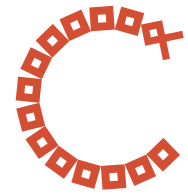
UP-SCALING SUPPORT FOR COMMUNITY OWNED SOLUTIONS

A PROJECT COBRA REPORT FOR POLICY MAKERS



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Future Challenges
Local Solutions

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FEBRUARY 2015

Up-scaling support for community owned solutions

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CONTENTS

Sections

I. Recommendations to policy makers and donors 4

II. Evidence-based policy making: Project COBRA 6

III. What is the policy challenge? 9

IV. The tools for rigorous policy making through community engagement 10

- System Viability
- Participatory video and photography
- Participatory action research

V. Bridging the community-policy gap 13

- Identifying conflicts and synergies between policies and community survival
- To what extent are policies future proof?
- Payments for community owned solutions: identifying and sharing best practices

VI. Up-scaling the community owned solutions approach.... 30

I. RECOMMENDATIONS TO POLICYMAKERS AND DONORS

GIVE OPPORTUNITY FOR ALTERNATIVE VISIONS OF LOCAL DEVELOPMENT

Our results show that REDD+ and other forms of payments for ecosystem services (PES) run the risk of focusing on the management of isolated services e.g. carbon storage, without adequate understanding of inter-relationships and inter-dependencies. Community cohesion and intrinsic values are essential for effective environmental management, which could be 'crowded out' by perverse financial incentives. Using a community owned solutions approach fosters multi-functionality in facing up to environmental and social challenges and nurtures healthy people-nature relationships.

TAKE COMMUNITY OWNED SOLUTIONS SERIOUSLY

Highly marginalised groups, such as Indigenous peoples, are generally represented as 'poor', 'backwards' and 'requiring help'. This deficit model too often prevails at all levels of policy- and decision making. Our results show that, to the contrary, Indigenous peoples are a source of inspiration, and have multiple solutions for adapting to new situations. The global community can learn from these solutions by providing adequate and authentic representation of highly marginalised groups at all levels of decision making.

RECOGNISE THAT HEALTHY COMMUNITIES AND NATIONS INVOLVE MAINTAINING A BALANCE BETWEEN A RANGE OF SURVIVAL STRATEGIES

Our research at the local, national and international levels shows that in response to different types of challenges, human systems are constantly making trade-offs between various survival strategies e.g. to resist or adapt to change? To promote efficiency or flexibility? To enhance self-interest or cooperation? We argue that it is vital to consider and maintain a balance between all strategies rather than seeking quick fixes or simplistic solutions e.g. promoting efficiency above all other strategies through a market-based approach.

DESIGN INTERNATIONAL AND NATIONAL POLICIES THAT PROVIDE GREATER LOCAL AUTONOMY IN ORDER TO ACHIEVE COLLECTIVE SOCIAL AND ECOLOGICAL SUSTAINABILITY

We found that there is limited understanding of the interplay between international and national policies within specific local contexts. Our findings show that in order for Indigenous communities to thrive within a pristine environment, the following factors are key areas where policy interventions can have a significant impact: land rights, cultural identity, partnerships across scales, local governance, and improving the standard of living.

INSIST ON EVIDENCE OF REAL PARTICIPATION IN PROJECT IMPLEMENTATION AND POLICY INTERVENTIONS

Participation is too often synonymous with 'consultation' or 'listening to' Indigenous communities. Our research shows that when Indigenous communities are more involved in the research, i.e. in the production of knowledge about their own context-specific realities, and implementation process, they are empowered and it can bring about effective and long-lasting impacts. More focus on the process, outcomes and impacts of participation is needed, rather than on outputs and end products. Yet, policy makers need to be aware that this can only happen if research is embedded in longer-term relationships and collaborative processes that normally take longer than short-term funding cycles.

SUPPORT VISUAL COMMUNICATION THROUGH STORYTELLING

In most project and policy interventions, written forms of communication are prevalent. However, they only really serve groups of people who can access the written form e.g. more educated, wealthier. Our research shows that visual communication is not only more accessible to Indigenous communities, but it gives voice and ownership over their own forms of representation. We show how stories are a powerful form of communication that can inspire others and provoke empathy, which can lead to change. We have devised a way in which Indigenous community members can comfortably and easily record and share their own solutions through video and photography. These modes of communication should be recognised and accepted on an equal level as written reports.

ACCEPT QUALITATIVE DATA AS LEGITIMATE

In most funding schemes, the legitimacy of information rests prominently on the existence of numerical and statistical data i.e. 'objective' facts and figures. Our results show that rigorously collected qualitative data is legitimate 'evidence' as it provides more nuanced, transdisciplinary and context-specific data, representing worldviews, aspirations, needs and decision making processes of local communities. Rather than promoting blanket blueprint solutions for achieving development targets established at the international level, mechanisms should be put in place to engage with qualitative information so that the needs of particular communities are met, rather than the needs for achieving certain numerical targets.

