Health	Q7 on personal health: 10 points for 'very good', 7 points for 'quite good', 3 points for 'ok', and 0 points for 'poor' (rounded to whole numbers). Q8 on exercise: 10 points for 'yes'. Q9 on food: 10 points for 'yes'. Q10 on health care: 2 points for each category. Q11 on health security: 10 points for 'yes'. Averaged to 10 by /5	Q8 on physical exercise was omitted as physical work, such as farming is not always perceived as exercise. Thus averaged to 10 by /4.

Appendix F

Questionnaire for other CMRV practitioners

Participation in monitoring schemes

Community-based monitoring is increasingly attracting attention due to its potential to effectively engage local people in conservation efforts while also providing low cost, sustainable and essential information on the state of natural/human resources.

Many environmental and conservation projects engage in 'participation', including local people in the project activities to varying degrees, and monitoring projects/systems are just the same. However, it is not always straightforward to attain the desired level of participation. There seems to be a sustainable ideal, in many cases, where local people are the primary designers, managers and decision-makers with external experts only providing select advice and support (the definition of 'community-based monitoring').

From our experience with the Community MRV project in Guyana we have found there to be a number of barriers to achieving our desired level of participation and ultimately, local project longevity. As such I am seeking to understand and share some of these lessons with other practitioners to help them better engage local people in conservation monitoring.

Below are 3 questions about your own experience of local participation that I'd be most grateful for you to answer, if you can? As you are engaging in similar activities to the CMRV project (involving local people in monitoring activities), I feel you could genuinely contribute to this discussion.

Best

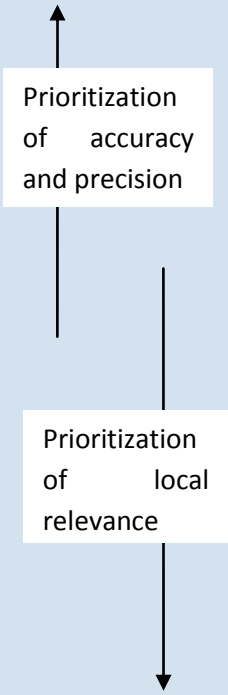
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Questions

1) How would you describe the level of participation in your project? Please choose from the options in the table provided below, and it's ok for your choice to bridge two categories.
2) What level/category were you, as the instigators of the project, aiming for, in terms of participation?
3) What key factors have contributed to the project achieving (or not achieving) the desired level of participation?

Category of monitoring scheme	Relative contributions of externals/professionals and local people (Danielsen et al. 2008)	Relation to typology of participation (Pretty 1995)	Other details
1 – Professional monitoring	No involvement of local people (except maybe for consent). Design, monitoring, analysis and data use by professional researchers.	**Manipulate or Passive Participation**. People's involvement is superficial and they have no influence or power in decision-making.	
2 – Externally driven monitoring with local data collectors	Local people only involved in the data collection stage, with professional researchers designing, analysing and using the data.	**Consultative or Incentivised Participation**. Project design and info gathering process is controlled externally. Locals are only involved through working for rewards, or consultation where there is no obligation for externals to heed local views.	
3 – Collaborative monitoring with external design and data analysis	Local people are involved in the data collection and data use in resource management. Design and analysis carried out by professional researchers.	**Functional Participation**. Local people involved in decision making processes, though big decisions are often taken externally, and in advance. Participation is a project goal.	
4 – Devolved, community-based monitoring with external advise	Local people involved in all areas of the monitoring process, with professional researchers giving support where needed.	**Interactive participation**. Local people have control of project design, action plans, resource allocation and activities. Participation is a right, not a goal.	
5 – Autonomous local monitoring (traditional and customary)	No external involvement (except maybe for advocacy). Design, monitoring, analysis and data use by local people.	**Self-Mobilisation**. Initiative taken locally to address issues. Contact may be made with external institutions to work at higher levels	

Key References

Danielsen, F., Burgess, N. D., Balmford, A., Donald, P. F., Funder, M., Jones, J. P. G., Alviola, P. A., Balete, D. S., Blomley, T., Brashares, J. S., Child, B., Enghoff, M., Fjeldsa, J., Holt, S., Hubertz, H., Jensen, A. E., Jensen, P. M., Massao, J., Mendoza, M. M., Ngaga, Y., Poulsen, M. K., Rueda, R., Sam, M. K., Skielboe, T., Stuart-Hill, G., Topp-Jorgensen, E. & Yonten, D. (2008) Local participation in natural resource monitoring: a characterisation of approaches. *Conservation Biology.* 23 (1), 31-42.

