Best Practices

Report on Best Practice Case Studies
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Executive summary

Policies and actions that come from higher-scale structures, such as international bodies and national governments, are not always compatible with the realities and perspectives of smaller-scale units including indigenous communities. Yet, it is at this local social-ecological scale that mechanisms and solutions for dealing with unpredictability and change can be increasingly seen emerging from communities across the world. In this report, we define these ‘community owned solutions’ as practices developed and implemented by communities themselves to face current and emerging social-ecological challenges and contribute to the community’s well-being in the present and in the future. We report on the systemic, participatory and visual methods used to identify and record community owned best practices. This involved using a participatory multi-criteria analysis approach comparing indicators of community viability to future scenarios researched in the first phase of the project, in order to select a short-list of best practices. We then present the final six best practices and show how they are intimately linked through the themes of indigenous knowledge, local governance and values, and partnerships and networks. We also make the case for the relevance of these best practices, not only at the local level, but also at national and global policy arenas. We highlight that our methodological approach has enabled the identification of best practices which have synergistic effects i.e. they do not focus on promoting one aspect of a community while undermining other aspects. This is in stark contrast to many development and conservation policies and initiatives pushing simplistic interventions which are unable to deliver the appropriate trade-offs amongst competing interests. The challenge now is to build capacity in our approach, and the resulting best practices, within other communities throughout the Guiana Shield and in national and international policy makers, as we enter the final next phase of the project.
1. Introduction

1.1 The context

Humanity is increasingly forced to engage with the consequences of our deleterious interventions on potentially fragile and unpredictable ecosystems, at a range of scales, from local habitats to the global Earth system (MA, 2005; Rockström et al., 2009). To date, many development and environmental management policies and actions have supported a move towards a supposedly predictable and idealised stable state (Scoones et al., 2007); a command-and-control approach which lacks the ability to manage and adapt to surprises and rapid change. In addition, these policies and actions have come from higher-scale structures e.g. national governments, which are not always compatible with the realities and perspectives of smaller-scale units e.g. rural/indigenous communities (Peskett et al., 2008; Mistry, 2013). Yet, it is at this local social-ecological scale that mechanisms and solutions for dealing with unpredictability and change can be increasingly seen emerging from communities across the world (e.g. Blom et al., 2010; UNDP, 2012). The relative failure of top-down approaches to sustainable development and environmental management has encouraged communities to support an alternative, bottom-up, culturally sensitive approach to development.

Much recent work on natural resource management has therefore focused on a deep engagement with local to global social-ecological systems - nested human-in-nature systems where the human and the ecological are tightly integrated, and where interactions between the two domains over a range of scales sustain, or undermine, the coupled systems over space and time (Berkes and Folke, 1998, Berkes et al., 2003). Sustainability of these nested social-ecological systems largely depends on their adaptive capacity: the ability to learn; be flexible; to experiment; and their openness to adopting novel solutions (Folke, 2006; Folke et al., 2010). Many indigenous peoples are still heavily dependent on locally available natural resources for their survival, and have developed social and cultural mechanisms that reflect the very real dynamics of natural systems i.e. they are active, integrated social-ecological systems. At the same time, a growing number of indigenous people are using information and communication technologies to record and communicate their experiences. Therefore, the challenge of future policy evolution is to link, more explicitly, with grassroots, community owned solutions through novel information and communication applications, in order to promote social-ecological sustainability at a range of scales. Crucially, these approaches need to adopt principles of engagement and participation which are inclusive, equitable, and reflexive.

1.2 Why community owned solutions?

Communities face many challenges such as externally led (legal and illegal) natural resource extraction and large infrastructural developments, lack of rights and land tenure, poor services such as health and education, loss of culture and environmental impacts including climate related phenomena (Hall and Patrinos, 2005, 2010). These challenges have a range of direct and indirect effects on the social-ecological well-being of communities.
Community owned solutions are practices developed to face up to one or more challenges and are carried out by communities themselves. The solutions contribute to the community’s well-being in the present and in the future. They are born, developed and successfully implemented in the community, by the community, without major influence from external stakeholders. Box 1 summarises our definition for community owned solutions.

Box 1. What are “Community Owned Solutions”? (Adapted from UNDP, 2012)

"Community owned" or "local" solutions have the following characteristics:

- **Local demand** – the practice comes from local community demand for economic, social, or environmental benefits, or as a reaction to the loss of these benefits.
- **Local action** – the practice is carried out by local people, although there may be a level of support by outside partners from government, civil society, or the private sector.
- **Local management** – the planning, implementation and evaluation of the practice is organised locally.
- **Local benefits** – benefits occur within the community but regional, national, and global benefits may also occur.
- **Ethical practices** – the practice does not have a negative impact on the local and global environment, and where possible, can even enhance local and global bio capacity; financial benefits are distributed fairly; participation is from all sections of the community and there is no discrimination.

Why are community owned approaches of crucial importance? Until the beginning of the 1990s, the dominating approach for dealing with ‘sustainable development’ was government-led (Dryzek, 2005). With the growth of globalised, market-based economies and the weakening of governments, sustainable development has now taken on an increasingly market-led approach (Castree, 2008; Murat Arseland Büscher, 2012). As we have seen in the economic crises evolving since 2008, the market is essentially controlled by transnational corporations such as major banks, and the intervention of national and international governmental institutions, such as the International Monetary Fund. What characterises both government-led and market-led approaches to sustainable development is that the process is mostly under the control of non-community professional experts who generally propose generic, blueprint solutions.

This expert-led, top-down approach leaves very little opportunity for local communities to show that there may already exist very practical solutions for ‘sustainable development’ within the communities themselves. These solutions could be a source of inspiration for neighbouring communities, as well as providing a platform for communities to demonstrate their self-sufficiency to policy makers and governments. Instead of a ‘top-down’ process where decisions are taken by external experts, imposed on communities without addressing the local, cultural, political and environmental conditions, promoting ‘bottom-up’ processes may reveal the already existing and locally-owned solutions to a complex and rapidly changing environment. There are of course many expert led solutions that have bought great benefit to communities, such as the discovery and large-scale introduction of vaccinations. But the balance needs to be redressed where:
“a new development equation emerges: local groups provide the initiative, innovation, and direction; governments provide the enabling conditions, mainstream local concerns into national policies, and encourage the scaling up of local successes” (UNDP, 2012, p.15).

“Give a man a fish, and you feed him for a day; show him how to catch fish, and you feed him for a lifetime” is a very common saying in the field of development. It implies that building community capacity in order to be self-sufficient is better than providing a quick fix to a temporary crisis. ‘Teaching how to fish’ with modern tools, such as commercial seine nets, may provide a short-term glut in fish and even allow communities to earn significant income by exporting this fish to outside markets. However, according to our definition, it is not a community owned solution if it is detrimental to the environment, imposed by someone external to the community and/or pushed through by external funding. It might provide some short-term benefits to certain members of the community, but it is clearly not a community owned solution if it is marginalising others. In addition, some community owned solutions may emerge from the outside and then be appropriated and adapted by the community. For example, external projects, often triggered by external stakeholders, are sometimes fully appropriated by a local community: local communities take control, adapt them to their aims and aspirations, to their institutions and customs. Communities are then able to sustain these initiatives without on-going external input.

Along the lines of our ‘community-owned solutions’ approach, a new saying might read something like: "show a community how to catch fish, and you feed them for as long as they have the support to buy the equipment. You'd also better hope that this method won't eradicate the local fish population and traditional fishing practices which have sustained the fish and local populations for centuries. Promote locally-owned solutions and skills to produce local food and they will be able to survive sustainably with minimal external support". It is about promoting and empowering what already exists within the community; giving a voice to local communities so that national and international policy can be improved by learning from local knowledge and experiences (Pokorny et al., 2013). This in no way implies that communities should be left behind in terms of benefiting from external innovations and support. However, these external interventions need to fit into the strengths of the community, rather than undermine existing community solutions.

Project COBRA is all about building capacity in communities to record and share their solutions to emerging challenges. A solution that has worked for one community, may very well work for another community that has never tried it before. Or a solution could be adapted to the local context of another community, or inspire new ideas. Each community might be social and ecologically different, but from exchanging practices they can learn from each other and adapt solutions to their own context. The key is that it is the communities themselves that are coming up with, and sharing, the solutions.
1.3 How do we get to best practices for community survival?

The overall aim of the COBRA project is to:

establish how community owned solutions for the management of natural resources have the potential to act as showcases for the world in determining the most effective and efficient use of emerging funding streams in order to maximise social justice and ecological sustainability.

In order to do this, we first had to understand the current situation for local communities in the Guiana Shield in the context of national and international policy developments. What are the various survival strategies employed by local communities to differing social-ecological challenges? What policy activities are going on at the national and international levels that may support, promote or undermine these community survival strategies? (see Berardi et al., 2012; Berardi et al., 2013). To assess community survival strategies, we used innovative and state-of-the-art approaches including the System Viability framework (Mistry et al., 2010; Berardi and Tschirhart, 2012) and the visual methods of Participatory Video (PV) and Participatory Photography (PP) (see Bignante and Mistry, 2012). We then identified and explored a range of possible future scenarios with regards to the social-ecological systems at the international, regional, national and local community levels, in order to compile and prioritise a range of win-win, win-lose and lose-lose options for local communities in the Guiana Shield (Mistry et al., 2013a). All of this research was underpinned by COBRA’s participatory action research approach (PAR) (Berardi, 2012). A PAR methodology engages a range of end-users in the research process right from the start, builds social capital of the participants and allows reflection and adaption while the research is being undertaken (Kindon et al., 2007).

The next stage was to compare the current situation for local communities to potential futures in order to identify ideal actions or practices initiated at community level which will avoid moving the current situation towards conflict/worst-case scenarios, but instead maximises the chances of achieving positive synergistic outcomes. These ideal practices are ‘community-owned solutions’ and the ‘best practices’ are the selection of top community owned solutions or practices that make a community viable and that can be an inspiration for other communities and other stakeholders (see Box 2). However, the aim of the COBRA project was to develop a coherent and in-depth reasoning for identifying and characterising community owned best practice. This is outlined in detail in Section 2 of this report. Figure 1 illustrates the key steps undertaken in COBRA for the identification of community best practices.
Box 2. Why focus on community best practices?

Reasons for highlighting community best practices are:

- Because best practices actually work!
- Because it empowers local communities, encouraging thinking of what makes them exemplary, what makes their strengths
- Because disseminating a practice that is strong and has proved to be successful increases chances of it being replicated or adapted somewhere else
- Because only the top best practices might catch the attention of higher level stakeholders (e.g. governments, policy-makers)
- Because originators and champions of the practice are known and can be consulted on how best to implement it
- Because it is very time-consuming to work on all good practices within a community
1.4 Where is the support for community owned approaches?

Our analysis of policy development and implementation being undertaken at the national and international levels that could support, promote or undermine local community survival strategies identified five key areas with strong cross-scalar linkages and implications for community owned approaches (see Berardi et al., 2012; Berardi et al., 2013). These were land rights, governance, partnerships, lifestyle and identity.

Land rights and tenure security are critical for supporting and promoting community owned approaches. In fact, all scales of policy formulation included indicators which recognised the importance of indigenous land rights for maintaining community survival, regional social-ecological viability and the effective functioning of policies. However, our policy analysis, for example of REDD+, showed that although safeguards regarding local community rights may be in place within the REDD+ framework itself, successful implementation is hindered by considerable uncertainties in indigenous land rights allocations and a lack of protection from threats such as illegal gold mining (Corbera, 2012; Donovan et al., 2012), that could seriously undermine community owned solutions.

Good governance also permeated across local to global levels of analysis. Here, leadership, solidarity, autonomy in decision-making, and the establishment and implementation of regulatory rules, were key issues. Ideas that participation, inclusion, accountability, and transparency help to foster collective action and engender trust in local communities were also highlighted. Having strong links between local natural resource management and national planning and policymaking, including mechanisms for participation of local communities in national processes, were discussed. Although there were some positive examples of good governance structures supporting community owned approaches (see for example the Arapaima and associated fisheries management in the North Rupununi, Guyana (Fernandes, 2006; Bicknell and Chin, 2007)), serious ongoing issues included lack of control of corruption and ineffective leadership at local, regional and policy levels across the Guiana Shield, undermining community-based initiatives.

Long term partnerships can be vital for supporting community owned approaches, especially for the generation of funding streams, and enabling capacity building opportunities. Cooperation amongst indigenous associations, national and international NGOs, governmental institutions, and international bodies are evident within the Guiana Shield, yet our analysis shows that there are mixed results, particularly at the regional and international scales where funding support for collaborative initiatives are rarely sustained and stable over the longer term. These relationships are better sustained at the local level, where for example, individual communities have the support of local community-based organisations. Strengthening these local civil society organisations could have a much more profound impact on how community owned solutions are facilitated and advocated.

Our analyses indicated that communities felt the need for much higher levels of investment on improving their lifestyles, characterised by requirements for built infrastructure (roads, modern housing), technologies (transportation, communication), health services (medicines and medical equipment), livelihoods (paid employment, participation in formal education) and access to modern consumer goods (clothing, televisions, imported foods, entertainment). Yet at the higher scales of
analysis, many conservation oriented policies did not support these trends towards a more Western lifestyle and in fact most of them aimed at keeping the social-ecological systems in a perceived ‘pristine’ state. Development and well-being oriented policies, on the other hand, were excessively focused on promoting Western lifestyles and cultures, neglecting indigenous identity, language and traditional practices (food preparation, celebrations, beliefs, etc). Our analyses, on the other hand, identified these as a key component of community and regional social-ecological viability. However, again, the higher level policy analysis did not identify the preservation of indigenous identity as a requirement for the long-term success and sustainability of global policies. This throws up the tension at the local level between adopting Western ideas/tools while maintaining tradition, with implications for community owned solutions. It also highlights the general lack of acknowledgment of these local aspirations by national and international policymakers - with policies pulling in different directions.

Overall, COBRA’s key results indicate that certain indigenous community themes/indicators of paramount importance to their viability and potential best practices, are not explicitly addressed or reinforced equally by national and international policies e.g. food security, infrastructure development, technological advancement, cultural conservation and change. In addition, the local impact of the implementation of any policy at the international or national level may be too narrowly focused. While it may encourage the capacity to adapt to some of the new realities brought about by global changes, it might threaten the very existence of other aspects of a community. There is therefore a real danger that these policies might limit community viability, and associated community owned approaches to sustainable natural resource management, if they are going to reduce access to resources and infrastructure development by, for example, encouraging restrictive legislation or the designation of traditional indigenous territories as protected areas excluding indigenous traditional practices, such as hunting and shifting agriculture.

The System Viability framework helps communities and policymakers realise that there are no simple, quick fixes to complex problems. Instead, in order for a community to guarantee survival in the long-term, it needs to balance its aspirations for maintaining traditional identity and adapting towards Western lifestyles and technologies, balance between the flexibility provided by keeping alive a diversity of practices and the efficiency and high returns of focusing on a single successful product or service, balance between focusing on a community's immediate needs and the long-term needs of a range of local, national and international stakeholders. These tensions, checks and balances, also need to be reflected in international policies. Until this is the case, stakeholders at all levels of decision-making, from local communities to international policymakers, will find themselves divided between specific interest groups while lurching from one ‘quick fix’, but ultimately ineffective, intervention to another.
1.5 What are the future challenges for community owned approaches?

In recent scientific discussions, the acknowledgement of the role of local and indigenous people in natural resource management has become more and more apparent (e.g. Berkes et al., 2003; Blom et al., 2010). Yet interestingly, in COBRA’s analysis of future scenarios for the Guiana Shield (Mistry et al., 2013a), none of the regional and international scenarios incorporated local communities as key, integral stakeholders in environmental management. Partly, this is due to the focus at the international and regional level on proximate drivers of change i.e. those responsive to short-term intervention, including globalisation/market liberalisation, governance, ecosystem management and technology which is envisaged to be implemented from a top-down, expert-led approach. In contrast, at the local scale, communities concentrated on the root causes that shape society and the human experience, i.e. ultimate drivers, including values, desires and aspirations, structure of power (especially local leadership), knowledge and understanding, human needs and long-term ecological processes.

In addition, at the global and regional scales the focus seems to be much stronger on policies and how these can influence society and the environment, with public-private partnerships as facilitators. This is in contrast to the lower scales of analysis where the focus is on practices; issues around the actual operationalisation and implementation of effective development and environmental management. These include education and capacity-building, mechanisms for safeguarding natural resources, with communities joining government and private enterprises in decision-making.

The few win-win situations identified for local communities in the future closely linked the local to the national scale and were underlined by issues of governance, highlighting the importance and influence of effective and equitable power structures at national level on local level sustainable futures. With the national scale as a key mediator between the local and regional/global scales, it seems that the potential success of some community owned approaches will be reliant on the transparency, quality control assurance, and accountability of state processes, issues currently heavily criticised throughout the Guiana Shield.

Significantly, our analysis showed the importance of young people within the indigenous communities of the Guiana Shield, a demographic cohort whose values and behaviours will influence the culture and ecology of the future. Through their scenarios, the young people of the North Rupununi illustrated their awareness of understanding and proactively engaging with the ultimate drivers of change for a sustainable future. Involvement of young people will be vital for maintaining and promoting community owned approaches. This is a huge challenge as many indigenous communities are faced with increasing out-migration of the younger generation (e.g. Bell, 2007).

1.6 Structure of the report

Section 1 provides an introduction to the context and concepts behind community owned approaches and best practices. Sections 2 and 3 will report on the methods and results of identifying and recording the community owned best practices respectively. Section 4 presents a discussion
which draws together the findings and identifies important policy and practical outcomes. The report concludes by outlining how the results of this report will be used in the next phase of the COBRA project.
2. Methodology

The identification of best practices builds on a series of steps carried out in the first phases of project COBRA.