PROMOTE PEER-TO-PEER LEARNING

Most project and policy interventions involve the sharing of information and capacity building through vertical structures or networks i.e. from scientist or practitioner to Indigenous communities. Our research shows how horizontal learning i.e. between Indigenous communities, is a powerful way of sharing lessons and solutions, and can have significant impacts on long-term social and ecological sustainability.

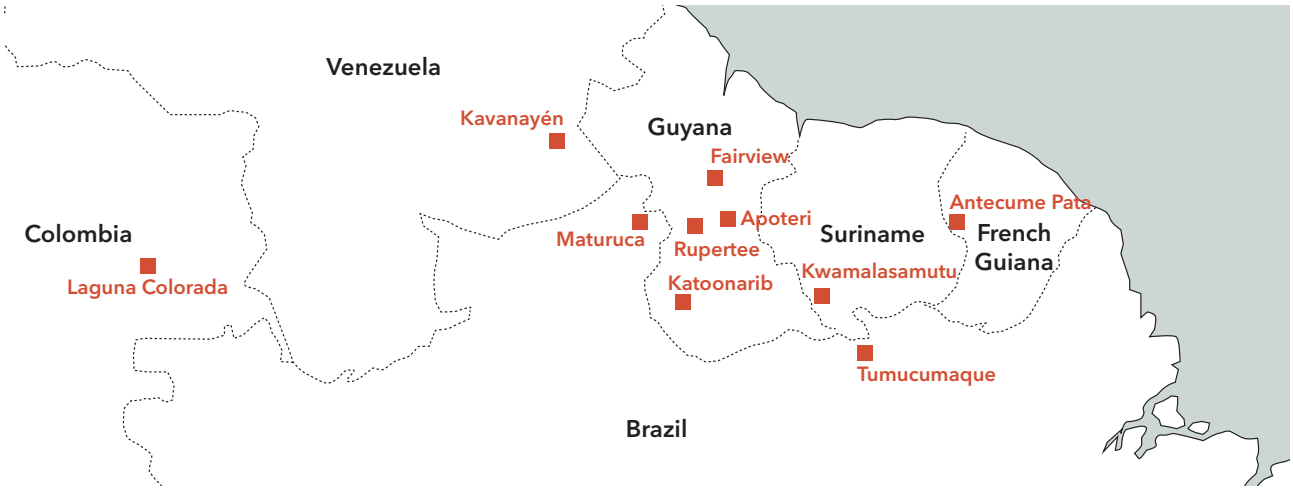
II. EVIDENCE-BASED POLICY MAKING: PROJECT COBRA

In the period 2011 to 2015, the EU funded Project COBRA has worked with Indigenous communities in the Guiana Shield, South America to identify, record and share their own solutions to emerging challenges. 'Community owned solutions' is the term that Project COBRA coined to define any solution that emerges out of community members' skills and knowledge, and has a direct benefit in sustaining these communities in ways which are socially fair and environmentally friendly. Over the 3 ½ years of implementation, Project COBRA has enabled 10 Indigenous communities to:

- *discuss the challenges facing their communities;*
- *identify their own local solutions to these challenges;*
- *record these solutions using accessible visual technologies;*
- *share the video and photographic results with other communities, and;*
- *implement best practice solutions from other communities.*

Having evaluated the impact of the community identification, recording and sharing process, Project COBRA has demonstrated that Indigenous community owned solutions can offer practical instruments to address challenges in sustainable development and the management of natural resources. These solutions can be a source of inspiration for other communities, as well as providing an effective and popular intervention for policy makers and governments to support.

■ Map showing the Guiana Shield region of South America and the Indigenous communities who participated in Project COBRA



FACTS

- The Guiana Shield region of South America encompasses 2.1 million square kilometres.
- It is the world's largest contiguous block of tropical rain forest, characterised by the highest percentage of forest cover and lowest rate of deforestation on the planet.
- The region extends into six different countries (Brazil, Colombia, Venezuela, Guyana, Suriname and French Guiana).
- It contains 10-15% of the world's fresh water reserves, encompassing the watersheds of the Amazon, Orinoco and Essequibo rivers, and a series of smaller rivers draining directly into the Caribbean and the Atlantic Ocean.
- The region is the world's most significant reservoir of biodiversity, and is home to many hundreds of distinct Indigenous cultures.

The sustainable management of ecosystem services within the Guiana Shield region is of great importance in the global battle against climate change as the region's ecosystems absorb and store vast amounts of carbon. With its valuable fresh water reserves, low deforestation rates, and rich biodiversity, the Guiana Shield has been the focus of considerable conservation efforts, Payment for Ecosystem Services (PES) schemes and climate change mitigation and adaptation financing such as under the United Nations REDD+ programme and the Clean Development Mechanism of the Kyoto Protocol[1].