Pretty, J. (1995) Participatory learning for sustainable agriculture. World Development. 23 (8), 1247-1263

Appendix G

The Most Significant Change Study

Recorder name:…… Date:……
Name of storyteller:…….. Position:……
Location:…… Domain?……

"In your opinion, thinking back over the past year since the project started, what has been the most significant change as a result of the CMRV project? (in anything, such as your life, the community, the region, people's understanding). The change can be positive or negative. This is confidential."
"Why is this change significant to you?"
If the storyteller can't specify 1 story, record 2 or 3 and rank them. Record them as they are told.

Summary title.……
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……continue overleaf if necessary

Think about the most significant change in your whole life. How does your story compare to this?

This story is more significant / they are the same / this story is less significant

Think about the most significant change in the community. How does your story compare to this?

This story is more significant / they are the same / this story is less significant

Preliminary results from MSC study on CMRV project participants – October/November 2012

Totals for local study:
28 CREW interviews
9 PMT/partner interviews
36 interviews overall

Question:
"In your opinion, thinking back over the past year since the project started, what has been the most significant change as a result of the CMRV project? (in anything, such as your life, the community, the region, people's understanding). The change can be positive or negative. This is confidential."

Results (overall):
Skills/knowledge/personal development of CREWs– 18/36 = 50%
Communities more informed about their resources – 8/36 = 22%
Employment and wages – 5/36 = 14%
Being employed in home community – 2/36 = 6%
Improved relationship between North Rupununi and Government – 2/36 = 6%
Increased suspicion of research and interviews – 1/36 = 3%

Results (PMT):
Skills/knowledge/personal development of CREWs– 4/9 = 44%
Employment and wages – 3/9 = 33%
Improved relationship between North Rupununi and Government – 2/9 = 22%

Results (CREWs):
Skills/knowledge/personal development of CREWs– 14/27 = 52%
Communities more informed about their resources – 8/27 = 30%
Employment and wages – 2/27 = 7%
Being employed in home community – 2/27 = 7%
Increased suspicion of research and interviews – 1/27 = 4%

Question:
"Think about the most significant change in your whole life/community (depending on answer given above) that is not to do with the CMRV project. How does the story you told just now compare to the one you are currently thinking of?"

This story is more significant / they are the same / this story is less significant

Results (overall):
16/36 (44%) thought that the change from the CMRV project was the most significant thing to happen in their life/community
9/36 (25%) thought that the change from the CMRV project was **not** the most significant thing to happen in their life/community
8/36 (22%) thought that the change from the CMRV project had the same significance as another big event in their life/community
3/36 (8%) didn't feel like they could answer the question

Results (PMT):
2/9 (22%) thought that the change from the CMRV project was the most significant thing to happen in their life/community
3/9 (33%) thought that the change from the CMRV project was **not** the most significant thing to happen in their life/community
3/9 (33%) thought that the change from the CMRV project had the same significance as another big event in their life/community
1/9 (11%) didn't feel like they could answer the question

Results (CREWs):
14/27 (52%) thought that the change from the CMRV project was the most significant thing to happen in their life/community
6/27 (22%) thought that the change from the CMRV project was **not** the most significant thing to happen in their life/community
5/27 (19%) thought that the change from the CMRV project had the same significance as another big event in their life/community
2/27 (7%) didn't feel like they could answer the question

MSC online interviews of national and international CMRV stakeholders

Aim
To gather national and international opinions about the impact if the design phase of CMRV project, based on MSC evaluation and additional questions.

Selection:

The key to the selection of these experts is their exposure to the project. They need to have known about CMRV for a substantial period of time and actively engaged in it enough to have a thought about the impacts its making. There are only a limited number of individuals who fulfil this and so sample size will be small.

Selection criteria for national stakeholders:

- They have been involved in the project for more than 1 year;
- This involvement must have been active, such as granting permission, giving advice, or working in the steering committee;
- They must be primarily based in Georgetown and working at a national level, either in the Government of Guyana, or advising it;
- Representatives from government and NGOs, but not two from the same organisation.

Question for national stakeholders:
In your opinion, since the CRMV project began in the North Rupununi a year ago, what do you think has been the most significant change as a result of the project? This can be a change in anything at all, can be positive or negative, and your answer is confidential. If you can't decide on a singular one, feel free to write down two or three and try to rank them.

Selection criteria for international stakeholders:

- They have been involved in the project for more than 1 year;
- This involvement must have been active, such as being part of the CFM Google working group, giving advice, co-authoring any related material with the GCP, or keenly reading project material;
- They must not work in Guyana;
- Representatives from a variety of NGOs, academic institutions and governments, but again, not two from the same organisation.

Question for international stakeholders:
In your opinion, since the CRMV project began in Guyana a year ago, what do you think has been the most significant change as a result of the project? This can be a change in anything at all, can be positive or negative, and your answer is confidential. If you can't decide on a singular one, feel free to write down two or three and try to rank them.