Between January 2012 and January 2013 and as part of Workpackage 2 activities\(^1\), COBRA community researchers worked with three communities of the North Rupununi: Apoteri, Fair View and Rewa. Supported by the community researchers and following the System Viability framework, each community identified a wide range of crucial elements that constitute their viability\(^2\). These elements were natural resources (e.g. trees, river, medicinal plants), objects (e.g. solar panels, generators, radios), issues (keeping youth in the village), institutions (e.g. the NRDDB or the Government) and practices (e.g. hunting, fishing, self-help). In total, the three communities identified 110 elements for their viability.

Each of these elements was then allocated an indicator (how does the community measure the state of this important element of their viability?) and a threshold (what is the community’s level of tolerance before it considers this element in a bad state?). The allocation of indicators and thresholds was carried out by the local team of researchers, based on their experience within the project, their research carried out in the communities using Participatory Video and Photo, and their own knowledge of the local communities. For example, ‘Timber’ was identified as a crucial element for the viability of the three communities. The local team of researchers argued that the status of timber resources was directly linked to the way local communities managed the timber resources. As a consequence, a locally owned indicator of ‘Timber’ is “People knowing how (equipment), what (species), why (purposes), when (growth) and how much to extract”. The community owned threshold is when the “Majority of people have traditional knowledge and modern equipment to extract timber”.

As part of Workpackage 3, Future Scenarios were developed in May 2012 by the local communities in order to identify best case scenarios towards which current practices should work\(^3\).

The identified best practices are the result of this whole year of work, and of the comparison between the current viability of the communities and their future scenarios, as well as other collectively developed criteria, such as the level of community ownership of the practices, or how relevant it is for all of the North Rupununi communities (see Box 3 for the exhaustive list of criteria). Figure 2 shows the main steps leading to the selection of the best practices.


The following sections explain in depth the main methodological steps leading to the selection and investigation of the best practices.

2.1 Multicriteria analysis to identify ideal actions/practices

In order to identify 6 best practices, a Multi Criteria Analysis (MCA) was conducted on the whole set of viability elements identified by the communities who had participated in the System Viability Analysis. This method was chosen because it provides a structured approach for comparing different options (the viable elements) and for selecting the most suitable ones according to overall preferences (the criteria) (Belton and Stewart 2002). The options can be compared by being rated against a set of criteria that represent different desirable objectives (Mendoza and Prabhu, 2005; Khadka and Vacik, 2012). The options that manage to fulfil all the desirable objectives are thus very likely to be selected (Recchia et al, 2011).

A set of criteria was first of all collectively determined by all members of the COBRA consortium. Box 3 shows the final list of criteria that, according to COBRA’s members and objectives, make a practice
a 'best practice'. Each criteria was allocated a weight, as they do not all have the same importance in terms of COBRA’s objectives. Indeed, as a consortium, it was agreed that criteria giving priority to community perspectives and practicality (considering our time-frame) were to have more weight than criteria linking to other scales or expert-led approaches. The criteria were given a weight ranging from 0 (no importance at all) to 1 (very high importance), 0.5 being the intermediate value (neither very important nor irrelevant). In Box 3, the numbers in bold after each criteria are the weights collectively allocated to each of the criteria.

Box 3. List of criteria for selecting best practices

How many other communities are using this indicator? In other words, within COBRA, was the crucial element for viability chosen by only one community or the three of them? **0.5**

Does this indicator have a satisfying threshold? In other words, do the community researchers, the communities and other COBRA participants understand and can relate to the threshold? Does it reflect reality? Can it easily be used? **1**

Does the indicator seem to be well thought-through? In other words, do the community researchers feel it is an element of viability that is relevant and important for the community who participated to activities, or that it was mentioned lightly? **0.6**

Does it clearly fall into an orientor category? In other words, when the element was chosen, was there discussion or not about which orientor it should fall into? Did the whole community agree on its classification or was there some tension? Can this element also be found, to a certain extent, under other orientors? Can the choice be clearly explained and justified? **0.8**

Is it an easy indicator to capture through video and photostory? In other words, can the story be easily told? Can the footage be easily captured? **1**

How transferable is the best-practice? In other words, can the best practice eventually be easily shared and implemented in another community, especially within the 6 months allocated to this within the project COBRA? **1**

Is it fully community-owned? In other words, was this practice born, developed and successfully implemented in the community, by the community, without major influence from external stakeholders? **1**

Is there somebody who can represent and execute the indicator/practice very well? In other words, is there an inspiring champion who can explain and share the best practice, and encourage other communities to implement it? **1**

Does this indicator fall into a Workpackage 2 cross-scalar theme? In other words, is the theme in which the indicator falls into an important cross-scalar theme within COBRA? **0.2**

Is this indicator also selected by “experts” (e.g. academic literature or development practitioners)? In other words, can this indicator be more easily understood and used by non-community stakeholders? **0.2**
Does it contribute to make the best-case scenarios happen? In other words, can this best practice have a determining influence on the future of the community? Might it contribute to Workpackage 3 future scenarios developed in the North Rupununi:

- Conflict and Divide in the NRDDB? 0.2
- Blackmail, Corruption and Bribery in the NRDDB? 0.1
- Self-sufficiency of the NRDDB? 1
- Oil is found and developed in the North Rupununi? 0.5
- Oil is not found in the North Rupununi? 0.8
- Youths having a well-functioning recreation facility? 1
- Youths having a bad functioning recreation facility? 0.1
- Youths having no recreation facility? 0.1

Each element of viability was then rated against these weighted criteria. For instance, taking the practice of ‘Fishing’ in the Existence orientor, the community researchers were asked whether they thought this practice was a community owned solution. As they thought it was a fully community owned solution, they rated it at 1. On the other hand, only 2 out of three communities considered this element as a crucial one within their viability so this was rated at 0.6. Table 1 shows an extract of our weight/rate table to determine the top best practices. Figure 3 shows a rating session facilitated in the COBRA office in the North Rupununi in January 2013.
Table 1. Extract of a rating exercise for the *Existence* orientor

<table>
<thead>
<tr>
<th>Orientor</th>
<th>Key indicator</th>
<th>Nested indicator 1</th>
<th>Nested indicator 2</th>
<th>Number of communities using this indicator</th>
<th>Does it have a satisfying threshold?</th>
<th>Does the indicator seem to be well thought-through?</th>
<th>Does it clearly fall into an orientor category?</th>
<th>Is it an easy indicator to capture through video and photostory?</th>
<th>How transferable is the best-practice?</th>
<th>Is it fully community-owned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence</td>
<td>Access to water</td>
<td>0.5</td>
<td>1</td>
<td>0.6</td>
<td>0.8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>River</td>
<td>1</td>
<td>0.7</td>
<td>1</td>
<td>1</td>
<td>0.8</td>
<td>0.8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>0.6</td>
<td>0.5</td>
<td>0.8</td>
<td>0.7</td>
<td>1</td>
<td>0.5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td>0.6</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic use</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rain</td>
<td>Domestic use</td>
<td>0.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.3</td>
<td>0.1</td>
<td>1</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A final score was then calculated, by multiplying the rates by their weights for each element, and then summing them up. The elements ending up with the higher scores were the best practices the project would focus on.

According to the final scores, the following Box 4 shows the pool of elements that should be captured as best practices for each orientor. It was decided to shortlist the top 2 or 3 practices in order to be flexible: if the documentation of one practice could not be carried out (e.g. if no champion can be found or if it proves to be overly complex to explain the best practice in a short film), a second or even third option would still be available.
Box 4. Shortlist of practices that should be captured as Best Practices after the scoring exercise

Existence

1. Traditional and modern knowledge for extracting timber (knowing what, when, where, how much, with what)

2. Traditional knowledge for fishing (knowing what, when, where, how much, with what)

Resistance

1. Practices for transmitting traditional culture to youth

2. Community rules for the use of natural resources

3. Activities to encourage youth to stay in the village

Flexibility

1. Maintaining a local practitioner in the community

2. A wide variety of farming techniques

Adaptability

1. Community and/or individual systems to adapt new mediums of transports (e.g. renting system of boats and engines, so that in benefits the whole community but is maintained in a good state also)

2. Modern equipment in general: practices that show that the equipment is mastered fully but also adapted for the optimal use and benefit of individual to collective levels. HF radios might be a good example: the best system to make it available to the wider community.

Ideal Performance

1. Self-help at household and community levels.

2. Effective planning and applications of plans for the community resources

3. Leadership (transparency, democracy, communication).

Co-Existence

1. Partnerships between communities

2. Partnerships with NGOs
2.2. **Template used to identify best practices in collaboration with community researchers**

Although the key areas had been clearly identified through the MCA, the actual best practices lying behind these still needed to be clarified and articulated in greater depth. The quantification process within the MCA allowed a rapid whittling down from the hundreds of indicators into a short list (Box 4). However, getting from the shortlist to a final set of 6 best practices to be extensively documented needed detailed negotiations with the community researchers. The simplistic quantification of the MCA was therefore not suitable at this stage. Instead, a more qualitative approach needed to be developed.

A process was thus collectively developed with the community researchers, which would enable to mobilise all the very rich information collected so far on each crucial theme and identify the best examples of those within the North Rupununi communities, in terms of initiatives and practitioners. This process is as follows, and takes the work carried out on the Co-Existence orientor as an example.

1. **Making a final collective decision on which best practice to document.** Criteria to make that final decision included: time and budget constraints (the more geographically accessible the best practice, the better, as it enabled the community researchers to go back and forth much more easily), the scope of the best practice (whether it concerned one specific community or most of them), the logistics to document the practice (e.g. best practice for timber management demanded access to remote areas and to document a long process, was judged too complicated), sensitivity of the information collected (e.g. for traditional medicine, with a high possibility of being accused of breaking intellectual property rights).

2. **Assembling the information already gathered for the specific element:**
   a. The orientor (e.g. Co-Existence)
   b. The indicator (e.g. *Project support, funding the construction of infrastructure, community development in partnership with the NRDDB*)
   c. Determinants of success of the practice already outlined in the wording of the indicator (e.g. *following up of projects, communication between partners, opportunity of representation, training, community development*)
   d. Determinants of success of the practice already outlined in the wording of the threshold (e.g. *maximum use of partnership, adequate communication, success of projects financed by the NRDDB*).
   e. What other practices contribute to the threshold being on the ‘positive’ side?

3. **Underlining the key things discussed that should or could be captured in the story of this best practice (e.g. the follow up of project, communication between partners, representation of the community, adequate training, success of the project)**

4. **Identifying best examples in the North Rupununi (e.g. a successful project carried out between a community and the NRDDB: the “Fish and Tourism” project (Figure 4), which worked particularly well in Rewa community, as it led to the creation of successful Ecolodges and maintains a healthy fish population in the area)**
5. Identifying champions (e.g. Mike Williams, President of the NRDDB, who oversaw the development of the project; Patrick Honorio, leader of Rewa when the project was implemented)

6. Drafting a storyline based on this initial information and the community researchers’ knowledge of the practice, to be discussed with the champions

7. Developing some questions to ask the champion, in order to guide an interview with them

8. Leading an initial interview with the champions to identify and/or confirm key steps in the successful carrying out of the best practice.

9. Developing and adapting the storyboard together with the champions, to tell the story of the best practice and present the key steps in order for the best practice to be replicable by other communities.

10. Capturing the story, the necessary footage in order for the story to be as visual as possible.

11. Editing the story and the footage into a photostory and a video.

![Figure 4. The ‘Fish and Tourism’ project report developed in the North Rupununi](image)

These steps were developed as guidance for the community researchers to carry out their investigation of the best practices. These steps were of course not systematically followed in the same order, as the community researchers constantly adapted to local opportunities, circumstances or constraints. An action learning approach was thus taken in order to provide flexibility in the process while encouraging an open and explicit discussion of intended plans, how these were carried out in practice, the observations made, and how the observations were evaluated against the...
original plans (Berardi, 2012). A key aspect of our action learning approach was the recording of key observations and decisions within personal reflective diaries and/or e-mail exchanges. As with all our COBRA Project reports, a summary of reflections is provided in the appendices. Thus, the community researchers were given flexibility in how they applied the process rather than a rigid and systematic operationalisation from step 1 to step 11.

For instance, storylines were sometimes only very roughly sketched as it was felt most of the information would be provided through the interview with a champion. In addition, storylines were not always co-created with the champions and communities (again, due to their availability), but drafted based on the previous research and then presented to them for review and adjusting.

The COBRA Project members provided the following guidelines for the visual products:

- More care should be given towards the quality of the footage in order to support public engagement;
- the films and photostories should be as clear as possible, presenting context as well as key steps of the best practice so that other communities could apply it;
- the films should not exceed half an hour if possible;
- ideally one person should champion the best practice, that could stand as an ‘expert’ and ‘hero/heroine’ of the best practice; however, other relevant people should also participate. The champion does not only need to be able to talk about the best practice, but should also have a track record for implementing this best practice within communities.

The following section presents in depth the process that the community researchers followed to document the best practices.

2.3. Community researchers in-depth investigation of the origins, nature and actions involved in best practices

In this section, the steps of the process are presented chronologically, based on the community researchers’ narrative of these Workpackage 4 activities. Although the community researchers worked as a team throughout this process, it must be highlighted that each member of the team took the lead on a different aspect of the process, in order to be as efficient as possible:

- Lakeram Haynes took the lead on the Existence Best Practice, video and photostory
- Ryan Benjamin took the lead on the Resistance and Co-Existence Best Practices photostories
- Bernie Robertson took the lead on the Adaptability Best Practice photostory
- Aliki Haynes took the lead on the Ideal Performance Best Practice photostory
- Grace Albert took the lead on the *Resistance* and *Adaptability* videos
- Rebecca Xavier took the lead on the *Ideal Performance* and *Co-Existence* videos

When 2-person teams were formed to go and capture interviews and footage, male researchers usually carried out the questions while female researchers organised and took care of capturing the footage. It is to note that, from May 2013 onwards, the team welcomed two new members of staff, Aliki Haynes and Bernie Robertson, who provided much support for the finalisation of the films and photostories.

The main steps (synthesised in Figure 5) of their investigation were as follows:

![Figure 5. Main phases of the community researcher’s investigation of best practices](image)

- **2013**
  - **January/February** - With support of COBRA Post-Doctoral Research Assistant (PDRA), short-listing of best practices, short-listing of best practices, storyboarding and interviews carried out for *Co-existence* and *Resistance* best practices
  - **February** - Research and documentation carried out for the *Flexibility* and *Resistance* best practices
  - **Start of March** - Research carried out in the river communities, documentation of *Co-existence*, *Existence* and *Flexibility*
  - **End of March** - Research carried out on *Resistance, Flexibility* and *Co-existence* best practices
  - **April** - Research carried out on *Ideal Performance*
  - **Start of May** - Research carried out on *Adaptability* and *Ideal Performance* best practices, editing started for films and photostories
  - **End of May** - PDRA provided feedback and support on films and photostories produced so far, further research carried out on *Ideal Performance*
  - **June** - Gathering of additional material, editing continued and screenings organised
  - **July** - Editing of all videos and photostories continued, some additional footage captured
  - **August** - Editing and community screenings continued and finished

- **January/February 2013** - With support of COBRA Post-Doctoral Research Assistant (PDRA), Dr Céline Tschirhart, short-listing of best practices, storyboarding and interviews carried out for *Co-Existence* and *Resistance* best practices
  - *Resistance*: Interview of Pamela Nash in Annai village
- **February 2013 – Research and documentation carried out for the *Flexibility and Resistance* best practices**

  - **Flexibility:**
    - Unsuccessful interview with the Makushi Research Units (MRUs) as they wished to be paid for their participation
    - Unsuccessful interview with members of Fair View community (members of the community were absent, the leader had not passed on the message)
    - Successful interview of Paulette Allicock in Surama village: final champion for the *Flexibility* best practice

  - **Resistance:**
    - Meeting with Jean Allicock from Surama, she accepted to be the champion for this practice

- **Beginning of March 2013 – Research carried out in the river communities, documentation of *Co-Existence, Existence and Flexibility***

  - **Co-Existence:** the former community leader Patrick Honorio champions the best practice and is interviewed in Rewa community. The current Toshoa Daniel Haynes also supports the ideas of the inception of the community engagement with the NRDDB and other organisations.

  - **Existence:** interviews carried out with champion Romeo Bowen in Apoteri village. The time with him was limited as he was actively engaged in a community activity at the time.

  - **Flexibility:** interview carried out with champion Romeo Bowen in Apoteri village

- **End of March 2013 – Research carried out on *Resistance, Flexibility and Co-Existence* best practices**

  - **Resistance:**
    - Grace Albert and Ryan Benjamin document a cultural event in Yupukari community
    - Rebecca Xavier and Lakeram Haynes document Jean Allicock’s best practices

  - **Flexibility:**
    - Rebecca Xavier and Lakeram Haynes document Paulette Allicock’s best practices

  - **Co-Existence:**
starting of the editing of the film

- interview of Sydney Allicock, ex-Chairman of the NRDDB

- visit of Aranaputa village to document projects in partnership with the NRDDB where the launching of a tourism cabin which accommodates visitors. Through NRDDB the community was able to establish this structure for community tourism

- April 2013 – Research carried out on *Ideal Performance*
  
  - *Ideal Performance*: Rebecca Xavier went to capture footage in Annai village. Toshao Mark George was interviewed. Starting of editing of the *Ideal Performance* video.

- Beginning of May 2013 – Research carried out on *Adaptability* and *Ideal Performance* best practices, editing started for films and photostories
  
  - Interview of champion Virgil Harding in Bina Hill and capturing of relevant footage
  
  - Editing started and first draft produced on the 6 best practice videos and photostories
  
  - Interview of Michael Allicock from Surama community for *Ideal Performance*

- End of May 2013 – PDRA provided feedback and support on films and photostories produced so far, further research carried out on *Ideal Performance*

  - Storylines adjusted
  
  - Further footage collected for *Ideal Performance*, *Adaptability*, *Co-Existence*.
  