For centuries, the Indigenous communities in the Guiana Shield have been able to manage their natural resources without depleting or deteriorating them. Their extensive knowledge of the environment and the practices they implement to manage their land could offer smart and effective solutions to upcoming challenges in the region. There is increasing evidence that Indigenous lands protect the natural environment through reduced rates of deforestation and habitat conversion, and lower greenhouse gas (GHG) emissions, compared to surrounding areas[2]. Satellite data published on Global Forest Watch[3] show almost intact forest cover and negligible deforestation over the 10 years within the immediate surroundings of the Indigenous communities Project COBRA has worked with. Outside Indigenous lands, many regions are experiencing total deforestation.

[1] Berardi et al. 2013. Second report on the cross-scalar interactions and compatibilities governing sustainable development and ecosystem service management of the Guiana Shield: drivers of social and environmental degradation, and policy responses. [online] URL: http://projectcobra.org/second-report-on-cross-scalar-actions-and-compatibilities/

[2] Stevens et al. 2014. Securing rights, combating climate change. How strengthening community forest rights mitigates climate change. World Resources Institute, Washington, DC. [online] URL: www.wri.org/securing-rights.

Ricketts et al. 2010. Indigenous lands, protected areas, and slowing climate change. PLoS Biology 8(3): e1000331.

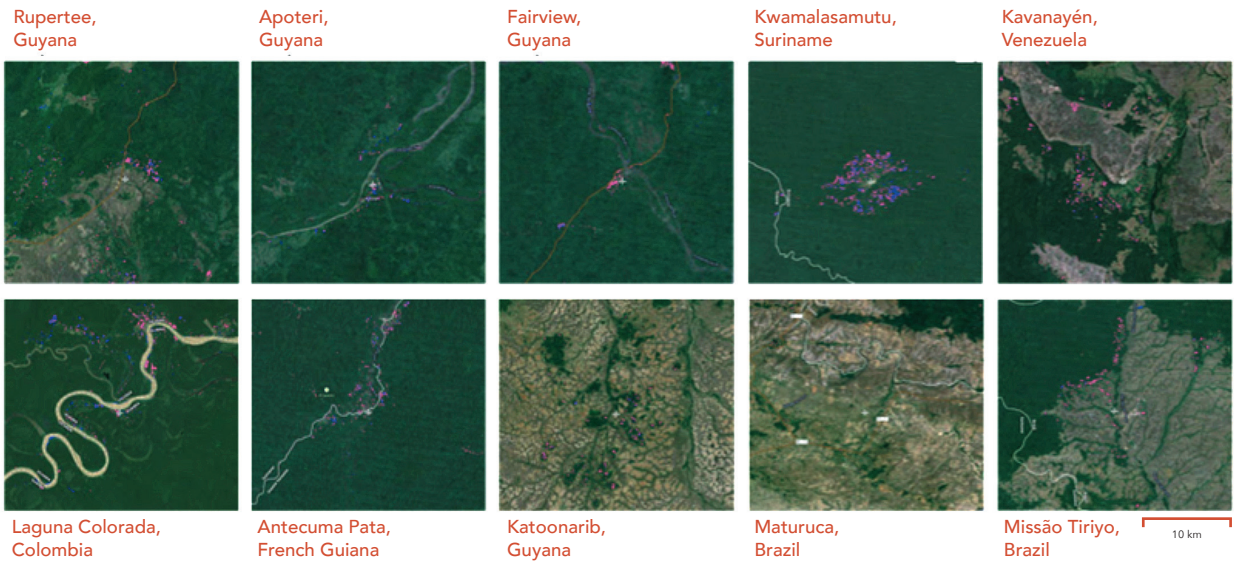
Carranza et al. 2014. Protected area effectiveness in reducing conversion in a rapidly vanishing ecosystem: the Brazilian Cerrado. Conservation Letters 7(3): 216-223.

[3] Hansen et al. 2013. Hansen/UMD/Google/USGS/NASA Tree Cover Loss and Gain Area. University of Maryland, Google, USGS, and NASA. Global Forest Watch [online] URL: www.globalforestwatch.org

What are community owned solutions?

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 within the community by the community and without major influence from external stakeholders. Community owned 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 primarily within the community but regional, national, and global benefits may also occur.
- Ethics – 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.
- Self-reliant - the practice is self-reliant and not dependent on long term external support.



Satellite images of the Guiana Shield communities involved in Project COBRA showing intact habitats and standing vegetation (tree cover loss is marked in pink)

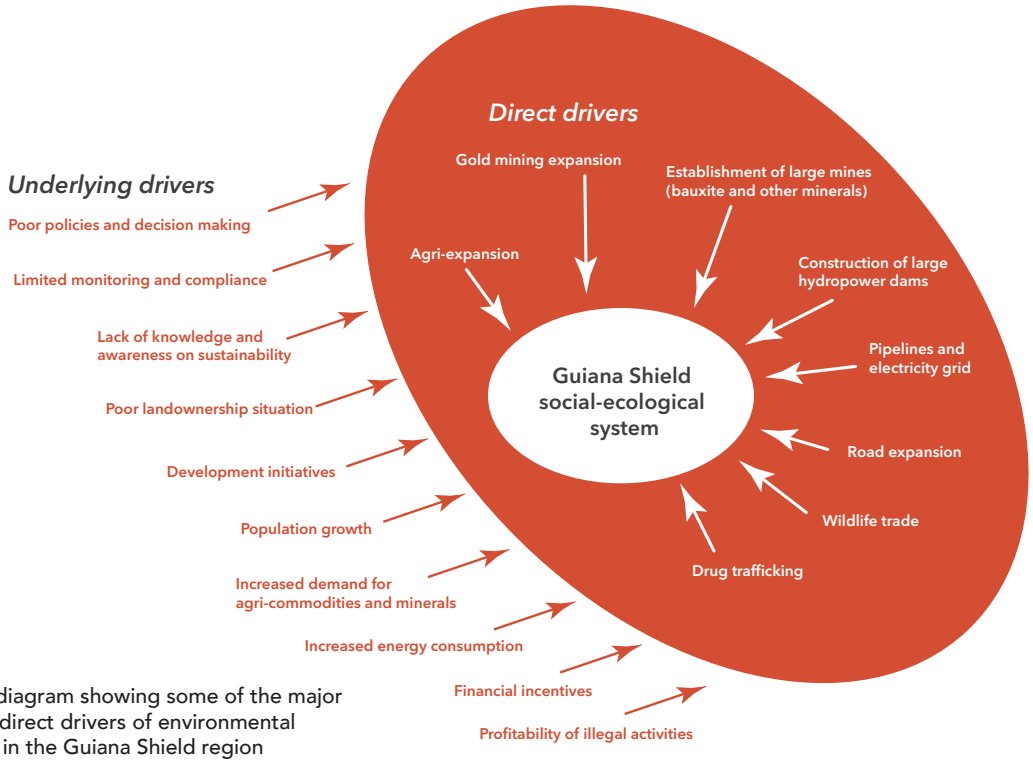
Thus, ecosystems are protected within Indigenous lands not because they are being 'managed' in a direct and active way, but as the indirect outcome of a healthy community within its environment i.e. the sustainable management of the Indigenous territory results from sophisticated practices that maintain social and ecological integrity, what we term community owned solutions. This evidence suggests an attractive but overlooked opportunity to protect ecosystems and habitats; creating new Indigenous territories, and strengthening community owned solutions within existing ones. By helping Indigenous communities to identify, record and share their community owned solutions through participatory video and photography, the approach strongly promotes an authentic representation and empowerment within hitherto highly marginalised groups at the local level. Community owned solutions can provide a source of inspiration and practical action for both Indigenous and non-Indigenous communities to preserve multiple benefits, while at the same time including emission reductions, biodiversity conservation, water resources, food security, regulating regional climate, and maintaining cultural heritage.

FACTS

- Project COBRA aimed to identify, document and promote community owned solutions for the management of natural resources in the Guiana Shield, South America and for determining the most effective and efficient use of emerging funding streams in order to maximise social justice and ecological sustainability.
- It involved ten partners across Europe and South America in the sectors of academia, civil society organisations and small business.
- Over the 3 ½ years of implementation, it worked with local and national level stakeholders in all six countries of the Guiana Shield.
- It used state-of-the-art techniques of System Viability and Participatory Visual Methods for engaging stakeholders in the research process.
- It collected in-depth data on community viability, cross-scalar linkages with national and international policies, future scenarios, best practices, sharing of community owned solutions, and involved over 2000 local participants.
- Communication and dissemination were critical aspects of the project, and the MediaGate at www.projectcobra.org is an innovative platform for sharing community owned solutions.

III. WHAT IS THE POLICY CHALLENGE?

Global economic drivers pose an increasing threat to the Indigenous communities and the pristine environment of the Guiana Shield[4]. The Guiana Shield region is becoming a major focus of national, sub-continental and international investments focused on highly destructive natural resource extraction. The expanding trade in minerals (e.g. gold and bauxite), timber and agri-commodities (e.g. palm oil, meat, sugar cane), and the rising demand for energy, has led to the expansion of agriculture, the development of the mining sector and large infrastructure projects such as hydropower dams. Such developments have already had significant negative cultural and environmental impacts in the Guiana Shield, albeit at much smaller levels compared to southern and western parts of the Amazon basin that have experienced rapid deforestation and destructive cultural loss over the past few decades.