  - Editing continued on all material

  - *Ideal Performance*: Rebecca Xavier went to Annai to carry out another interview of Toshao Mark George and Surama senior Councillor Michael Allicock

- June 2013 – Gathering of additional material, editing continued and screenings organised

  - *Co-Existence*: Rebecca Xavier, Aliki Haynes and Lakeram Haynes visited Rewa to gather additional materials

  - *Existence*: trip to Apoteri to gather additional materials with Romeo Bowen. Unfortunately a message which was sent to arrange a meeting with him was never received and he was therefore unavailable to meet

  - *Ideal Performance*: Rebecca Xavier went back to Annai to capture some more footage; Aliki Haynes and Grace Albert went to Surama to capture self-help activity.

  - Screenings:
    - Aliki Haynes, Rebecca Xavier and Lakeram Haynes visited Rewa and Apoteri for community screening of the draft videos.
Ryan Benjamin, Rebecca Xavier, Bernie Robertson and Aliki Haynes visited Annai for screening of the *Ideal Performance* video

Ryan Benjamin, Odacy Davis, Bernie Robertson and Grace Albert visited Yupukari for screening on the Resistance video

Ryan Benjamin, Bernie Robertson, Aliki Haynes, Rebecca Xavier and Grace Albert visited Surama for screening of Resistance and *Ideal Performance* video

- Editing of photostories and videos continued with feedback from other staff members.

- July 2013 - Editing of all videos and photostories continued, some additional footage captured

- August 2013 – Editing and community screenings continued and finished.

- A screening session of the six community owned best practices videos and photostories was conducted on Tuesday 13th August 2013 at the Bina Hill Learning and Research Centre, AnnaiRupununi. This activity brought together the Champions of the best practices and the COBRA Team, to screen and evaluate the current draft of the documents. Among the 21 participants in attendance were representatives of the Rewa, Surama, Rupertee, Annai and Kwamang Villages, Toshaus of Annai and Rewa and an international volunteer based at Bina Hill.

The detailed narrative of the process, as told by the community researchers, can be found in Appendix 1 at the end of this report. In this section, based on the detailed narrative, the main characteristics of the investigation are highlighted.

**The selection of the six best practices** is the result of established methodological practices for community engagement (through the scoring exercise) as well as very practical, logistical factors. If the shortlist of best practices was reached thanks to the collective scoring exercise, the final decision was nearly always made according to local practical constraints like accessibility, availability of champions, and capacity of champions to represent the best practices.

**The storylining of the best practices** was an extremely adaptive process. They were usually textually drafted before the collection of information in the local communities, but evolved significantly as the champions were interviewed, images captured, and also mostly as the knowledge and understanding of the practice evolved for the community researchers. The cycle of Participatory Action Research process was extremely dynamic, constantly going from through the ‘Plan’ → ‘Act’ → ‘Observe’ → ‘Evaluate’ steps of the cycle. It is interesting to note that storylines were exclusively textually drafted. No drawings were used to outline the story of the best practices.

**The identification of champions** for the six best practices was, as the community researchers would express it, “not a straight forward process”. The main obstacles encountered were: (1) their availability: championing a best practice meant involving a few hours of time (often over several days) that some persons were not willing to give, even with the organisation and planning of
meetings; (2) their accessibility: for champions living in communities close to the research centre (Bina Hill) meetings were much more easily planned than for champions living in distant communities. Even with the organisation and planning of meetings, the success rate is much lower in distant communities, as people do not know exactly the objectives of the meeting and how it involves them; (3) their compensation: some champions accepted to participate on the condition of being paid by the project, a practice which the project tries not to encourage, so that the best practice would be championed by persons who, as much as possible, have strong convictions about the benefits of them and are willing to develop them without financial incentives; (4) their distrust: recording the information through visual methods did prevent the team from capturing certain practices (e.g. traditional medicine) or interviewing certain persons who have developed a strong distrust in the use of visual material. This was due to previous projects carried with visual methods in the North Rupununi, which had failed to provide feedback to the communities that had participated.

The interviewing of champions was a complex process as it involved extracting the key steps of the best practices while at the same time explaining the first-hand details of the best practice. The team usually prepared a rough guide for the interview, but of course encountered the usual difficulties of carrying out an interview: preventing the champions from going off track, yet encouraging them to speak and feel comfortable in front of the camera; focusing on key questions, yet keeping some flexibility to explore new crucial determinants of the best practice; and, using follow-up questions, focusing at the same time on the quality of the footage (image and sound) and on the content of the interview. Champions were interviewed in the environment relating to the best practice (e.g. on the river for fishing practices) and/or in their homes.

Capturing the footage was also a very flexible process. Images were captured either in the presence of the champion while he/she was practicing or describing it, or before/after the interviews to collect contextual images or images illustrating the content of the interviews. At the editing process, when images were missing, community researchers would also not hesitate to act out certain practices if possible, go and collect footage when special events were taking place in close-by communities, or even use footage collected within other projects or within previous steps of the COBRA project. It was a constant challenge to make the best practices as visual as possible, since the explanation of the best practices was very much based on interviews. Furthermore, since videos and photostories needed to be of good quality, in order to catch the full attention of other communities, the team could not always spontaneously capture the interviews or images. Light and sound conditions had to be taken into account at all times, which sometimes slowed down the process as these conditions could clash with the champion’s availability.

The editing of the best practices was a crucial catalysing step of the process, where the action learning cycle is fully practiced. It was the crucial step where the community researchers would put their story together according to a revised storyline (act on the agreed plan i.e. the storyline), go through the first drafts of the films and photostories –usually as a team- and identify strengths and weaknesses (observe and evaluate), decide on what to do to improve the products (plan; e.g. get more images, go and ask more questions to the champion or even to other persons, organise the story differently, etc.), put plans into action, incorporate it in the new edition (act). As some of the interviews were carried out in a native language, Makushi or Wapishana, the process of subtitling in English was extremely time-consuming.
Integrating comments and feedback from champions and the wider community was done once the first drafts judged suitable for display were finalised. The team of local researchers organised several screenings: one-to-one sessions with the champions, in the communities, and during NRDDB meetings where representatives from the North Rupununi communities as well as the champions were present. However, this step of the process proved to be rather stressful and time-consuming: the community researchers, trying to meet the project’s deadlines, were reluctant to organise such meetings, which would take time, as much as to potentially having to integrate new information in their films and photostories. If these community outreach meetings were time-consuming, they also proved to be extremely positive and are a crucial part of community engagement. Members of the wider community expressed their happiness and pride to be involved in the process of explaining the local best practices, by being either a champion or giving feedback.

Integrating feedback from other members of COBRA, not based in Guyana, proved to be a difficult step due to the file size of the visual products. Indeed, the speed of the internet connection in Bina Hill, where the community researchers are based, did not allow the uploading of the videos. However, the photostories could be shared quite easily. Videos had to be burnt on DVDs and sent by mail to the capital, Georgetown, where a COBRA member based there would then upload them on Dropbox–an online file sharing facility. However, even this was unsuccessful due to poor internet speed from Guyana.

As we have seen, the process of action learning (planning, acting, observing and evaluating) in order to capture best practices was extremely dynamic and adaptive. The result of this process is the documentation of six best practices, which are introduced in the next section.
3. Results: a description of six best practices

After the process outlined in the previous section, the community researchers focused on six best practices, presented in the Table 2.

In the following paragraphs, each best practice is described in detail, falling under the following sections:

- What criteria determined the choice of this best practice?
- Who is the champion of this best practice and why?
- Description of the best practice
- The wider context: a solution to what challenges?
- Potential of the best practice to be applied in other communities

These sections provide key information about the important components that make these practices ‘best’ practices and what specific as well as general challenges they address. Although it is important that each best practice is presented separately, as they were documented separately by the community researchers, it must be highlighted that they are all somehow linked together: each best practice holds within its principles or main determinants some elements of other best practices. They are all intimately connected.
<table>
<thead>
<tr>
<th>Orientor</th>
<th>Environmental state</th>
<th>Community challenges</th>
<th>Community owned solutions</th>
<th>Indicator of community owned solution, in community phrasing</th>
<th>Threshold for the community owned solution indicator</th>
<th>Status of community concerning the indicator, where 0 = “completely disagree”, 0.5 = “neither agree or disagree” and 1 = “completely agree”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existence</strong></td>
<td>Normal environmental state</td>
<td>To maintain a healthy environment in order to sustain the regular and predictable production of the basic resources for survival To maintain traditionally sustainable resource extraction practices in the community</td>
<td>Practicing fishing according to the seasons and the fish population in their area, in order to keep a healthy fish population To transmit and transfer this local ecological knowledge and fishing practices</td>
<td>People who have the knowledge about fishing practices according to the seasons and the fish population in their area</td>
<td>Majority of the population has this knowledge</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Resistance</strong></td>
<td>Variability</td>
<td>To maintain traditional indigenous culture</td>
<td>To create culture groups at</td>
<td>Young people who know and practice traditional</td>
<td>Over half of young people know and practice traditional</td>
<td>0.6</td>
</tr>
</tbody>
</table>
To transmit traditional knowledge on a day to day basis within the family.

To maintain and develop highly flexible farming practices, such as producing on high and fertile grounds, growing a wide variety of crops, having two farms,

To cope with a highly diverse environment that challenges food production and food security.

Moving to higher grounds where soils are more productive, for more guaranteed production and less time investment.

Adequate food supply for the family and less time spent on farming activity thanks to a healthy production.

Different cassava varieties for different types of soils, different purposes and different seasons.

Having at least two different varieties of cassava in your farms.

Having a variety of crops readily available to accommodate different events, crisis, and for

Having a balance of the right variety of crops (shorter season crops, longer season crops), having a

<table>
<thead>
<tr>
<th>Flexibility</th>
<th>Variety</th>
<th>Flexibility</th>
<th>Variety</th>
<th>Flexibility</th>
<th>Variety</th>
<th>Flexibility</th>
<th>Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>alive and transmit it to younger generations</td>
<td>community level</td>
<td>knowledge on a regular basis</td>
<td>knowledge on a regular basis</td>
<td>0.8</td>
<td></td>
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<tr>
<td>To transmit traditional knowledge on a day to day basis within the family.</td>
<td>Population who practices traditional skills on a daily basis</td>
<td>Most people practice traditional skills on a daily basis</td>
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<tr>
<td>To cope with a highly diverse environment that challenges food production and food security</td>
<td>To maintain and develop highly flexible farming practices, such as producing on high and fertile grounds, growing a wide variety of crops, having two farms,</td>
<td>Moving to higher grounds where soils are more productive, for more guaranteed production and less time investment</td>
<td>Adequate food supply for the family and less time spent on farming activity thanks to a healthy production</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different cassava varieties for different types of soils, different purposes and different seasons</td>
<td>Having at least two different varieties of cassava in your farms</td>
<td>Having a variety of crops readily available to accommodate different events, crisis, and for</td>
<td>Having a balance of the right variety of crops (shorter season crops, longer season crops), having a</td>
<td>0.7</td>
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<tr>
<td>Aspect</td>
<td>Type</td>
<td>Description</td>
<td>Evaluation</td>
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<tr>
<td>Adaptability</td>
<td>Permanent change</td>
<td>Interacting with the global world by adapting its tools and staying informed through new media</td>
<td>0.4</td>
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<td></td>
<td></td>
<td>A community owned radio station, Radio Paiwomak</td>
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<td></td>
<td></td>
<td>Appropriate use of the media for entertainment and learning, benefiting the wider community</td>
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<td>Interested people can access or obtain the medium for both entertainment and learning</td>
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<tr>
<td>How accessible</td>
<td>how useful the</td>
<td>How accessible and useful the communication medium is to the people</td>
<td>0.5</td>
<td></td>
<td></td>
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<tr>
<td>and useful</td>
<td>communication medium is to the people</td>
<td>Equipment available and accessible for other uses than entertainment</td>
<td></td>
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<tr>
<td>communication</td>
<td></td>
<td>How effective and functioning is the medium in accommodating the people's needs</td>
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<td>medium is to the</td>
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<td>Equipment freely accessible and meets the needs of most of the people in terms of</td>
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<td>people</td>
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<td></td>
<td>balance between staples and &quot;extras&quot;</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ideal Performance</td>
<td>Resource scarcity</td>
<td>Scarcity of financial resources and workforce to maintain a healthy physical and social environment in the community</td>
<td>Self-help</td>
<td>Evidence of villager’s participation and cooperation for community maintenance and development, and family-based &quot;manor coop&quot; activities</td>
<td>Clean public space in the community, most of the people have proper living conditions (thanks to cooperation by people), adequate farm supply thanks to workforce</td>
<td>0.6 – 0.7</td>
<td></td>
</tr>
</tbody>
</table>

| Co-Existence | Other systems | To make the most of partner institutions that fund development projects, for the sustainable development of communities | Processes for successful implementation of development projects through close partnerships between communities and their representative institution: the North Rupununi District Development Board (NRDDB) | Opportunity of representation, training, community development (other indicators possible by other groups of the community e.g. youth) | Maximum use of the partnerships | 0.7 |

| | | | Evidence of partnership in promoting | Relatively good use of the facility: successful outcome | | 0.6 |
| Community development: proposition of financing from NRDDB and community initiative | of the project thanks to support from both sides |
| Proper following up of project and communication between the partners showed by the success of the different projects | There is adequate communication and success of most of the project finance by the NRDDB |
| Numbers of person employed by the projects and benefit distributed to the community | Adequate jobs available for interested person with the necessary skills and community benefits from income generated |

| 0.7 |

| 0.7 |
3.1. EXISTENCE BEST PRACTICE: local traditional fishing practices

What criteria determined the choice of this best practice for Existence?

After rating the different elements that are key for Existence, timber management practices achieved the highest score and was first considered as the best practice, mainly because all communities had chosen this as a key element of their Existence, and because this element had a high potential to arouse the interest of external stakeholders, especially in the context of REDD+ policies. However, the North Rupununi local team thought it would be significantly challenging to record best practices around this theme: the logistics involved in following champions managing timber products were considered excessively time-consuming and difficult to capture. Farming practices and fishing practices ended up with an equal score, but farming techniques were also selected within the Flexibility orientor, thus a significant risk of overlap existed. As a consequence, “Fishing practices” were chosen as the best practices by the community researchers.

“Fishing practices” were considered as a fully community-owned solution for the provision of a nutritional staple during day-to-day, basic, and on-going conditions. Indeed, especially for the remote and riverside communities, fish is a crucial component of the diet, so sustainable and efficient practices are essential to keep a healthy fish population and secure this important part of the diet. These practices rely fully on local and traditional knowledge, with no or very little external influences.

Secondly, champions were easily identifiable. The team immediately thought of talented fishermen from the riverside communities, holders and practitioners of local traditional knowledge for fishing, who would be willing to champion the best practice. Indeed, the riverine communities of the North Rupununi still rely on fish as a staple within their diet and have managed to keep a healthy fish population thanks to good community practices that could easily be recorded.

Thirdly, fishing practices could play a crucial role in the future of the communities. After confronting the practice to the future scenarios developed in Workpackage 3, the team of community researchers thought that unsustainable fishing practices (e.g. fishing with nets) had a high potential to lead to conflict between communities, therefore jeopardising the sustainability of the North Rupununi society (cf. Women’s Scenario 1 in Appendix 2). Indeed, potential for conflict over a vital resource is high if this resource is mismanaged and agreements on sustainable fishing practices should be reached between neighbouring communities and not only at village level. It was also felt that bad management practices could easily lead to blackmail and corruption by corrupting the ‘good’ communal practices for individual commercial gain for example (cf. Appendix 2, Women’s Scenario 2). As a consequence, best fishing practices are seen as playing a key role for the harmony of the North Rupununi communities.

Indicators related to fishing are also selected by external experts as a way of measuring a healthy environment and ecosystem or water quality (see Section 4.2.1 below). For example, the government of Guyana is in the process of implementing laws regarding the management of freshwater fisheries based on management plans developed within the North Rupununi. Thus,
knowing best practices that are at the origin of a healthy fish population seem crucial from local to global levels.

Who is the champion of this best practice and why?

The team identified Romeo Bowen, from Apoteri community, as a champion for this best practice. Apoteri is a remote community, where this knowledge is essential for daily existence. One of the community researchers explains why Romeo Bowen was chosen:

“Uncle Romeo was chosen because his skills and knowledge are exceptional, and he is willing to talk about them. He is ‘environmentally minded’, his practices are local and traditional, he doesn’t depend on external equipment and he knows and believes these practices are sustainable. He is conscious of the fish population in the area. Other villages would not talk about their fishing practices because they have nets or seines. But Uncle Romeo was available, willing and interested. (...) He has a lot of knowledge and answers very precisely. (...) Growing up, he never wanted to use any other equipment because he didn’t know and also because of the environment. He recognises the difference of impact on the environment.”

As the quote shows, Romeo Bowen not only has extensive local traditional knowledge for fishing that he carries on practicing on a day-to-day basis, but can also pass on an inspiring message as to why these practices should be maintained at the local level.

Description of the best practice: an intimate ecological knowledge, selective fishing practices and transmission to younger generations

The community owned indicator for fishing practices developed within Workpackage 2 activities is “People who have the knowledge about fishing practices according to the seasons and the fish population in their area”. An acceptable community owned threshold to measure the success of the practice is whether the “Majority of the population has this knowledge”. The following practices thus show how a community ensures that most of its population carries out and maintains these practices alive. The following key steps of the best practice are the result of reflection on the indicator and threshold chosen, the interviews carried out with the champion, and the community researchers’ own local knowledge concerning this practice. Best practices for fishing have two components.

The first one is the local traditional practices in order to fish sustainably. To do so, local communities:

- Know the different fishes’ habitats (surface water, middle water, deep water, river bank or main stream…), behaviour and optimal season or time of the day for the different fish species, in order to target appropriately. With this knowledge, “there is never only one fish species under pressure to feed the community” (Community Researcher explaining the best practice). Moreover, this practice is also time efficient for the fisherman himself;
- use a variety of fishing techniques and equipment according to the species of fish they target: bow and arrow for surface water fish, fishing rod for mid-level fish, line and hook for deep or shallow water (Figure 6 shows one slide of the photostory describing briefly the use of bow and arrow). Fishing with gill nets and seine is presented as a bad practice, as the fishing
process is not selective: “This seine do not do selected harvest. It catches everything that is in
the way which affects the fish and the fishing areas. Seine is the most destructive method
though it is faster but it only means we will lose our fish faster too” (champion Uncle Romeo);
- know how to build or where to get traditional fishing equipment (e.g. bow and arrow) and
know how to use it;
- appreciate the quantity of fish needed and for what purpose;
- understand how different fishing techniques and methods can affect the fish population.

**Why is the methods used?**

**Bow and arrow method is used for surface fishes which is the
reason why the method is good as it does not injure of affect
the fish population. One fish is extracted at a time and a
specific size too.**

**Figure 6. The use of bow and arrow for fishing, explained by Romeo Bowen**

The second key component of this best practice, strongly underlined by the champion, is the
transmission of these practices to the younger generation and other members of the community. To
do so, local communities:

- Practice their local traditional knowledge for fishing regularly;
- make children/family/friends observe and, even better, participate in fishing trips;
- make children/family/friends observe and, even better, participate in the preparation and
cooking of the fish meals to raise awareness from a very young age about the close link
between natural resources and human survival.

**The wider context: a solution to challenges to Existence**
The Orientor “Existence” relates to the very basic elements a community needs to survive in a stable, predictable environment. Communities of the North Rupununi who participated to the first phase of the project all agree that their Existence relies on access to land, which is closely linked to having a land title. Key aspects of their basic needs enclosed in land are:

- Forests, used for hunting, extracting wood for domestic use, gathering fruits and medicinal plants;
- Farmland to grow their staples. More specifically, cultivating cassava is of high importance as it is a major component of their diets.
- Rivers, essential for fishing, domestic use and transportation.

Thus, the main challenge behind the Existence orientor is for the communities to maintain a healthy environment in order to sustain the regular and predictable production of the basic resources for survival in their localities: food, water, shelter, medicine. With an increasingly unpredictable climate, higher threats on land for mining or extraction of other resources by local to international players, these key resources are put under significant pressure that might jeopardize the Existence of the North Rupununi communities, who still significantly rely on them. This practice highlights guiding principles for extracting such vital resources: intimate ecological knowledge, selective extraction, essential local consumption.

Another challenge is to maintain traditionally sustainable resource extraction practices in the community, to keep them alive and practiced from one generation to the other. This is proven more and more challenging as young people are leaving communities to pursue their studies or job opportunities, or simply as external equipment and/or external demand start being prioritised as a way of saving time or generating an income for engaging with consumer society, rather than maintaining ecologically sustainable self-sufficiency.

Potential of the best practice to be applied in other communities

This best practice has of course a very high potential to be applied in communities that depend on freshwater fish for their Existence. However, this best practice holds strong guiding principles for any community whose survival is intimately linked to a natural resource but who feels this resource is getting scarce. It is important to note that this challenge should not be linked to a significant environmental change (e.g. significant increase in population). If it were, then this would be more relevant to the Adaptability or Ideal Performance orientors for example. This practice, although very inspiring for many types of communities, is mainly applicable in communities where this key resource is getting scarce because of loss of local knowledge or poor coordination between neighbouring communities, that eventually affect the local ecosystem.

3.2. RESISTANCE BEST PRACTICE: transmission of culture toyouth

What criteria determined the choice of this best practice for Resistance?
After rating the different elements that are crucial for Resistance, “Transmission of culture to youth” achieved the highest score for several reasons:

- it played a great role in the future of the North Rupununi, since a strong cultural identity and the sense of community are at the basis of their social-ecological system. In addition, without these key elements, the NRDDB’s future and legitimacy would be greatly jeopardised, and vice-versa, as the NRDDB could not act as an advocate for indigenous culture and promote it (cf. Women’s Future Scenarios in Appendix 2);
- It fell very clearly in this orientor category: no communities classified this element under another orientor;
- it seemed to be the easiest to capture through video and photostory;
- it was felt to be more easily transferable to other communities.

In the North Rupununi, the passing on of traditional knowledge to younger generations is an issue shared by all communities and communities are trying to tackle this problem by encouraging young people to practice traditional knowledge on a regular basis. Here, the threshold of most communities is described as quite critical, however some community initiatives have been successful for several years and others are gathering astonishing strength. The threshold set by the community researchers is high (“Over half of young people know and practice traditional knowledge on a regular basis”); thus the initiatives that are recorded in this best practice are strongly working towards the reaching of this threshold and, thus, were chosen to be recorded.

Who is the champion of this best practice and why?

The team identified a number of individuals and groups advocating traditional indigenous culture:

- Pamela Nash from Rupertee
- Jean Allicock from Surama
- Marcellus Thomas from Yupukari

Pamela Nash was first interviewed, as she was living close-by and was very willing to participate. As she was interviewed, she stood out as a great champion, talking with great passion about the importance of traditional culture. She had several initiatives in the past to pass on tradition to young people, but her attempts had not been successful and there was currently no successful practice she could champion. As a consequence, she could not champion a practice that is proving to be successful.

The team then interviewed Jean Allicock as she is the co-leader of the Culture Group in Surama and has also been successful in passing on culture to her own children. She was very open and willing to share information. Since she transmitted her love for culture to her daughter Abigail, the team also interviewed her daughter.

The team also chose to document the practices of the Yupukari culture group. Even though it has only recently started, the group, championed by Marcellus Thomas, a young person himself, was developing original ideas in order to get young people interested. Marcellus Thomas is from Yupukari and has carried out studies to be a librarian. He was also very willing to share his practices. He is currently the Culture Advocate to Youths in Yupukari.
Description of the best practice: bringing generations together, blending traditional and non-traditional, organising events and performances.

The following steps of the best practice are the result of investigations carried out by the community researchers with the two champions and the co-interpretation of the information with COBRA colleagues. The steps are partly clearly explained by the champions, partly a result of COBRA members’ interpretations.

The team identified two levels in order to transmit this sense of community and culture: the family level, and the community level.

In order to transmit successfully culture and a sense of community to youth at the community level, the following key factors are crucial:

- Persons passionate and proud about their culture and knowledge, who are ready to invest their own time to inspire and lead projects and activities;
- encouraging the elderly to share traditional knowledge with everyone, especially young people;
- raising young people’s interest in traditional knowledge by:
  - organising performances for young people to showcase traditional dances, songs and handicraft skills to a wider audience;
  - blending traditional and modern knowledge and mediums of communication: passing on culture through traditional means ("unwritten") and modern means: unwritten medium (storytelling) blended with scientific methods and knowledge (e.g. internet, radio, scientific knowledge on biodiversity)
  - being inclusive of non-traditional forms of knowledge as a way of keeping young people interested and stimulated
- showing and explaining the purpose of carrying out certain traditional tasks, e.g. making useful everyday objects like baskets, and/or earning an income by selling them;
- organising events, like campfire nights, that bring the community together, old and young, to tell stories and perform traditional culture;
- integrating non-traditional elements to these events to attract as many young people as possible, e.g. fashionable music and dances (Figure 7);
- being aware of the diversity of cultures in the community, being inclusive (e.g. in the North RupununiMakushi and Wapishana live side by side);
- recording traditions and culture using text, visual methods, to save it for future generations and disseminate it as widely as possible;
- creating platforms for exchange and passing on of knowledge, through a Culture Group or Campfire nights, performances, etc.
To make our campfire exciting and attractive to our youths, we also planned Forro (Brazilian) and English dance competitions and invited tourists and researchers who were staying in our village to share parts of their culture with us.

Figure 7. Non-traditional activities in a cultural event

At the family level, a lot of the previous elements apply. The following points can be added:

- Speaking in the traditional language to young children;
- Making young children participate in traditional tasks from a very young age;
- Taking time for “one to one sessions” with children at home to pass on some knowledge through storytelling for example (Figure 8).
The wider context: a solution to challenges to *Resistance*

To 'resist' the challenges emerging out of a variable environment, three main themes emerged in COBRA:

- Maintaining and passing on traditional practices and culture: in order to keep their identity, communities strive to transmit traditional practices and culture to youth. This involves simple daily tasks like processing cassava, but also building traditional weapons, weaving cotton, speaking the native language and knowing dances, songs and stories.

- Protection of the natural environment is important in order to keep things as they are. To achieve this, having conservation areas, community rules for sustainable use of resources, having and using strong protective laws at national and local scales are key strategies. Communities highlighted that one feeds into the other: maintaining traditional practices also ensure that the environment is used in a sustainable way and not overused.

Within an increasingly globalised world, and within societies in which indigenous groups have for a long time been suppressed, it can become increasingly challenging for local and indigenous communities to keep their cultural identity alive, “because of the absence of old people, because of exposure to other culture and traveling, because of lack of respect and interest in traditional skills, because of a decrease in sharing knowledge in the community and not only in the family, because of fear of the ‘power’ of people with "illegal" traditional knowledge, traditional knowledge and community togetherness is seriously challenged” (community researcher). This presents two main
challenges: (1) it can affect the community identity and togetherness, therefore weakening them as a community in the face of a variable environment; (2) it can affect the sustainability of their local social-ecological system: as the Existence best practice has shown, local traditional knowledge is key for maintaining a healthy and sustainable fish population, which is vital in some communities’ diet. Developing best practices to maintain traditional culture in everyday lives is indeed essential.

Potential of the best practice to be applied in other communities

This best practice could be applied in a community who has the feeling of having lost the foundations of their identity and their sense of community, something which is common in many indigenous groups around the world. It could be for example because their strategies for Adaptability are dominating their society.

The potential of this best practice to be applied in other communities is high if there is at least one person feeling passionate about the passing on of traditional knowledge and are able and willing to champion activities in order to bring the community together for this purpose. Campfire nights or similar events can be relatively easy to organise and can have high beneficial impacts if a minimum number of volunteers are ready to invest time to teach younger generations a few traditional skills to be showcased and elderly people willing to tell stories.

A Culture Group in itself has a great potential to be applied in another community but over a longer period of time, after going through a few initial steps which can be small scale activities for children to begin with.

3.3. FLEXIBILITY BEST PRACTICE: farming practices

What criteria determined the choice of this best practice for Flexibility?

After rating the different elements that are crucial for Flexibility, “Maintaining a local health practitioner in the community” achieved the highest score, followed by “a wide variety of farming techniques”. Local health practices came up first mainly because it had a higher threshold, health systems were often considered by external institutions, and it was felt that local practitioners could play a role combatting potential negative future scenarios. Indeed, the team thought local practitioners could be pressured by the government to resign or opt for non-traditional medicine, which would be controlled by the State (cf. Women’s Future Scenario “Blackmail, Corruption and Bribery”, Appendix 2). As a consequence, it appeared particularly important to maintain strong traditional medical practitioners in the communities, with strong traditional values and a strong local demand for traditional medicine.

However, the community researchers found that the compilation of video and photographic material on local health practices would have been extremely complicated. From prior experience and knowledge, local practitioners might ask to get paid for participating in the information gathering exercise or might be afraid that the exercise would capture sensitive local knowledge. There have been previous negative experiences in the region of researchers collecting medicinal plant knowledge and selling the information for commercial purposes (personal communication, community researchers).
As a consequence, farming techniques were chosen. Other determining factors which led to the selection of a variety of farming techniques as a best practice include:

- All three communities participating in the first part of the project (Apoteri, Fair View and Rupertee) had selected this practice as a crucial practice for Flexibility;
- farming practices and the principles underpinning them seemed much easier to transfer to other communities than local health practices;
- It could support the self-sufficiency of the NRDDB (cf. Women’s Future Scenario 3, Appendix 2): self-sufficiency of the NRDDB’s people would reflect the self-sufficiency of the institution itself, as a stronger focus can be developed on other matters than providing food for its members.

Although some families are becoming increasingly dependent on industrialised food, farm production still plays a crucial role in the diet of North Rupununi communities and the vast majority of the North Rupununi population still successfully relies on it. In addition, the staple cassava (Manihot esculenta) plays an integral role in not only nutrition, but also local culture and tradition. The community researchers thus chose, within the wide range of potential individuals that had successful framing practices (i.e. production available at all times to supply their family), a few select individuals who could explain their strategies to farm in an environment characterised by variety.

Who is the champion of this best practice and why?

Based on the indicators and thresholds developed, the objective was to identify one person, group or family who: managed to have a constant and adequate food supply for the family without spending all of its time on the farm; had at least two varieties of cassava; had a good balance between different crops (short-term, long-term, staple and extras); had two farms; had at all times something ready to be consumed; and, most of all was ready to explain how this system was managed successfully.

At first, the Makushi Research Units based in the Bina Hill Institute (Annai village), were considered because they had done substantial work and research on local knowledge and worked in many fields including farming practices in the North Rupununi. Unfortunately, MRUs wished to be paid for sharing their knowledge, so the team preferred an individual as a champion: Paulette Allicock from Surama community. “Paulette was chosen, as she has great knowledge of farming practices, she depends on her farm, that’s what she does, she does it very well, she has a lot of Flexibility. She was also chosen because she was able to tell the story properly, and other people we talked to couldn’t tell the story, even in Makushi it was difficult to tell the story” (Community Researcher).

Description of the best practice: local ecological knowledge, a variety of crops, two farms, transmission of knowledge, community help

The best farming practices are the practices that increase the Flexibility of the communities of the North Rupununi. There are different levels of Flexibility attached to best farming practices. First of all, best farming practices can provide a continuous flow of food throughout the different seasons and facing different environmental threats (e.g. floods, droughts, plagues, etc.). Second of all, best farming practices enable farmers to have the opportunity to sell or exchange their products, to
provide access to a wider variety of products or an income when needed. Finally, best farming practices maintain a healthy natural environment. Indeed, traditional shifting cultivation and local knowledge enhance *Flexibility* and food security even further, by having a minor impact on natural resources essential in everyday life. This practice is intimately connected to the Existance best practice (fishing practices). Traditional farming practices also bring the community together. Relatives and friends are often invited by one family to help on the family farm, which constitutes a great opportunity to share time, food, drink, gossip and ideas, while many hands make light work. In return, help will be given to those who have been helping.

In order to face a diverse environment, the following key factors of high *Flexibility* are crucial:

- Having a good knowledge of the environment so that opening a farm doesn’t negatively affect an ecosystem on which the communities are dependant;
- choosing a good place to start a farm: this depends on the quality of the soil and its height (to prevent flooding during rainy season). To do that, it is recommended to go “place-spotting” at the heart of the rainy season, when the water is at its highest, and to optimise time to spot these places over hunting trips or any trip taken in the forest;
- selecting good cassava sticks and good crops, adapted to the different types of soils;
- sharing the knowledge, by communicating and exchanging the good practices, by making children and members of the community help and participate in the family farming tasks;
- having two farms, of different sizes, that are kept for different purposes and that reduce vulnerability to diseases, destruction by animals, floods, by etc. (Figure 9);
- having different, diverse crops (cassava and non-cassava)
- knowing how to care for these crops;
- knowing the potential products that can be made out of the different crops;
- knowing how to prepare the different by-products;
- making the most of uses: family consumption and selling.
This practice links strongly to Self-help (the Ideal Performance best practice), Transmission of culture to youth (the Resistance best practice), and even the Existence best practice, as knowledge is transmitted through practice to children and other members of the community, local ecological knowledge is crucial to opening a farm, and different members of the community are brought together to carry out a task more efficiently.

The wider context: a solution to the challenges of an environment with high variety

Leeway to face a highly diverse environment is reached through farming techniques, but also by maximising options in terms of access to healthcare, food and income. These were the key indicators of Flexibility within the COBRA project. To make sure communities are flexible in terms of food, some mentioned moving to higher grounds where soils are more productive, planting new varieties of cassava that are more resistant and productive, cultivating a wide variety of crops to avoid being dependant on one crop, or having two farms. Moreover, having monetary income enables the communities to buy food from shops, which greatly expands their Flexibility in terms of food and in other domains.

The main challenge that this best practice addresses is food security within a highly diverse environment: climate, diseases and pests, income, food supply, job opportunities can vary significantly from one month to the next, or one year to the next. This variety can significantly
challenge the food security of North Rupununi communities: floods or droughts can destroy crops or significantly challenge the usual farming cycle (e.g. early rains might prevent farmers from cutting and burning their farms), diseases can attack certain crops, and certain wildlife species can feed on certain crops. These are only some of the challenges that a farmer is facing in the North Rupununi area. Moreover, an income to enable communities to buy food when farm products are not sufficient is not always guaranteed, depending on job opportunities in the area. It is therefore essential to maintain as much *Flexibility* as possible to ensure food security at all times, by developing strategies to cope with, *and* make the most of, an environment characterised by such variety: by knowing where to open a farm, by opening two farms in two different locations, by knowing what crops to grow in what soils, by growing a wide variety of crops that can provide a constant supply of food in all seasons, etc.

Furthermore, a wider challenge this best practice is addressing is pressure on the social-ecological systems. North Rupununi communities highly rely on local ecosystems for basic existential needs, and it is crucial to develop solutions that also maintain this wide variety of options for survival (fishing, hunting, gathering fruits, etc.). Local traditional farming practices are strongly embedded in the local social-ecological system and contribute to maintain its health and variety by limiting its pressure on the environment.

**Potential of the best practice to be applied in other communities**

This best practice could be applied in communities within which food production is vulnerable to a highly diverse local environment, or communities that economically depend on a limited number of farming products. Each community might have different local constraints in order to develop a flexible farming system (e.g. different ways of choosing between a diverse range of crops and techniques in order to grow their food); however the guiding principles are applicable in most contexts. Within a short-term period, the first thing any community would need to do before developing flexible farming practices would be to get together and share the rich diversity of local ecological knowledge relevant to food production.