Conceptual diagram showing some of the major direct and indirect drivers of environmental degradation in the Guiana Shield region

Other threats include organised crime and/or corrupt groups which co-opt whole regions and communities in supporting the narcotics drugs trade, illegal mining and logging. Ill-planned infrastructure projects, and the unregulated expansion of the agricultural frontier, are also a matter of extreme concern for local communities. At the same time, they have to deal with a range of increasing environmental impacts resulting from climate change.

Alongside these threats and challenges, new sources of development financing are being made available to developing countries, especially assistance for climate change mitigation and adaptation through, for example, REDD+, PES schemes, Multilateral Environmental Agreements (MEAs) and direct investments from private and non-governmental initiatives. Little is known about the impact and effectiveness of these new funding initiatives and to what extent they recognise, if not ensure, inclusion of divergent values, participation in political decision making and equitable distribution of benefits, as determined by ethnicity, gender, age, income distribution and other differentiating factors[5].

[4] *Berardi et al. 2013. ibid.*
[5] *Mistry, J. 2014. Natural resource management: a critical appraisal. Pages 361-365 in V. Desai, and R. Potter, editors. The Companion to Development Studies. Abingdon, UK, Routledge.*

Although national policies do exist that aim at limiting negative environmental impacts (e.g. environmental legislation requiring environmental impact assessments) and promoting conservation of natural resources (e.g. protected areas), other national and regional policies primarily support economic development without integrating social and environmental safeguards[6]. This lack of coherence between different policies and investments together with the absence or poor implementation of existing positive policies or incentives (like PES) contributes to on-going environmental and cultural deterioration[7].

The lack of policy coherence applies both within and between scales (local, national, regional, global incl. EU), For example, EU banks or pension funds investing in timber, mining, hydropower, infrastructure and major commodities like sugar cane and palm oil, versus EU support to REDD+ initiatives for sustainable forest management or PES schemes for integrated watershed management. There is growing consensus that governing environmental challenges is about engaging with a variety of stakeholder perspectives that operate at a range of scales[8]. Many environmental issues, such as climate change, loss of biodiversity, and water management, are multifaceted where changes and/or interventions proposed by one stakeholder at one scale can significantly impact on other scales and other stakeholders. This implies that effective management and governance of environmental challenges requires an understanding of the multiple, networked and dynamic interrelationships between stakeholders operating at different scales. Yet, to date many policies and actions have supported management solutions/policy interventions that have mostly come from higher-scale institutions e.g. national governments and non-governmental organizations, which are not always compatible with the realities and perspectives of smaller-scale stakeholders e.g. isolated rural communities and their local environments[9].

Thus, a key question arising is how different policies could be organised to, on the one hand, create positive incentives for the protection of ecosystems and cultures building upon the knowledge and experience of Indigenous communities and, on the other hand, avert perverse incentives leading to environmental and cultural degradation. Project COBRA suggests that community owned solutions need to be used in determining the most effective and efficient use of emerging funding streams like REDD+, PES and other conservation and development interventions, in order to maximise social justice and ecological sustainability. Through overseas policies, development projects and trade, the EU and its individual member states could contribute to empowering Indigenous communities and promoting community owned solutions for the management of natural resources. Important policies affecting Indigenous territories like the EU Common Agricultural Policy (CAP), external trade agreements, and policies on energy, development cooperation, human rights, environment, and marine and fisheries resources, need a coherent inclusion of the interests of local and Indigenous groups.

[6] E.g. Chung Tiam Fook, T. 2013. A 'win-win' strategy for all? Guyana's climate change strategies and implications for indigenous communities. Caribbean Journal of International Relations & Diplomacy 1(1): 3-38.
[7] E.g. Almås et al. 2014. Indigenous peoples' rights, forests and climate policies in Guyana: a special report. Forest Peoples Programme, UK and Amerindian Peoples Association, Guyana.
[8] Termeer et al. 2010. Disentangling scale approaches in governance research: comparing monocentric, multilevel, and adaptive governance. Ecology and Society 15(4): 29.
[9] Warburton, D. ed. 2009. Community and sustainable development: participation in the future. Earthscan, London, UK.