**3.4. ADAPTABILITY BEST PRACTICE: the community radio, Radio Paiwomak**

What criteria determined the choice of this best practice for *Adaptability*?

The overarching theme of *Adaptability* best practices identified in the System Viability Analysis is: “Non-native equipment mastered fully and adapted for the optimal use and benefit of individuals and the community”. This referred to a wide range of objects (generators, outboard engines), materials (bricks, tin roofs), mediums of transport (motorcycles, cars) or communication (radio, internet), ways of dressing up (Western clothing) and diet (rice, beans, chicken) that all indicated responses to the emerging challenge of a permanently changing environment within which communities are finding themselves.
After rating these different elements, new mediums of transport achieved the highest score, followed by new material for homes, random modern equipment such as solar panels or gas cookers, and finally new mediums of communication.

Initially, the community researchers tried to capture best practices linked to adapting new mediums of transport, but it “never worked out as planned, champions weren’t there for example” (community researcher). As the team started its investigations, they also thought that the examples the communities were providing were too specific, not general enough for the whole Rupununi community. This also applied to random modern equipment. As a consequence, the team of community researchers focused on new mediums of communication and more specifically on their community radio, Radio Paiwomak.

The team justifies its choice as follows: “One of the reasons behind the radio was that it is not about one community adapting, it is the NRDDB and the whole North Rupununi community that is adapting. Communities are adapting to these kinds of communication systems from their own homes, even neighbours. If we try something else it might not work for the whole community but Radio Paiwomak works for the whole community. With the radio, in each community they know what’s going on” (Community researcher).

So the main criteria for selecting this best practice were:

- it is relevant to all the communities of the North Rupununi;
- it is a community owned solution: even though the initial funding and initiative was external, the presenters, programmes and management is now fully community owned;
- it is a new medium of communication that is being used in a way that represents and pleases the whole community; the system is well adapted to local needs;
- it was logistically easy to capture, with easy access to the radio infrastructure and its champions;
- the story to be told seemed much nicer and engaging than a story on the use of transportation or solar panels in a community;
- champions were very willing to participate;
- it was thought to have a potential to tend towards best case scenarios: the NRDDB could gain in self-sufficiency by constantly improving communication between the different member communities and informing them of their activities (cf. women’s best case scenario); if oil was discovered in the area a wise use of Radio Paiwomak could constantly inform communities of the activities for their own awareness and to encourage them to defend their rights if necessary (cf. men’s scenarios); it could give more visibility to Youth by giving them the opportunity to speak out on the Radio and by helping to coordinate events and recreational facilities for youth (cf. youth’s scenarios for developing recreation facilities).

In the North Rupununi, there exist many indicators of the interaction with the global world (generators, new materials for homes, boat engines, etc.). However, the community researchers have found it challenging to identify cases of particularly successful adaptation to these non-
traditional tools, as they can often be misused. This misuse can involve unnecessary expenses (for example if a motorcycle is not maintained properly by its owner) or conflict (if the ownership of one of these objects creates jealousy, or if its use disturbs the wider community, e.g. using power to play music all night long in a village). One of these non-traditional tools has however been successfully taken over and used soundly by the communities: Radio Paiwomak. As most people have access to it, as programmes cater for all audiences and many centres of interest, this case study was chosen as a best practice for Adaptability.

Who is the champion of this best practice and why?

The main champion of the best practice is Virgil Harding. Not only was he one of the three volunteers to get trained and run the radio right from the start, but he is also still volunteering (the other two initial volunteers, Ellen Davis and Adam Nash, are not volunteering any more), dedicating most of his time to the radio, and is fighting for its survival. He was also very willing to be the champion.

As the community radio was born thanks to a partnership between Iwokrama International Centre (IIC) and the NRDDB, a second champion is Vanda Radzik. At the time, she was working for IIC and her first task was to develop a community radio with funding granted from the International Development and Research Centre (IDRC) and UNESCO. She decided to hand over the initiative to the NRDDB, so that it would become community owned, rather than keeping it in IIC and disconnected from most communities of the North Rupununi. Championed by Sydney Allicock, then President of the NRDDB, the NRDDB agreed to manage its own radio within the NRDDB offices in Bina Hill. Vanda Radzik was happy to tell this part of the story, as without her initiative the radio might have stayed in the hands of a non-community owned institution.

Description of the best practice: purpose, participation, partnerships

This best practice is about the ways of being informed by improving communication, entertainment and information in the North Rupununi, through a community-led radio called Radio Paiwomak. This community radio has several purposes:

- Helping communities cope with a permanently changing environment by educating them and keeping them informed e.g. about REDD+ schemes at the international level, about Low Carbon Development Strategies policies at the national level, and general global/national news;
- keeping culture alive, thanks to broadcasting in the local indigenous language, and through culture and storytelling shows;
- communicating local news, such as meetings, sports events, professional trips taken by local leaders, etc;
- educating community members on different topics (health, agriculture, farming, ...);
- sharing local knowledges such as tips to control certain diseases affecting crops;
- entertaining with a wide range of music, from local, national to international;
- helping communication and information between members of the community by sending “private” messages.
In order to set up a well-working community radio, the next steps are highlighted:
- consult the community to see if members are willing to have a radio, for what purposes, and based where;
- ensure that community members can interact with the community radio, for example through HF radios, telephones or even internet;
- ensure that the majority of the communities have the infrastructure to listen to, or are in range of, the radio;
- identify at least one motivated person from the community to champion and run the radio, even as volunteer to begin with if necessary;
- choose a name to which community can relate to make it their own;
- develop programmes with the community’s participation;
- identify an institution or a group of people responsible for monitoring the radio’s status;
- if initial support is needed (for training, for initial equipment or some external expertise), identify optimal partnerships to help launch the project;
- make sure it follows the national legislations, such as license of operation;
- make sure the ambitions fit the infrastructure, such as power supply;
- think of ways to sustain it at the local level, without too much external input in the long-term;
- make sure all members of communities, young, old, women and men are represented in the programmes (Figure 10).

Figure 10. Community consultation for the design of radio programmes and management of Radio Paiwomak
The wider context: solutions to a permanently changing environment

New mediums of transport (bicycles, motorcycles, cars), new mediums of communication (radio, television, computers, internet), new material for homes, new food, new music, new water facilities, solar panels... All these show how communities are adapting or trying to adapt to a permanently changing world, by adopting non-indigenous equipment and practices. By knowing and using these tools, the North Rupununi communities can keep up to speed and interact with the global world, as well as improve or support their day to day life.

Adaptability is mostly about the wise use of these non-native elements. For instance, one can buy a gas-cooker but not foresee where and how to buy gas, not know how to use it efficiently therefore wasting gas, or create conflict within the family or community if other members are not given the opportunity to use it if it becomes vital (for instance to prepare meals for a community event). This would be a sign of poor Adaptability, and in fact undermine overall community viability. Adaptability is therefore not only about the presence of the new tool within a community, but it is also about how a community adopts the use of this new tool in a financially, socially and environmentally sustainable way. So many external interventions within indigenous communities believe that the simple act of providing a community with a tool (e.g. the global ‘One Laptop per Family’ initiative now also affecting indigenous communities) will be a game changer in development, with limited understanding on the complex ramifications of such an intervention if not supported appropriately. Anecdotal evidence of the use of readily accessible laptops within the North Rupununi shows that some of these have been primarily used to share pornographic imagery amongst teenagers, significantly affecting the physical and mental well-being of teenage girls and traditional practices mediating relationships amongst young people.

Radio Paiwomak is a solution that addresses many challenges. New communication tools create both a challenge and a solution for Adaptability. Access to new media is constantly increasing in indigenous communities around the world: HF radios, cell phones, television, computers and internet are becoming increasingly part of everyday lives. New communication tools both create the challenge (introducing new ideas and changing people’s expectations) and have the potential to provide the solution (by keeping people informed on how to deal with change). Access to national and international news could override valuing local news, could increase the gap between younger and older generations, could threaten local lifestyles by presenting “better” lifestyles, and could even create inequalities in communities if access to media is not guaranteed for everyone. Thus, new media introduce new ideas and change people’s expectations. On the other hand, it enables communities to understand with what other systems they are co-existing, having a wider understanding than local understanding, and communicate between themselves at the same speed as the speed of communication in other areas. They keep people informed on how to deal with change. Simply providing the communication tool is not the “community owned solution” – it is more about how the tool is used to strengthen community viability. The challenge is thus to keep the balance between valuing and serving the local while understanding and being aware of the non-local. Thus, the tension with the Resistance orientor becomes very clear.
Potential of the best practice to be applied in other communities

This best practice could be applied in a community who feels they should improve internal communication to face up to an increasingly changing environment, from local to regional to international news and events. If this practice could not be implemented fully within a short-term period, the first step of applying for funding could be developed. This would need the following: organisation of community meetings to discuss the purpose of a community radio; identify volunteers; discuss potential radio programmes; discuss a location; reach a community agreement; evaluate how the community could support it financially on the long-term; and put together a proposal for external funding and support if necessary.

3.5. IDEAL PERFORMANCE BEST PRACTICE: self-help

What criteria determined the choice of this best practice for Ideal Performance?

After rating the different elements that are crucial for Ideal Performance, three practices were shortlisted. ‘Self-help at household and community levels’ had the highest score, followed by ‘effective planning and applications of plans for community resources’ and ‘leadership’ (transparency, democracy, communication). These three practices were categorised in the Ideal Performance orientor as they help make the most of scarce resources. Self-help (the practice of getting villagers together to carry out a specific community task) makes the most of scarce financial and workforce resources (which is often the case in these remote and sparsely populated areas), plans for community resources management help make the most of limited land and its resources, and leadership helps make the most of all resources that a community has (population, resources, finances, etc.) in an ideal way for the development and sustainability of the community.

Although mentioned by only one community within their System Viability Analysis, the community researchers thought self-help was the best practice to be documented because:

- the indicator and threshold chosen were thought to be well thoughtthrough and easy to use;
- it fell very clearly in this orientor category;
- it was very easy to capture and share through videos and photostories;
- it is a completely and entirely community owned;
- several persons would be able to champion this best practice, even in close-by communities;
- it can contribute very highly to NRDDB’s self-sufficiency (cf. Women’s best-case scenario in Appendix 2) as cooperation is at the roots of a balanced community’s values. It also contributes to the youth’s best-case scenario, as youth-based self-help could help them develop a functioning recreation facility.

Even within their remote locations, and within a national context that does not necessarily provide funding and services for the maintenance of community spaces or for the building of community
infrastructure, most communities of the North Rupununi manage to maintain their public space clean, to develop infrastructure for the community (such as community offices), and to carry out tasks that seem non achievable by members of the community individually (such as opening a new farm). One of the fundamental practices that help them make the most of these scarce resources is self-help, whose steps are being documented within the *Ideal Performance* best practice.

**Who is the champion of this best practice and why?**

The champions chosen by the community researchers are two community leaders who have achieved significant developments in their community thanks to self-help. The first one is Michael Allicock, Senior Councillor of Surama village. The second one is Mark George, Toshao (community leader) of Annai village. Both villages are exemplary regarding what they have achieved thanks to self-help: a community building for meetings and cultural events, large and clean football pitches, practicable roads and bridges to keep connections with the outside world, clean public spaces and even an airstrip.

**Description of the best practice: leadership, organisation, food and drink supplies**

Self-help is an entirely community owned practice to maintain a clean environment within the community, to develop infrastructure for the benefit of the whole community, or simply to open and maintain a farm. To do so, community members get together to carry out the task, following this saying: “many hands make light work”. However, getting community members together is not a straight-forward process and a series of key good practices are revealed through the community researchers investigations.

At the community level, the key is the leader. The leader must organise a “self-help” event very well so that community members participate and projects gets carried out successfully.

Leaders need to:

- **Get the community together to organise the event in a participatory way:**
  
  - **what task?** This first step actually ensures that the community supports the project and willingly participates.
  
  - **When should it be carried out?**
  
  - **How long should it take?**
  
  - **Who should participate?**
  
  - **Who should do what according to capacity and skills?**
  
  - **What resources are needed (how many people, what equipment, …)?**
  
  - **Is there a need for extra funding or equipment and if yes where to find it?**

- **Participate themselves in the event in order to motivate community members and set the example (Figure 11).**
- Organise food and drinks for participants ("nobody can work with an empty belly", Michael Allicock): who prepares it, what will be prepared and for how many people?

- Ideally, men, women and youth should all participate, as this brings the whole community together.

![Community maintains healthy environment.]

The only way self-help is more actively done is when the village leaders participate with its members.

![In Surana we participate in community self-help, one way to complete a task and it’s done faster.]

**Figure 11. The village leader participating to the self-help event**

A similar system works at the family level: providing food and drinks seems as essential as proper planning so that family and friends get together to help each other out on their farms.

**The wider context: a solution to the challenges of scarce resources**

When key limiting resources required for a community's survival are not immediately available when and where needed, communities develop strategies that can be characterised through *ideal Performance*, i.e. developing highly efficient means of using scarce resources.

Self-help enables communities and families to make the most of time, finances, human capital and other scarce resources. Indeed, tasks can be achieved more quickly and with less expenses if the community or families come together to achieve certain tasks. Self-help is to be efficient financially and time wise, but is also presented as a way of developing the community culturally (because it is a traditional practice), economically, socially (as it brings people together) and sustainably. It makes the community more independent.
In these remote areas of developing countries, public services can rarely be relied on to carry out cleaning and maintenance of public spaces. In order to be as self-sufficient as possible, families living in communities in these areas also need to carry out heavy tasks like cutting down patches of forest to grow a farm. To maintain a clean environment in the community, to maintain recreation facilities like a football pitch, to maintain a community’s connection to other communities thanks to roads and bridges, and to be able to do that while providing for the families’ necessities, and finally to maintain a sense of togetherness and community spirit, communities get together to get these tasks done as a community.

Potential of the best practice to be applied in other communities

This best practice has a great potential to be applied in other communities, and not only within indigenous communities of the Guiana Shield. In times where governments are making cuts on different budgets, local communities might need to get together in order to maintain a clean and lively local environment for themselves, their families and their local community. Even in areas where the local community is not very strong, the organisation of self-help events can maybe start bringing a community together. However, trust in a good leader/coordinator is essential and, most of all, participation of the community in decisions is an essential criteria to get the community motivated.

3.6. CO-EXISTENCE BEST PRACTICE: a successful partnership for the development of a project - the North Rupununi District Development Board and Rewa community

What criteria determined the choice of this best practice for Co-Existence?

After rating the different elements that are crucial for Co-Existence, two practices were short-listed. ‘Partnerships with other communities’ achieved the highest score, followed by ‘partnerships with the NRDDB’. Partnerships with other communities came first mainly because it was felt to be a much more community-owned process. However, a focus on successful partnerships with the NRDDB was prioritised. The NRDDB is a key institution for the North Rupununi communities, a local CSO acting as an intermediate with the regional, national and international arenas. The NRDDB is also an important stakeholder that contributes to the healthy Co-Existence of the different North Rupununi communities and is thus a key actor. But the best practice is not about the simple Existence of this institution. Institutional partners should be there to support communities in their social and economic development and in many cases the NRDDB has managed to carry out successful projects in North Rupununi communities, thanks to efficient collaboration and efficient use of funding. This practice was also chosen because it was relevant for all communities of the North Rupununi, some charismatic champions could represent the practice, and as it could have determining impacts on all future scenarios developed in Workpackage 3.

The NRDDB has, throughout the years, gained significant expertise in the successful implementation of projects thanks to good practices in transparency, communication, and most of all community
involvement. On the other hand, communities themselves need to consider themselves as active partners and not simply passive receivers of projects and funding. This successful partnership is still difficult to obtain but the community researchers have identified one community where this successful balance has been reached. This is what the Co-Existence best practice is documenting.

Who is the champion of this best practice and why?

Here, the film and photostory particularly focus on one case-study: a successful project carried out thanks to a good partnership between the NRDDB and the community of Rewa. This project, funded by the European Union, is entitled “Building Individual, Organisational and Institutional Capacities for Ecological Sustainable Tourism Development and Fisheries Management in the North Rupununi Wetlands”. This project, which also involved the collaboration of IUCN, aimed at preserving a healthy river ecosystem while providing economic development through tourism.

Mike Williams is the representative of the NRDDB in the best practice. He is now the President of the NRDDB and, when this project was implemented, was part of its steering committee. As such, he agreed to highlight good practices in the implementation of the process. The community of Rewa was chosen precisely because the outcome of this project seemed to be particularly successful there. They have gone from 100 tourists in 2008 to 289 in 2012, due mainly to sport fishing.

The project was implemented in several different communities of the NRDDB but Rewa community managed particularly to make the most of the opportunities presented by the project and to even take them a step further than expected. In Rewa community, finding one person to champion the best practice was difficult, as it is the work of several persons. Also, finding a person willing to tell the whole story proved difficult as many members of the community were very busy when the community researchers went to Rewa to document the best practice. In the end, the former Toshao (leader) of Rewa, Patrick Honorio, agreed to tell his version of the story and champion the best practice, along with the current Toshao (leader) Daniel Haynes. They played a key role in the implementation and development of the project in their community.

Description of the best practice: participation, local knowledge, local initiative

The NRDDB was in charge of the implementation of the project in the North Rupununi and followed key steps in order for it to be successful:

- Communities to participate in the project were carefully chosen, in consultation with all of the community leaders. By so doing, the NRDDB made sure the project was implemented in communities who were willing, who had the capacity and who had resources to participate actively. For example, one of the criteria was of course that communities would depend on river fish resources on a regular basis, but also that tourism activities had started but needed more support to expand.

- Building on existing strengths and combining them: this project was looking at a combination of tourism and fisheries management. This best practice thus builds strongly on the Existence best practice (see Section 3.1.1). Six tourism communities were given funds to help improve their infrastructure. The fisheries component looked at expanding fisheries management beyond one specific species (the Arapaima, which already had its management
plan) to include all fish, concentrating on food fish and sport fishing. A few parties including Rewa had proposed the idea of sport fishing the Arapaima and began actively pursuing this in 2011-2012 with some help from the Government and other partners.

- Once the final set of communities was chosen, meetings were held in the communities to explain the objectives and set up the programme of activities in a participatory way, allocating different tasks and responsibilities to members of the community.

- The NRDDDB followed up on the project: every 3 months, meetings were organised with all participants to inform and be informed of the state of the activities, respond to concerns and queries, provide additional support if necessary, etc.

- Communication: the state of the activities was broadcasted on the local community radio RadioPaiwomak to inform the wider community.

- Community owned rules were developed with the help of experts/facilitators. By doing so, the communities developed their own fisheries management plan, based on their local knowledge of fish species, habitats, cycle of reproduction, abundance, etc. These rules are then much more easily followed locally (Figure 12).

- Training was provided for the development of tourism infrastructure. This training was provided mainly by local people, or people who already had in-depth knowledge of the area.

- The impact of the project was not limited to local communities. The Fisheries Management Plan is to be applied at the scale of the North Rupununi as a whole, and to be integrated in national laws further on (see Section 4.2.1).

- Continuity: through the NRDDB, partners like Conservation International, continue to provide some support for training if needed and justified, which helps in the sustainability of the project as the number of tourists grows and infrastructure develops.
It seems important here to highlight that the NRDDB’s principles for representing the North Rupununi communities greatly support the successful development of projects. The board comprises representatives from 16 indigenous communities in the North Rupununi, including leaders (the Toshaos), councillors, elders, women and youth. Quarterly meetings are organised to ensure communities and their representative board can voice successes, concerns, issues, and so that the NRDDB can communicate on its activities. These meetings are open to government and non-governmental agencies that work in partnership with the communities and the NRDDB. The NRDDB obtains grants from international funders but then ensures that this funding is wisely invested within the North Rupununi.

“It takes two to tango”. What are the community’s good practices that made the project successful?

The key steps that ensured the success of the project in Rewa community were:

- leadership to make community members apply rules, follow guidelines, motivated in participating;
- self-help to carry out initiatives when funding or time is running out. For example, Rewa community built the main tourism infrastructure (the benab, where tourists can gather and have their meals) thanks to self-help. The first set of infrastructure was built with a
combination of a grant from Conservation International (Community Investment Funds) and self-help. It was indicated that after budgeting the money was not enough so a lot of the building was done by self-help;

- determination and continuity: the process was long between the very first initiative and recent developments. One year, Rewa community only had 2 tourists. Perseverance is a key virtue in these circumstances and resources also;

- networking for visibility: Rewa needed to find ways of getting visibility by
  - establishing contact with reputable tour operators who could channel clients to them on a regular basis;
  - advertising their eco-lodges by collaborating with other tourism infrastructure of the area;
  - developing their own website;
  - establishing contacts, through memberships, with national tourism associations (e.g. The Tourism & Hospitality Association of Guyana -THAG).

- monitoring: the community was able to demonstrate the impact of their efforts on the fish population (the Arapaima population increased for example), as well as the number of tourists and the improvement of community infrastructure thanks to the benefits made;

- transparency in accountancy: a percentage of the benefits go to the village council and the rest is returned to operations and improving the infrastructure;

- compliance to national rules and creating benefits for other systems: Rewa eco-lodge is registered as a business and has to pay tax.

The wider context: a solution to the challenges of other, external systems

The environment may contain other systems whose behaviour might have a direct effect on the system trying to promote its own survival, in this case, communities and the North Rupununi. Communities are constantly challenged by, or gain significant benefits from, other systems, whether these are neighbouring communities, government institutions or private/civil society organisations. In these situations, Co-Existence strategies make the most of the opportunities and protect the community against threats.

Co-Existence is about living side-by-side with other systems, it is about interaction. These other systems identified by the communities in Workpackage 2 were usually the North Rupununi District Development Board (NRDDB), the Iwokrama International Centre for Rainforest Conservation and Development (IIC), the Government, and neighbour communities. All 16 communities of the North Rupununi can be considered as 16 different systems that are represented by one distinct system: the NRDDB. Although the NRDDB is formed by members of the communities, it remains a separate institution whose role is to support and represent the needs and aspirations of the villages.
More and more development projects are being carried out in communities, with the support of external stakeholders. However, their success and sustainability is far from being guaranteed. Infrastructure is being built, resource management projects are being developed, commercial projects are being implemented, but all too often these projects do not last. This does not only affect the local communities, but also the funding and supporting institutions who do not always get the expected return on their investment (e.g. an independent and sustainable handicraft market, a maintained and used water well, etc.). This best practice underlines the crucial determinants for the successful implementation of a project for all parties involved.

Potential of the best practice to be applied in other communities

This best practice is highly relevant for communities who are developing projects with the support of external partners but who feel projects so far have not been maintained sustainably in the community. Of course, a whole eco-tourism project cannot be set up quickly. This project has been carried out thanks to several partners and is the fruit of long-term relationships and capacity building in the North Rupununi. However, if a community has been approached by partners in order to carry out a development project, if a representative institution like the NRDDB has been granted a project and would like to implement it in the most useful and sustainable way, or if a community would like to set up a project but does not know where to start, the guiding principles presented here can be used. As we have seen, maximum involvement and participation of the community is essential for the success of the project.
4. Discussion

The COBRA community researchers have identified six best practices that appear essential for the viability of the North Rupununi communities. These practices enable communities to respond to distinct environmental characteristics: engage proactively with ongoing, predictable challenges (*existence*), resist fluctuating conditions (*resistance*), be flexible where there is heterogeneity (*flexibility*), co-exist with other systems (*co-existence*), adapt to aspects which demonstrate permanent change (*adaptability*) and work efficiently with scarce resources (*ideal performance*). These practices were selected, investigated and documented by the team of community researchers, with the involvement of local champions, feedback from the wider community and guidance from other COBRA members. This step of the COBRA project reveals the community owned solutions for sustainability which were developed in the North Rupununi. It reveals them to the North Rupununi communities themselves, who can now observe them and value them with a whole new perspective. However, since the aim of documenting best practices is also to share them with other communities and generate greater support from higher level decision-making, including national and international policies, they should not be taken at face-value, as each best practice emerges from the particular cultural, historical and environmental context of each community. As this discussion shows, from these six best practices it is possible to distinguish key cross-cutting themes that appear crucial for indigenous social-ecological viability. Through these cross-cutting themes and within the guiding principles that emerge from them, they also become relevant from local to global scales. The discussion finishes with a critical approach to the methods and process for documenting best practices.

4.1 Best practice cross-cutting themes

4.1.1. Indigenous knowledge

Indigenous knowledge is characterised by being context specific, in that it has roots in a particular place and in the experiences of the people that live in that location (Mistry, 2009). Most of the best practices outlined in Section 3 are imbued with indigenous knowledge. Whether it is directly through fishing and farming, or participation in traditional dances and ceremonies, indigenous knowledge plays a critical role in establishing a long-term communal understanding of people’s environment and the transmission of pertinent experience.

However, indigenous knowledge is not static but constantly reinforced and adapted over time, and through the everyday life experiences of people through acts of repetition, learning, experimentation, and adoption of novel solutions. Much research has been done on the loss of indigenous knowledge and the drivers of this change (e.g. Reyes-García et al., 2013), “yet by analysing change primarily in terms of lost knowledge the usual research perspective tends to downplay the dynamic nature of TEK [traditional ecological knowledge] systems” (Gómez-Baggethun and Reyes-García, 2013, p.1). How does indigenous knowledge respond to new social-ecological
changes and what is the role of these new changes to actually transmitting, engendering and renewing knowledge? Two best practices illustrate the dynamic nature of indigenous knowledge.

In the *Adaptability* best practice of Radio Paiwomak, a new form of communication has been adopted by the communities that on the surface could potentially undermine indigenous knowledge and its transmission by facilitating the widespread communication of non-indigenous ideas and practices. However, the story of the radio illustrates that, by the very fact that it is community owned, it has enabled the communities to use the radio to reinforce indigenous knowledge and stimulate traditional oral modes of communication. There are for example traditional storytelling programmes for children, radio programmes broadcast in Makushi, or programmes facilitating the exchange of traditional knowledge to face challenges (such as fighting diseases in their farms). At the same time, Radio Paiwomak has the potential to support communities in dealing with new, emerging challenges, such as the spread of HIV – a new disease never experienced by indigenous communities. We also see images in the photostory and film of people coming together to listen to the radio, supporting communal interaction for indigenous knowledge production.

In the *Co-Existence* best practice, integration into a market economy through ecotourism could also potentially undermine indigenous knowledge. Some researchers have hypothesised that since markets enable people to access substitutes for natural products and because markets correlate with greater socioeconomic heterogeneity, a market economy may undermine the pooling of indigenous knowledge (Godoy et al., 2005). However, we see an ecotourism venture firmly rooted in the community, through its shared management and profits, and crucially supported by a local CSO rather than through external agents, thus helping to underline and regenerate local and traditional knowledge. For example, community owned rules for managing local fish resources have been developed, thus bringing the community together to pool their local ecological knowledge related to fisheries. This ensured that rules made sense for the local community and were being followed, which directly benefits the tourism enterprise as many of the clients come for sports fishing. In return, in order to appropriately guide tourists and ensure successful fishing trips, local guides constantly reinforce their local ecological knowledge. This may help to stress the practical aspects of indigenous knowledge (able to do), thought to be acquired during adulthood (Ohmagari and Berkes, 1997), rather than theoretical knowledge (e.g. naming and knowing uses) learnt by adolescence (Zarger, 2002). Reyes-García et al. (2007) have found that only market related activities that take people out of their immediate habitat and cultural context have negative effects on indigenous knowledge. This emphasises the importance of contextual social transmission of knowledge and the preservation and strengthening of indigenous knowledge by promoting activities that draw on its use (Guest, 2002; Crona and Bodin, 2006).

### 4.1.2. Local leadership and collective spirit/values

Our best practice results demonstrate the critical importance of prominent local leaders (Kenward et al., 2011) and strong social capital (Pretty, 2003) for community owned approaches to social-ecological system management. The presence of at least one singular individual, highly motivated, respected as a local leader, with appropriate/innovative skills, and making a personal commitment and ‘self-sacrifice’ to the best practice and the process of implementation was essential. In our best practices, these ‘champions’ varied between young and old, women and men. However, they were
all distinguished by community legitimacy; they were guided by collective benefits rather than self-interests which gave the community confidence in their ability to make a difference and motivated community members to participate in the best practice. For example, the Adaptability best practice of Radio Paiwomak relies on Virgil Harding’s time and care. No one would work for the radio without getting paid, and in today’s context of financial cuts, it is becoming even more difficult to compensate Virgil Harding’s expenses such as transportation to and from the radio’s headquarters. On the other hand, Radio Paiwomak has been operational for 13 years in this extremely challenging financial environment – clearly, there are mechanisms through which the radio continues to be operational even if this involves great sacrifices from one or more individuals. It is generally the case that community owned solutions are not "easy", as opposed to many external solutions which often come with significant financial and human resources. This emphasises that community owned solutions involve significant sacrifices from community members. These personal sacrifices are rewarded by promoting the survival of the community as a whole.

Linked to strong leadership was a sense of collectiveness underpinning many of the best practices. The Ideal Performance best practice of Self-help embodies notions of community cohesion where norms, trust, communication and connectedness in groups (Sigmund et al., 2010) is the foundation of the best practice. However, we also see the importance of community cohesion within the Co-Existence best practice, where communities voluntarily work together to build infrastructure for the ecotourism venture, in the Resistance best practice where people come together to teach young people about culture and in the Flexibility best practice where adequate food security through farming can only be achieved through a collective effort. Community cohesion can serve as a buffer against changes in institutional arrangements, economic crises and resource overexploitation, and can foster sustainable resource management systems (Olsson et al., 2004). Although some researchers have argued that modernisation weakens social capital (e.g. Bury, 2004), others have found that social cohesion can permeate new market-orientated institutions and that the prevalence of reciprocity in these indigenous societies can reduce the potential adverse effects of income inequality (Godoy et al., 2005). We concur with Gutiérrez et al. (2011, p.388) in that for sustainable resource use, “additional resources should be spent on efforts to identify community leaders and build social capital rather than only imposing management tactics without users’ involvement”.

4.1.3. Partnerships and networks

Most of the best practices showcased in the Results section are built upon an array of partnerships and networks. Crucial to their success is the role of the local CSO, the NRDDB, in helping to develop and support local community initiatives. At the same time, links with external agencies and institutions have helped the local communities and the NRDDB to access necessary technical and business skills, new sources of finance, broaden market opportunities and to gain political support (Verwer and Glastra, 2013), while at the same time retaining local control over the development agenda. The Co-Existence best practice is based on having partnerships to effectively develop and run community-based enterprises. In the Adaptability best practice, the roles of Iwokrama, UNESCO, the International Development Research Centre (Canada) and Guyana Broadcasting Corporation/National Communication Network are highlighted in the creation and maintenance of Radio Paiwomak. This, and other examples, indicate how successful initiatives often participate in
many different partnerships at once, thereby taking advantage of different partner strengths and preventing overreliance on any single partner. It also shows, in the cases of Iwokrama and the National Communication Network, that long-term and on-going support structures (which are not always exclusively financial) are required to strengthen and promote community owned approaches.

A key role of these partnerships and networks is capacity building. CSOs, in particular, play a critical role, not just for building technical and business capacities, but also for developing institutional and social capacities (Verwer and Glastra, 2013). However, for effective strengthening of community owned approaches, this capacity building needs to be long-term, hands-on and interactive, as exemplified by problem-learning approaches (Mistry et al., 2011). Experience from the best practices show that some effective capacity development has occurred, for example through the Inter-American Institute for Cooperation on Agriculture and FAO in terms of agriculture (including aquaculture) and for tourism management (e.g. catering, guiding) by the Hospitality Association of Guyana coordinated through the NRDDB. Still, the majority of this support is temporary and more enduring capacity building through mentorships, internships, peer-to-peer exchanges, and support services (e.g. legal, technical, business, financial) can help facilitate local action (UNDP, 2012). A key area that needs to be developed is the role of local champions in capacity building. As we have shown in the best practices, these individuals are crucial and can all be excellent role-models for building capacity in others.

Recent studies also indicate that an important aspect of successful community owned enterprises is the support network established around these enterprises (e.g. Carnegie Trust, 2012). These networks and associations, such as producer groups and knowledge networks, can amongst other things provide access to inspiration (visible examples of successful community action), magnify and extend collective action, and act as a platform for learning and knowledge exchange. In the Resistance best practice, for example, we see young people in Yupukari using internet communication tools to exchange their local experiences and practices with those abroad.

4.2 Relevance of best practices: community to global scale

Although it may seem that the best practices are only relevant to the local level, they have significant relevance at the national and international levels. Notable is the need to promote and incorporate the solutions of poor and marginalised communities, such as indigenous communities, in national sustainable development planning, as well as the action plans for international environmental policies. Local best practices also play an important role in encouraging public awareness and engagement about effective solutions at the community level, and connecting local efforts to national and international action by building partnerships and networks across civil society.
4.2.1. *Existence*: Sustainable fishing to ensure basic food security and ecosystem integrity

Combining the Amazon and Essequibo watersheds, the Guiana Shield eco-region contains 10-15% of the world’s fresh water reserves, and as well as maintaining healthy freshwater ecosystems, this hydrological system supports important associated inland fisheries (Rosales, 2003). Most of these are small-scale and include traditional, artisanal and subsistence fisheries characterised by a high catch biodiversity, frequent use of traditional fishing gear, such as traps and lines, and limited use of small engines and outboards (Berkes, 2003; Ingwall-King, 2013).

As the best practice shows, fish make a significant contribution to many indigenous communities both in terms of diet (and associated culture and belief systems) and income for poor rural communities (Allan et al., 2005; Chuenpagdee, 2011; Welcome et al., 2003). At the same time, fish populations also maintain food chains and in particular top predators such as the Black Caiman (*Melanosuchus niger*), Giant Otter (*Pteronura brasiliensis*), Giant River Turtle (*Podocnemis expansa*) and recovering populations of the largest freshwater fish in the world, the Arapaima (*Arapaima gigas*) (Mistry et al., 2004). Not only do these species have intrinsic value, but they also provide important indirect income for indigenous communities through ecotourism ventures (as outlined in the *Co-Existence* best practice).

Yet, despite the importance of sustainable fishing to the Guiana Shield social-ecological system, over-harvesting has already seen large decreases in fish populations in parts of the region (Castello and Stewart, 2010). For example, in the North Rupununi, Guyana, economically important species such as the Lukani and Arapaima, as well as traditional food sources, including the Paku, are being targeted for markets in Brazil. While some commercial fishing is being undertaken sustainably by local communities (e.g. Ingwall-King, 2013), small-scale fisheries suffer from a multitude of factors from both inside and outside the communities (Armitage and Marschke, 2012; Garcia, 2005), including economic development (Mansfield, 2011), climate change (Badjecl et al., 2010) and illegal fishing. Subsequently, small-scale fisheries, in many cases, fall short of their potential to be a significant driver for development (Andrews et al., 2007).

There is an urgent need to incorporate sustainable fishing best practices of indigenous communities into national sustainable development planning. In Guyana, a fisheries management plan was drawn up by the communities of the North Rupununi and their representative CSO, the NRDB (Jafferally and Haynes, 2011). However, to date, except for the incorporation of some components of this plan in the government inland fisheries strategic plan (Inland Fisheries Policy, 2013) there has been little representation and promotion of local practices at the national level.