IV. THE TOOLS FOR RIGOROUS 'POLICY MAKING' THROUGH COMMUNITY ENGAGEMENT

System Viability

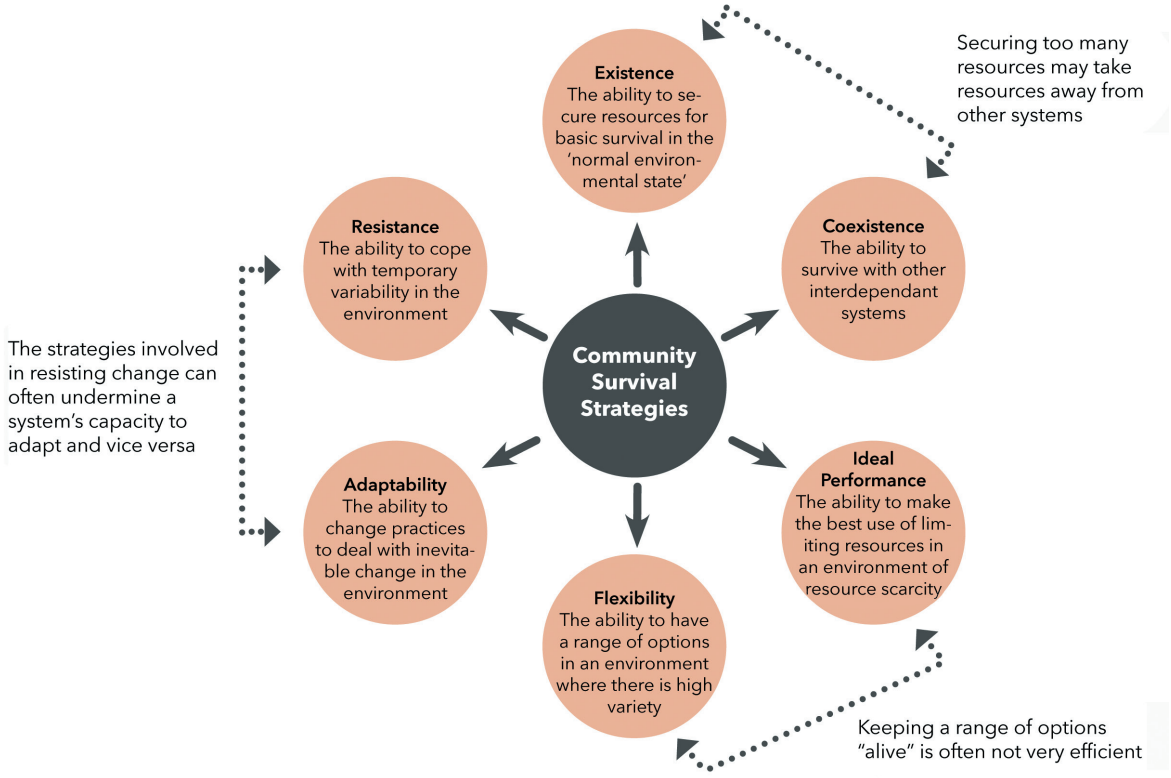
System Viability is a conceptual framework to allow different stakeholders to characterise their responses or strategies to six different social and environmental challenges[10].

The strength of the System Viability approach is that it enables distinct stakeholder groups to surface their values and interests by allowing them to express what they perceive to be the strategies required for their community or region to survive in the long-term. It also allows an assessment of the tensions and compatibilities between different strategies, moving away from the typically unidirectional judgement which suggests that one strategy for survival is clearly wrong and another is clearly right (e.g. from 'undeveloped inefficient resource use' to 'developed efficient resource use' as implied in the term 'sustainable development'). For example, as demonstrated in countless Indigenous cultivation practices, growing a high variety of crops may not result in the most efficient use of land, but is effective in coping with pest outbreaks and environmental variability in the long-term. On the contrary, promoting high yielding monocultures dependent on pesticides and artificial fertilisers may actually be contributing to the destruction of a unique culture within a pristine environment, if the monoculture crop eventually fails and the community is unable to pay the debts accrued in the purchase of the hybrid seeds, pesticide and fertiliser. System Viability allows communities to identify the wider variety of survival strategies that they have developed and promotes the maintenance of all of these strategies, rather than one particular temporarily successful strategy over another.

Find out more

Berardi et al. 2013. From resilience to viability: a case study of indigenous communities of the North Rupununi, Guyana. EchoGeo, 24: [online] URL: http://echogeo.revues.org/13411

Berardi et al. 2015. Applying the System Viability framework for cross scalar governance of nested social-ecological systems in the Guiana Shield, South America. Ecology and Society, in press



[10] *Mistry et al. 2010. Using a systems viability approach to evaluate integrated conservation and development projects: assessing the impact of the North Rupununi Adaptive Management Process, Guyana. Geographical Journal 176, 3: 241-252.*

Participatory video and photography

Participatory Video is a process involving a group or community in shaping and creating their own films according to their own sense of what is important, and how they want to be represented[11]. Similarly, Participatory Photography allows people to express themselves and tell their stories through pictures and words[12]. Both methods help to bring together different people's views and ideas on particular issues, and help communicate them in an easy and clear way. Other strengths of the methods include the generation of incredibly rich and varied data sets, stimulating creativity by seeing things from a different perspective, fostering discussion, and enabling both horizontal (community-community) and vertical (community-regional/national/international decision makers) interaction.