4.2.2. *Co-Existence*: Partnerships for effective natural resource management

Studies have shown that indigenous enterprises that arise from community-based ecosystem management face daunting odds in getting their products to market (or bringing their customers to them) and expanding their customer base (Fuller et al., 2005). In these mostly rural and relatively isolated enterprises, partnerships in the form of local CSOs, the private sector and government, can
be a lynchpin in helping to integrate local enterprises into the national and global economy in a sustainable manner. The Rewa ecotourism enterprise shows that successful indigenous and community owned small businesses are viable and, when linked to resource management, can reinforce effective ecosystem management. However, these indigenous enterprises are likely to suffer from a number of organisational constraints, particularly a lack of skills in business and financial management, funding, marketing and product research and development. Here, it is the role of the local CSO, the NRDDB that enables valuable education and training required in order to effectively manage a small enterprise. Local CSOs have many strengths:

- “They are embedded in the local culture and understand local livelihoods, and are thus in a good position to interpret and focus local demand;
- They function face-to-face, with bonds of trust and shared values among members, allowing them to catalyse collective action;
- They are conversant with local norms and informed by customary institutions, and are thus able to legitimise and enforce through social pressure the rules the group has adopted;
- They create a route for typically marginalised groups such as the poor, women, and indigenous peoples to organise and participate in group action and enterprise” (UNEP, 2012, p.11).

Thus, there is a need to move away from government-led blueprint models of development to a situation where local CSOs are supported (by government, NGOs and private enterprises) to take a leadership role in the development of their own communities. These local-local partnerships could also serve as a catalyst for finding innovative strategies to merging challenges.

The fact that ecotourism is classified under Co-Existence by the communities indicates the importance of some of their solutions co-existing with other systems, in partnerships to access a market economy. Community approaches to tourism development whereby individuals, their families and the community as a whole can initiate and generate their own solutions to developing a tourism venture, can build long-term community capacity by fostering the integration of economic, social, cultural and environmental objectives (Vodden, 2002). In fact, the Rewa ecotourism best practice not only emphasises the economic benefits of the business, but also highlights the capacity building, generation of community infrastructure and the development of community cohesion. This bottom-up approach to the development of a ‘local green economy’ is potentially more empowering to local social-ecological systems compared to mainstream global ‘green economy’ solutions, such as payments for ecosystem services, implemented through basic grant payments based on top-down market based instruments (Brockington, 2011; Ferraro, 2011). There is a need by governments to re-focus attention on local and regional practices and institutions, on diverse ecological habitats, and on their interactions (Carrière et al., 2013). The financial flows generated by PES schemes may therefore work more effectively if they incentivise existing community based initiatives rather than undermine them with potentially unproductive incentives.
4.2.3. Ideal Performance: Collectiveness to enhance the social-ecological system

The best practice of self-help lowers the costs of working together while facilitating cooperation and confidence to invest in collective activities. Self-help can be considered a feature of ‘social capital’ (Putman, 1993, 2000), characterised by relations of trust, reciprocity and exchanges, common rules, norms and sanctions, and connectedness in networks and groups (Pretty and Ward, 2001). Many studies show that social capital and sustainable natural resource management are mutually reinforcing (see for example Pretty and Smith, 2004), yet few ecosystem management policies explicitly include social objectives (e.g. Berardi et al., 2012), potentially because of the mismatch between quantitative metrics and more qualitative social information. Linked to this, Plagányia et al. (2013) highlight that market-based ecosystem management options might score highly in a capitalistic society, but have negative repercussions on community coherence and equity in societies with a strong communal ethic. In our research, we have already seen potential trade-offs between economic indicators, such as the acquisition of imported goods for personal consumption, and social indicators, such as achieving collective land rights where benefits may not necessarily accrue to particular individuals, but are instead shared with current and future generations.

Westermann et al. (2005) found that collaboration, norms of reciprocity, solidarity, collective action, and conflict resolution all increased in women’s and mixed groups. Interestingly, we found that women and young people were a core part of the self-help being undertaken in the North Rupununi communities. Women also prioritised community collectiveness as a critical issue in their futures, closely linked the breakdown of community togetherness with local environmental degradation (Mistry et al., 2013a). In addition, women played a key role in the activities that underpinned the self-help, namely food sharing. Gombay (2010), for example, recounts how although the Inuit of the Eastern Canadian Arctic have serious social-ecological problems, their moral geography of obligation, specifically around food sharing, is the basis of community construction and maintenance.

4.2.4. Flexibility: Farm and crop diversity as enablers of resilient social-ecological systems

Subsistence farming through rotational shifting cultivation is the mainstay for most rural indigenous communities in the Guiana Shield (Denevan, 2001). This traditional form of agriculture among indigenous peoples is the accumulated experience of soil and land type, climate, hydrology, topography and crop varieties over generations to maintain food security (Pulido and Bocco, 2003). A key element of this best practice is diversity; in crops, farming method, locations.

These localised food systems not only provide the foundation of people’s nutrition, but also economies, ecologies and culture. We see this clearly in the best practice where, as food is grown, harvested, processed, consumed and sold, people are making associations with the ‘protection’ and ‘conservation’ of the environment, maintenance of local culture, and income and livelihoods benefits. Diverse farming methods improve soil water and nutrient retention, reduce erosion and degradation, allow better carbon sequestration and increased agrobiodiversity (Coombes et al., 2000; Norris, 2008), while at the same time reinforce collectiveness, traditional knowledge and the capacity of local people to experiment and solve their own problems (Pretty, 2008). These ideas link
directly to the global food sovereignty movement that aims to guarantee and protect people’s space, ability and right to define their own models of food production, distribution and consumption (Pimbert, 2009).

Traditional knowledge based shifting cultivation might be a major casualty if policies, such as REDD+, which may restrict or ban shifting cultivation, are imposed in a top-down, centralised way. Traditional shifting cultivation has been practiced sustainably for millennia, and has been shown to actually enhance both soil (biochar) and above ground (higher biomass) carbon storage in the long-term and over greater spatial scales (Erni, 2009). There is also growing evidence that shifting cultivation has high productivity for the amount of energy and other inputs that they utilise because of the multiple outputs, not all of which are recognised or valued in external markets (Trosper et al., 2012). Thus, traditional farming methods and its associated knowledge can make significant contributions to sustainable forest conservation and management.

4.2.5. Resistance: Traditional ‘guardians’ of the future

"Indigenous people are where the hope lies for the future of this planet" (Howard, 2011). Quotes such as this illustrate the wide belief that indigenous peoples have the knowledge and skills to teach Western society how to manage and solve some of the world’s most pressing environmental issues, including forest and biodiversity conservation (e.g. Afreen, 2007; Berkes, 2009; UN, 2009; Weatherhead et al., 2010). The core attribute of this knowledge is that culture and ecology are tightly interwoven in a complex dynamic that maintains the social-ecological system. In fact, as outlined in Section 3.1.2, most indigenous community members feel that one feeds into the other: maintaining traditional practices also ensure that the environment is used in a sustainable way.

In many PES schemes, including REDD+, the Monitoring, Reporting and Verification (MRV) approach is a critical component upon which assessment of the health of key ecosystem services is made. With many developing countries lacking the human and financial resources to undertake MRV at state level (combined with donor requirements to engage and collaborate with local communities), indigenous communities are the primary focus for providing this function since the majority of these communities still occupy areas with well-functioning ecosystem services. For example, in Guyana, the Iwokrama International Centre, Guyana Forestry Commission and Global Canopy Programme - UK with funding for NORAD are currently developing capacity for a community based MRV framework in the North Rupununi. In tandem with Guyana Forestry Commission, one of the local villages - Annai Village - was chosen as a forest demonstration site for the national MRV Framework.

Yet perhaps what is lacking at present is any discussion on what happens to future forest and land conservation and management if the current and future generations move away from their land centred worldview and environmental identity as ‘forest stewards’ towards more Western nature-detached lifestyles. Although national and international development/environment policies currently assume a ‘nature guardian’ identity for indigenous people, and indigenous peoples also present themselves in this role to help defend their rights and land (Mistry et al., 2013b), we need to ask ourselves whether in the near future indigenous peoples will no longer have the capacity to play this role. There is indeed a strong tension between Resistance and Adaptability as discussed in Section 3.1.2. Research on indigenous youth aspirations by Bell (2007) showed that there was
considerable out-migration of young people from communities for what were perceived to be ‘better opportunities’, while at the same time evidence that raising awareness of the value of environmental sustainability helped sustain youth participation in environmental management initiatives. To make matters even more challenging, there is much evidence of the loss of indigenous knowledge, particularly traditional languages; it is estimated that approximately 600 languages have disappeared in the last century and they continue to disappear at the rate of one language every two weeks (UNPFII, 2011).

It is in this context, that the best practice of transmitting culture to younger generations is vital. There needs to be greater focus on maintaining and promoting youth inclusion and participation in all social and ecological community activities, while at the same time recognising the growing desire of young indigenous people to be ‘connected’ to the national and global (UNESCO, 2013). As stated by UNESCO (2004, p.26):

“participation promotes the well-being and development of young people. It is by questioning, expressing their views and having their opinions taken seriously that young people develop skills, build competencies, acquire confidence and form aspirations. It is a virtuous circle”.

The best practice outlined in Section 3.1.2. shows how different avenues of youth participation in local culture can be achieved and that adults need to take the time and open spaces (McCarty et al., 2006, UNPFII, 2013), such as culture clubs and camps, to encourage young people to engage with cultural activities.

4.2.6. Adaptability: Communicating social-ecological sustainability through new tools

As we have seen from our discussion in the section above, local indigenous culture draws from traditional practices and authorities, yet is confronted with an array of modern challenges and social change. However, as is outlined in Section 3.2, innovation and adaptation can often occur at this interface between the modern and traditional, leading to new modes of participation to reflect new circumstances. Communication is key to coping with a permanently changing environment, by raising awareness and educating people about new social-ecological issues, while at the same time keeping them informed on developments and interventions. Indeed, technological change and novel ideas have long percolated within and among indigenous communities as part of an adaptation process and many have successfully interfaced advanced communication networks with traditional forms of mobilisation (Dyer-Witheford, 1999).

Community radio initiatives in indigenous communities provide an outreach mechanism for increased access to education, self-expression and communication, particularly among rural and hard to reach populations, as illustrated by Radio Paiwomak in the North Rupununi. Radio, and other community media initiatives, can also help challenge stereotyped portrayals and transform established patterns of representation, providing a voice to different members of the community, facilitate debate and allow information and knowledge sharing and input into public decision-making (Buckley, 2011). However, in order to thrive, community media such as radio, require an enabling
policy environment and a model of sustainability that guarantees its continued independence and effectiveness. As we see with Radio Paiwomak, this can sometimes be extremely challenging in remote and financially-poor indigenous communities, although volunteerism is a key backbone of the indigenous culture which has sustained Radio Paiwomak for so many years.

4.3 Reflections on the methodological approaches

Identifying the best practices step of the COBRA project has mobilised many methods that need to be reflected upon. Indeed, applying the action learning cycle to our project is essential as a way of improving approaches not only for Workpackage 5 activities within COBRA (sharing best practices with other communities) but also for engaging and empowering local communities.

First of all, the System Viability framework encouraged the community researchers to engage with a whole range of practices that might not have been selected, valued or even noticed otherwise. A good example of this statement is the Ideal Performance best practice “self-help”. Only one community had mentioned it as a key element for its viability (the remote community of Apoteri), yet during the scoring of these viability indicators it achieved the highest score, suddenly revealing its major influence on a community’s functioning. One down-side might be that the documentation of 6 best practices (rather than 3 for example) proved to be difficult to fit in the tight time-frame of the Workpackage, especially as they needed to be documented through videos *and* photostories, which means the creation of 12 visual products.

Participatory Action Research appears as an essential methodological framework to embed the research process of the local team. Indeed, as the Methods section has shown, the on-going cycle of ‘Planning – Acting – Observing – Evaluating’ was absolutely crucial to carry out the investigation of the best practices, especially as the community researchers themselves had not always extensive knowledge about the practices they were going to document. The flexibility of this framework enabled them to increase their knowledge and understanding of the best practices, to face unplanned events such as unsuccessful meetings or improvised interviews, and to build step by step a clear photostory and film of the best practices.

The selection of the best practices, through the scoring exercise, proved to be a balanced solution. It provided a process through which participants could collectively and explicitly weigh up the advantages and disadvantages of each viability indicator, which for instance led to the selection of practices that had been rather unnoticed before. However, it is important to acknowledge that practical, logistical factors play a significant role in the final selection of best practices, in view of their documentation and sharing. These limitations are directly linked to nature of the project, which is limited time-wise and financially. Although as a consortium, a series of criteria had been developed to select the top best practices, on the ground, practicalities also determined the selection of the final best practices for community viability. These criteria were often logistical (distance and time mainly) and one determining factor was also the willingness and the availability of a champion. As a consequence, the best practices documented here are a result of both intellectual and logistical criteria.
The documentation of the best practices was challenging for several reasons. First of all, there was almost never a simple story to tell. Best practices, contrary to a story, do not necessarily have a beginning, a development and a natural ending. As a consequence, the storyboarding of the practice was never an easy task for the community researchers. It demanded great capacity of analysing, synthesising and organising a significant quantity of information. Second of all, information was held by champions who had to be interviewed, yet the preparation and carrying out of an interview can be a tricky task that the team was not necessarily prepared for. One community researcher says:

“You have to make it clear to the person that you’re interviewing. If questions are not clear the person will say too much. It’s really about making the questions clear. Sometimes it’s difficult to get questions ready beforehand. Sometimes we did it here before we leave but there would be change of persons, so questions must be changed. The hard part is identifying the right question. It’s not direct closed questions; it’s opened, so it’s a tricky process. When people talk about stuff it can trigger new things, and sometimes we pick up on it. But we have to be quick and it’s not easy. And then there’s the efficiency of time, and the place where we interview play a big role. You need a proper setting and lighting etc., there’s not much time to do it well and properly. In Rewa for example you need a beautiful morning or evening. We just did our best to minimise this stuff.”

This quote reveals the complexity of the process, as much as it reveals the progressive empowerment of the local researchers and the amazing resourcefulness they developed to carry out their investigations. A best practice is indeed rarely the work of a single person, or the key champion was not always available, or the champion does not fulfil all the dimensions of the best practice. For example, the Existence best practice is about practicing local traditional fishing, but also about the transmission of this knowledge. Even though the selected champion has great knowledge and beliefs, he is not actively passing on his knowledge: “He is a loner. He has no children; he lives on his own with his wife. He is not involved politically in the community” (Community Researcher). Romeo Bowen could not champion the second and crucial component of the best practice. To complete the films and photostories, community researchers and especially Lakeram Haynes, who is originally from a riverine community, identified steps that they considered crucial to pass on the knowledge.

Another example lies in the Resistance best practice. The team decided to document two case-studies instead of one: the Surama Culture Group and the cultural initiatives being undertaken in Yupukari community. Whereas the culture group in Surama has successfully matured since 1998, the cultural initiatives being developed in Yupukari community have only started in 2012. Although the initiatives have been successfully picked up by the local community and the campfire nights are attracting more and more people, it is difficult to say yet whether this practice will help the indicators to stand on the ‘positive side’ of the thresholds. However, the local researchers still decided to document it as the activities led were taking an innovative approach to transmitting culture to younger generations.

The community researchers have been repeatedly facing these local constraints and opportunities for the documentation of the best practices. However, as previously mentioned the PAR approach allowed the team to make the most of all available resources, with great discernment.
The editing of the videos and photostories was an iterative process, where the storyline got constantly changed with the development of the community researchers’ investigation and the feedback of other COBRA members. However, it was sometimes stressful for the community researchers, as they were never quite sure whether they were doing the ‘right’ or ‘wrong’ thing. Even if they were told that “there is no right or wrong”, in fact feedback provided to them by other COBRA members guided them to maybe what was thought of as a “more appropriate/more accessible” way of communicating the story of the best practice. This frustration is captured by two team members when they say “You know, we’re left on our own working on this for months, without guidance, and then when we show something, suddenly we have to change everything” and “I’m just going to ask them to come here and do it themselves”. These comments, although valuing the feedback provided by the wider team, also express the tensions between the different expectations of the COBRA members and the pressures on the local team to work within project (externally) defined boundaries.
5. Conclusions

Overall, our findings reinforce the notion that complex social–ecological systems, such as those identified in the COBRA Project, need to be managed by addressing problems related not only to the resources themselves but to the people targeting them (Gutiérrez et al., 2011). Work by the UNDP (2012) has found that local groups/communities tend to place as high a value on producing social benefits such as empowerment, access to resources, food security, and equity as they do on generating economic or environmental benefits and in doing so, increase the ability of the group to continue working together productively. It is vitally important that policymakers and practitioners continue to seek ways to provide support for the processes that both help local groups to form, and help them mature along the lines that local people desire and need, and from which natural environments will benefit (Pretty and Smith, 2004).

However, large-scale natural resource extraction in the form of timber, fishing, or mining concessions, agricultural conversion and protected areas with strict conservation regimes can undermine or overrule local efforts at ecosystem management and precipitate conflicts between communities on the one hand and government planners and private or state-owned concession holders on the other. Adopting national land use policies that acknowledge the value of local social-ecological system management and take this into consideration in the development of policies and the designation of resource extraction could help to reduce such conflicts. Mainstreaming local concerns into national policies, encouraging the scaling up of local successes and ensuring good governance, with transparency, accountability and the necessary checks and balances is key.

Yet, despite the many efforts of using a community-based approach to natural resource management, the success rates of these projects have historically been limited (e.g. Fabricius et al., 2004; Brockington, et al., 2008; Child and Barnes, 2010). One key problem has been the ‘best-fit’ approach where blueprint solutions have been applied in complex social-ecological contexts (Dressler, et al., 2010). This has been exacerbated by oversimplified views of what makes up a community, a lack of social and cultural consideration, issues around local participation, leadership and aspirations, communication and awareness (Garnett et al., 2007; Gruber, 2010).

Our methodological approach suggests that community-based natural resource management requires a suite of key requisites that the communities themselves have identified and assessed. This includes traditional ecological knowledge, linked to local cultural values, the transmission of this knowledge throughout the community but especially to young people, strong local CSOs and community leaders, a collective spirit with a degree of personal sacrifice, support when needed from external bodies/organisations, and adoption/use of new technologies in sustainable ways. Crucially, our methodological approach has enabled the identification of best practices which have synergistic effects i.e. they do not focus on promoting one aspect of a community while undermining other aspects. This is in stark contrast to many development and conservation policies and initiatives pushing simplistic interventions which are unable to deliver the appropriate trade-offs amongst competing interests. The challenge now is to build capacity in our approach, and the resulting best practices, within other communities throughout the Guiana Shield and in national and international policy makers, as we enter the final next phase of the project.
References


Appendix 1. Workpackage 4 narrative, community researcher’s perspective

The Workpackage 4 activities started in February 2013. The Post-Doctoral Research Assistant (PDRA) on COBRA provided some support for the starting-off of Workpackage 4 activities, in order to collectively identify a short list of key practices to be documented. Along with her, storylines and interviews for two best practices had been carried out in February 2013: Co-Existence (carrying out projects with the NRDDB) and Resistance (transmitting culture to youth). When the PDRA left, the team continued to work on these best practices and started off the Flexibility (farming practices) best practice. The PDRA left on the 7th of February and the team continued independently the documentation of best practices.

In order to document Flexibility best practices, the team went to visit the Makushi Research Units (MRUs) on the 12th February 2013, to get information on best practices in farming. Indeed, the MRUs can be considered as champions for their farming practices because through their group they had gathered extensive knowledge on local traditional practices for farming. However, the MRUs wanted to be paid for giving the information. As a rule, COBRA members decided payment for sharing knowledge should be avoided, as champions should be, as much as possible, willing and motivated to share their knowledge without the prospective of getting paid. In order to capture some information and to not offend the MRUs, the team collected some interviews for half a day rather than a full day, paid them for half the day and left. The team of community researchers also went to Fair View community to capture farming practices, but even though an appointment had been made and a meeting organised, “nobody was around” when they arrived in the community. They then quickly identified another champion, Paulette Allicock from Surama village. She agreed to be a champion.

The identification of (a) champion(s) for Flexibility was not a straightforward process. The team had captured footage and interviews in the riverine community of Apoteri. This community was chosen because flexible farming practices came out as a crucial indicator of viability for this community. However, if images were captured according to a draft storyline that had been prepared, the team then found it difficult to get back to the Best Practice in its wider context. In other words, the reasons for capturing these best practices (as Flexibility practices) had been somehow forgotten. As a consequence, the relevant questions as a way of guiding the interview were not asked. In the end, this material wasn’t used. The team also went to Fair View to capture Flexibility practices but didn’t get much because people weren’t available, although they had made all the arrangements. The team assumed the message had not been communicated to the community.

For the Flexibility video, all the material gathered was shared with the team. However, Lakeram Haynes was the main person responsible for this Best Practice. He comments:

“We didn’t really prepare or plan the capturing of the best practice. We had a discussion with MRUs previously, we developed a list of stuff that we could capture, the information that we needed to put in the video. We had no step by step storyboard as such, but we drafted a storyline on a piece of paper, a textual storyline. I started by asking people how to identify a farming land. How they started farming. The process to identify their farm:
what land, where, how, how far etc. The next step was to verify that the land is good. Then identifying the land. Is it a good land or not to give proper yields, etc. This is the introduction of the film.”

“*I recorded the general process of getting the farm ready, cutting it down, the time frame to allow it to dry, the normal process of a farm activity. There are 2 components: the farming, and then the cleaning, planting, growing etc. All of this is a narration represented by some visuals. There is no interviews. Paulette is the champion, and I have some clips where she’s talking about cassava, but this is not in the video yet. The next level is the maintenance and monitoring of the farm: what do you do to get the farm growing healthy, like a healthy production. Then the last part is how the farm is being utilised, and how the products are being used: selling, producing...*” (Lakeram)

On the 15th February, a meeting with a potential champion for **Resistance** (transmission of culture to youth) was organised: Jean Allicock from Surama village. She is the co-leader of the Culture Group in her village. She was very happy to champion the best practice, very motivated. However, she was so motivated that she gave very quickly a lot of information over this meeting that was not recorded. As the community researchers said:

“The problem was that she gave a lot of information very quickly and we weren’t prepared to record. But we went back to see her for the official interview and capturing images.”

In March, the community researchers pursued their investigation in Rewa, mainly to investigate and capture the **Co-Existence** best practice. As the team was taking a trip down the river, they optimised time and finances by simultaneously paying a visit to Apoteri community, in order to capture **Existence** and **Flexibility** best practices.

In Rewa, the team first met with the village council to inform the community of the purpose of their visit and collectively identify the champions. If the council gave permission to the team to carry out their investigation, unfortunately the champions were not available. As a consequence, the team’s plans were significantly affected and they faced a few diplomatic incidents in Rewa, as told by a community researcher:

“In Rewa, we first met with the village council. To inform them and identify the relevant persons to be the champions. But in the end, the problem was that these persons weren’t available. From there we had to shift our plans a bit. Moreover, some people refused to be the champions or to give information, or wanted to be paid, because they had negative experiences in the past, with information not coming back to the community or being sold. Lakeram [a COBRA community researcher originally from Rewa community] tried to convince them but it didn’t work. Finally, we managed to interview the former Toshao. But he was busy during the day so we didn’t have a lot of time to get information from him. “

The team then left for Apoteri, another riverine community just an hour away from Rewa, in order to interview Romeo Bowen for the **Flexibility and Existence** best practices. This time they did not need to present themselves to the village council as Apoteri, being part of Workpackage 2 activities in COBRA, had already given its full consent. When the team found Romeo Bowen, he not only
agreed to be a champion but also took the team straight away to his farm, as he was just about to leave. He also took the team on the river to introduce them to his fishing practices.

Community researchers then went back to Rewa to collect more information on best practices in transmitting knowledge for fishing, and Campbell James for farming. Unfortunately, one of the team member’s relative suffered a serious accident at that time which suspended all activities as the team needed to get back to Annai as soon as possible. Reflecting on their investigation in the communities of Rewa and Apoteri, a team member says:

“But we also had issues with our questions. In fact, we thought the champions would tell us a whole story, but they didn’t always, so we moved on to other people to complement the information that was missing but they weren’t available. Also, we weren’t always sure of what we were going to ask, in general. Especially for Co-Existence, when we interviewed the former Toshao [village leader] we weren’t quite prepared. And there was the constant issue of availability of people, we had more cameras than people.”

At this stage, the team thought they had very rich information about fishing practices, however since the threshold chosen for this practice was the “Majority of the population has this traditional knowledge”, the story still didn’t say how Uncle Romeo was acting to maintain the community over this threshold, which is an important part of the story if other communities want to implement these practices. So Céline Tschirhart and Lakeram Haynes prepared a series of questions, with the intention of conducting a second interview with Romeo Bowen, the champion of this best practice.

As the community researchers came back from the river, they divided themselves into two teams: one team went to Yupukari to document the best practice for Resistance (transmission of culture to youth) and another team to Surama to document the best practice for Flexibility (farming practices) and Resistance. As they were getting ready to go all together to Surama, an interesting activity was being organised in Yupukari and the team thought this opportunity should not be missed: a campfire night as a way of transmitting culture to youth. The Yupukari community agreed to be documented on this subject. But interestingly, the team’s thoughts about this event are mixed:

“We were a little bit disappointed, we expected something bigger. We expected more activities around culture, but they had lots of forró playing [a Brazilian music and dance quite popular in the area], and it was also a farewell party for some students. But there was still some storytelling. It was very difficult to capture because of the light conditions. When we arrived we talked to people, the organisers, we met the people that were to be interviewed but they didn’t have time so we did it the next morning.” (community researcher)

In Surama, the team worked half a day with Jean Allicock and her daughter Abigail to capture Resistance best practices, and half a day with Paulette Allicock for Flexibility best practices. Paulette Allicock desired to be paid for her participation, as she was interrupted while preparing cassava farine to raise funds for the community. In that case, the team agreed to pay her to compensate for her time. The community researchers went to her farm and got very detailed information about farming practices. The next morning, the team interviewed her in her farm, “to add some context” (community researcher).
Finally, at the beginning of May 2013, Grace Albert took the lead to capture the best practice for Adaptability (Radio Paiwomak). This best practice was left until the end because the community radio lies just across COBRA’s office in Bina Hill, and champions were easily identified and very willing to share their knowledge. The main champion is Virgil Harding, volunteer for the community radio. Grace Albert prepared a set of questions to interview him, carried out the interview, and also interviewed members of the wider community to get their feedback on Radio Paiwomak. Grace Albert carried out the whole project on her own but shared the storyline with the team before going ahead with the capturing and editing.

The editing process then started. Projects were divided between the different members of the team, according to who had led on capturing information on each best practice, and also in order to be as efficient as possible.

Grace Albert was in charge of Resistance and Adaptability films. Here follows an account of her experience of editing a first draft for the Resistance film:

“...I followed the storyline and added whatever information I thought was interesting. Often the info was in Makushi so I had to work harder on subtitles. I started with the history of the culture group, then I went to hear the daughter and how she’s passing her knowledge, then I inserted the videos with the campfire. I put some pictures over the audio, as I didn’t want her [Jean Allicock, the champion] to be talking all the time. It took some time, and I don’t have enough footage of what she is saying. Especially the parts in Makushi weren’t easy.”

Rebecca Xavier was in charge of Co-Existence, Ideal Performance and the Introduction to Best Practices films. Here is a brief account of how Rebecca Xavier dealt with this step of the Workpackage 4:

“...After coming back [from the river] I started editing [the Co-Existence film]. I spoke to Mike then the Toshao from Rewa (former and present). Then during an NRDDB meeting Sydney came and I talked with him for the introduction to the film, on the NRDDB. I also went to Aranaputa to capture one of their projects they had with NRDDB, I went to Clarence mountain. And I edited little by little, along with the narrative.”

“As for Ideal Performance, self-help, I had to go to Annai, to interview the Toshao, I followed them and interviewed them. One of them is the Senior councillor officer, to document how self-help works in Surama. As I was interviewing I collected photos, but I think I need some more photos. For example to illustrate the distribution of food I took footage from another project. I drafted a storyline and created some questions but I didn’t really follow the interview.”

As we can see, the editing process was a flexible process. When it was felt information was missing, members of the team would go and capture it, and integrate it little by little in the film, constantly adapting and making the storyline evolve.

Lakeram Haynes was in charge of Flexibility and Existence film and photostories. Here are some of his initial comments, made in May 2013:
“Editing is slow because of the administrative stuff to do. I arranged some footage, but there are a lot of distractions. Also, I’m not as good with editing as are Rebecca and Grace so I ask them for a lot of tips.”

Ryan Benjamin was in charge of **Resistance, Adaptability, Co-Existence, Ideal Performance and Introduction to Best Practices** photostories. He comments (May 2013)

“I tried to follow the videos but it was difficult to follow with pictures if you can’t use a lot of words. I changed them several times. I had general drafts but it wasn’t straightforward. I’m going back and forth a lot. I need additional material about what the champions are speaking about in the videos. I need more material to visualise. Also, how much to bring into the photostory?”

Céline Tschirhart, the Post-Doctoral Research Assistant, took a fieldtrip to the North Rupununi in May 2013 in order to provide some guidance as to how to finish off the different videos and photostories. One at a time, videos and photostories were screened, commented upon by the PDRA as well as the whole team. Comments and feedback were integrated as soon as possible and by the end of May significant progress, especially as to how to make the message clear and visual, had been achieved.

Over the months of June, July and August, the team of community researchers have worked towards completing the videos and photostories. It has been an extremely adaptive process, capturing further missing information as the storyline got more precise, or as feedback arrived from other members of COBRA.
Appendix 2. Community owned Future Scenarios (Workpackage 3)

**Women’s Future Scenarios: the continuation of the NRDDB as an Institution and if it can live up to the vision/standard it has set**

<table>
<thead>
<tr>
<th>Scenario 1: Conflict and Divide</th>
<th>Scenario 2: Blackmail, Corruption and Bribery</th>
<th>Scenario 3: Self-sufficiency of the NRDDB</th>
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<td>If the NRDDB failed in the future, the communities would go their separate ways. They would have to deal with issues on their own and there would be less representation at the national level. With no guidance, churches and political parties would play larger roles in community development and could cause division. Areas such as resource management and promoting culture would fall to the wayside and greed and selfishness could become the new norm. There would be few opportunities developed for people, especially women, and this would increase the migration rate to Brazil and to the mining areas. Without an NRDDB there would not be a Radio Paiwomak (the local radio station which serves many of the 16 local communities) for centralised communication, there would not be Bina Hill Institute for training and there would be little support for the Annai Secondary School. The threats from big companies coming in and setting up operations without consultations would increase and so would conflicts</td>
<td>If the NRDDB became more associated with a political party, this would mean &quot;Blackmail, Bribery and Corruption&quot;. While there may be positives from having such an association, such as more money and more employment, the negatives would mean more alcohol in communities, the rise of prostitution and increases in trafficking of persons. While there would be support in time of crises, communities may fight more among themselves, as those who support a particular (ruling) party may benefit more. This would mean that those communities may become more financially developed. To become more political would mean that the NRDDB would become less self-ruling; there would be less transparency in decision making and in the allocation of jobs. There would be more of a leaning towards bribery as community leaders would be pressured into following the desires of their party. There would be an increase in crimes and favouritism within the NRDDB. There would</td>
<td>The NRDDB would have the financial security to retain technically trained staff to carry out their work especially providing opportunities for the young people of the North Rupununi. Being self-sufficient, the NRDDB would provide more representation and have a stronger negotiating position. They could promote and support a number of activities for communities, such as helping small businesses to develop, securing markets for North Rupununi made products, especially in Lethem and Brazil, and they would be able to self-promote North Rupununi tourism. Without dependency, the NRDDB could help to provide more safe guards for community resources. There would be more enforcement of rules as a monitoring system would be in place. There would also be a more efficient way to deal with emergency situations. A more capable NRDDB would promote gender equity at the Board and community level. There would be more opportunities for women and the promotion of traditional practices both in</td>
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between communities who may support such ventures. In other words there would be division and conflict among the communities. Also, there would be weak leadership both at the Board and community level. As this happens the results would be overharvesting of resources for short term gain, social values would continue to break down and there would be less safe guards and large companies would move in as state lands are allocated to Brazilians and the Chinese on a larger scale. This would lead to pollution and changes in the wetland ecosystem from these operations. With the influx of money, peoples’ diet would change as they would have little time to farm.

public and private traditional based institutions. This may bring some conflict with the churches for promoting traditional beliefs. A self-sufficient NRDDDB would be a model for Guyana and the world.

Men’s Future Scenario: What happens to the North Rupununi if oil is found and developed?

From a social stand point, it was believed that there would perhaps be less unity among communities and an increase in greed. In addition, with more money circulating there would be more alcohol, increase in drugs and prostitution. Who would get the jobs? Would training be provided for local persons? Would the administration of the operations be manned only by outsiders? For the technological aspects, there would be both positives and negatives. Communication would improve and there would be regular electricity but with this would come changes in local lifestyle and culture. Depending on the technology used in the refining process, there could be pollution and waste products to be disposed. This would have an impact on the ecology of the wetlands and contribute more to climate change. On the economic side, it would mean more money in and around the North Rupununi. There would be a reduction in fuel costs but the prices for food would increase with less people farming and higher demand in shops. With oil development, benefits from the LCDS would reduce and communities may lose negotiation power as the District would no longer be operating on a green economy platform. From the political side, what would the negotiation and agreement between the company, Government and the communities be like? Would the communities through the NRDDDB be invited to the negotiating table? Would the process be fair and transparent or would there be bribery and avoidance of free, prior and informed consent? With the finding and development of oil, values would be affected. There would be changes to the community way of life. There would be improvements in infrastructure, but villagers may continue to lose their language and other cultural practices, the communal way of life would go, the way people dress would change, respect for elders could change, religion would have more influence on people, the rights to land and resources both human and natural maybe affected as there is more development.
To counteract these changes and answer some of the questions, it was felt that communities would need to become more familiar with the laws governing oil exploration and development in Guyana. From an NRDDB level, all communities should come to a level of agreement for better negotiating power. There should be an environmental impact assessment done that would help to answer community concerns. Communities should agree to a benefit sharing agreement that would be proposed to the Government and the company and discuss any other assistance the communities would like. There should be shared governance and transparency; locals should be involved in the whole process so that there is a sense of ownership of the venture. The technology used in the operations should be low impact.

**Youth’s Future Scenarios: Development of recreational facilities for youths in the communities**

<table>
<thead>
<tr>
<th>Scenario 1: Having a recreation facility and it functioning well</th>
<th>Scenario 2: Not having a recreation facility</th>
<th>Scenario 3: Having a recreation facility and it failing</th>
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<td>The youths are successful and were able to build their recreational facilities. With the recreational centres in place the youths would be happy, they would become more involved in other activities, there would be better representation in community activities, youths would be more disciplined, activities would be done that generate income, youths would be encouraged to develop their athletic skills and could represent the North Rupununi at national and international levels, and having exercise equipment would promote more active youths and elders.</td>
<td>There is little interest in the needs and desires of the youths. Their proposals are not accepted and funding is not obtained to build the recreational facilities. This would result in youths getting involved in criminal activities such as stealing, drugs, guns and rape; human trafficking would perhaps increase, there may be sex abuse and increases in teenage pregnancies. More youths may migrate to Brazil and the mining areas. In general, their lives may stay the same or become worse.</td>
<td>There would be enough interest to find funding for the recreational facilities. However, as progress is made, interest is lost by the key players. There is poor management, poor governance and lack of communication. This would result in the facilities not functioning properly and money and time would have been wasted.</td>
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The findings in this report were collected using systemic, participatory and visual methods in order to identify and record community owned best practices.

This report investigates community owned solutions as practices developed and implemented by communities themselves to face current and emerging social-ecological challenges and makes the case for the relevance of these practices on a national and global scale.