Find out more

Bignante, E. and Mistry, J. 2012. Participatory Video & Photo. Project COBRA Briefing No. 5. [online] URL: http://projectcobra.org/wpcontent/uploads/COBRA_Briefing_n51.pdf

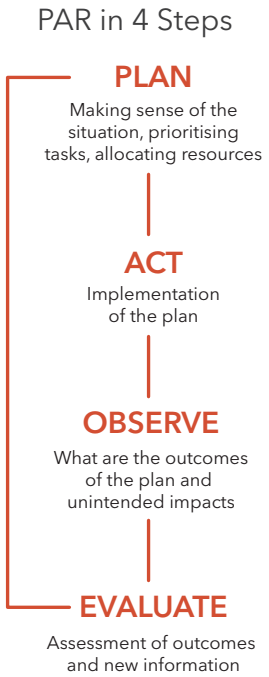
Mistry et al. 2014. Why are we doing it? Exploring participant motivations within a participatory video project. Area, doi: 10.1111/area.12105.

Mistry et al. 2014. Indigenous identity and environmental governance in Guyana, South America. Cultural Geographies, doi: 10.1177/1474474014560998

Participatory action research

We strongly recommend that the policy making process is underpinned by participatory action research. Participatory action research involves engaging a range of end-users in the research process right from the start[13]. It is underlined by a highly accessible and straightforward 'learning cycle' or adaptive approach that is evidence-based. We have simplified the cycle into four steps of planning, acting, observing and evaluating; the sequence is not set in stone, steps can happen simultaneously and there is continuous assessment and reflection. The strength of the approach is that the cyclic nature of the process helps responsiveness and rigour. It also ensures that action taken to solve the problem addressed is not delegated to others; it is part of the research process itself. Action research implies that the group of people working together have a clear collective objective of putting the results into action to bring about social and ecological change.

A key aspect of Project COBRA was that all research at local level, including the participatory video and photography, was carried out by community researchers; Indigenous people who came from the communities where research was taking place. In that way, the research had more ownership by the communities and the community researchers were empowered to take the lead in making change in their communities. Crucially, the information emerging out of the process was a genuine representation of community needs and aspirations, rather than a reinterpretation of these by a non-community member, who



[11] *Mistry, J. and A. Berardi. 2012. The challenges and opportunities of using participatory video in geographical research: a case study exploring collaboration with indigenous communities of the North Rupununi, Guyana. Area 44: 110-116..*
[12] *Bignante, E. 2010. The use of photo elicitation in field research: Exploring Maasai representation and use of natural resources. EchoGéo 11. [online] URL: http://echogeo.revues.org/index11622.html.*
[13] *Kindon et al. eds. 2007. Participatory action research approaches and methods: connecting people, participation and place. Routledge, Abingdon.*

may have adapted the information in order to suit their particular interests and worldview. In this way, 'policy makers' can be assured that, through participatory action research, the actual perspectives of community members are taken into account.

Find out more

Visit www.projectcobra.org/media-gate for an overview of all the participatory video and photography materials produced throughout the project.

Berardi, A. and Tschirhart, C. 2012. What is participatory action research? Project COBRA Briefing No. 2. [online] URL: http://projectcobra.org/new-briefing-on-participatory-action-research

Berardi et al. 2014. The COBRA Project: a community-based approach to public engagement in science. Paper presented at 13th International Public Communication of Science and Technology Conference 5-8 May 2014, Salvador, Brazil. [online] URL: http://projectcobra.org/promoting-indigenous-visual-communication

Mistry, J. and Jafferally, D. 2013. Ethics in COBRA. Project COBRA Briefing No. 13. [online] URL: http://projectcobra.org/wp-content/uploads/13-Ethics.pdf

Mistry et al. 2015. Between a rock and a hard place: ethical dilemmas of local community facilitators doing participatory projects. Geoforum, in press.

V. BRIDGING THE COMMUNITY-POLICY GAP

IDENTIFYING CONFLICTS AND SYNERGIES BETWEEN POLICIES AND COMMUNITY SURVIVAL

As policies, legislation and incentives may not be coherent within and between local, national and international scales, a crucial step before policy and project intervention is to identify synergies and conflicts within and between scales. Project COBRA adopted a System Viability approach in order to develop a cross-scalar and interdisciplinary understanding of the current national and international policies in the Guiana Shield, and to see whether these policies are supporting or undermining community owned solutions in tackling current and emerging challenges.

Linking and analysing environmental governance at different scales requires the development of integrative conceptual models which a range of stakeholders, at varying levels of capacity, can engage with. Yet few conceptual models currently used in environmental policy and practice provide a fully integrative approach which look at the potential synergies and conflicts across social, economic, technological and ecological domains at different scales of organisation. With this in mind, Project COBRA engaged a range of stakeholders across different levels of decision making in the use of a System Viability framework in order to elicit a range of strategies that these stakeholders felt were important for the survival of nested social and ecological systems. Our aim was to (1) explore synergies and conflicts between scales of understanding in environmental governance, (2) illustrate some of the scale-related challenges, and (3) test System Viability as a tool for cross-scalar integration of stakeholder perspectives in environmental governance. This final aim was particularly important as a key outcome of the research was to investigate the feasibility of the approach for integration into major decision making frameworks for determining the social and ecological future of the Guiana Shield region.

At the local level, we worked within four case study Indigenous territories: three in the North Rupununi, Guyana, and one in Tumucumaque, Brazil, using participatory video and photography. Local Indigenous researchers facilitated the process of discussing, capturing and editing (into films and photostories) community viability indicators according to the six System Viability strategies, in collaboration with wider community members. At the international and regional scales of analysis, various civil society organisations and research institutes undertook a comprehensive desk-based review of established policy frameworks relevant to sustainable development and natural resource management in the Guiana Shield region. This then resulted in the development of System Viability indicators for two distinct scales: the international policy environment; and the detailed national/sub regional contexts within two Guiana Shield countries (Brazil and Guyana).

Having compiled the data from national CSOs and a number of Indigenous communities, the final stage of the analysis was to identify common themes across the different scales in order to explore synergies and/or conflicts amongst the various research participants, with the ultimate aim to feedback to participants, and a wider group of stakeholders, on a coherent environmental governance strategy for the Guiana Shield region. This was done through visual mapping of all of the indicators identified by participants.

Results in brief

As a result of the indicators selected by various participants, and the values attributed to them by these participants, our cross-scalar analysis of the Guiana Shield shows that all scales, from local to regional, were struggling to face up to various challenges – namely land rights, leadership, partnerships, lifestyle, identity - undermining different System Viability strategies.

At a time when many stakeholders are firefighting from one emergency to another, and/or jumping on the popular bandwagon for whatever policy and/or disaster response has captured media attention at that moment in time, integrating all the issues into a single framework, such as System Viability, can help stakeholders work together to identify weaknesses and 'joined up' strategies for tackling current and emerging challenges. It also offers an immediate means of testing the real world impact of policies formed at various levels. Indeed, a major issue with international policies is that they focus on particular themes, from biodiversity conservation to climate change mitigation and adaptation, while struggling to demonstrate 'joined up thinking'. For example, recent reviews of 'Payments for Ecosystem

Services' schemes indicate that there is a bias towards biophysical and monetary value-domains[14], prioritising marketable provisioning services, while obscuring the socio-cultural importance given by stakeholders to regulating and cultural services[15].

At the same time, the System Viability approach demonstrates the complexity of problems within scales. The local impact of the implementation of any policy at the international or national level may be multi-faceted: while it may encourage local capacity building for adaptation to some of the new realities brought about by global changes, it might threaten the very existence of communities by undermining key survival responses. There is a real danger that these policies might limit community viability if they are going to reduce access to resources and infrastructure development. For example, encouraging restrictive, punitive legislation or the designation of traditional Indigenous territories as protected areas excluding Indigenous traditional practices such as rotational farming within forests. The competition among various priorities, and how these ultimately manifest themselves at the local community level, therefore becomes clearly evident in the System Viability approach.

Results in detail

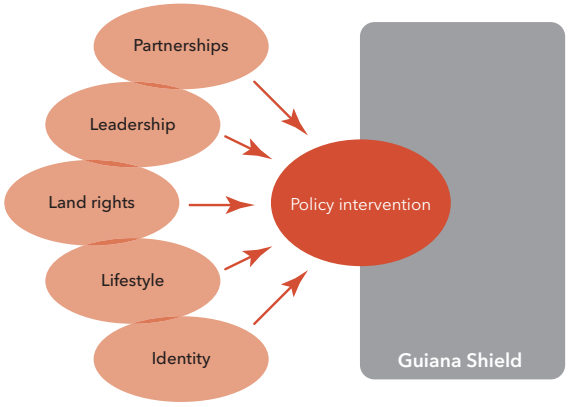
The cross-scalar analysis allowed us to identify five themes - land rights, leadership, partnerships, lifestyle, identity – that impact the effectiveness of policy intervention in the Guiana Shield.

It is widely recognised that land tenure and rights are a prerequisite for effective natural resource management. At the local community scale, participants selected indicators which focused on securing access to territory in order to maintain traditional land-use practices (subsistence farming, fishing, hunting, building materials and access to medicinal plants) and the ability to exploit future income-generating activities (such as timber harvesting and payments for ecosystem

Who has signed what?	Brazil	Guyana	Suriname	Venezuela	Colombia	French Guyana
Minamata Convention for Mercury	Yes	Yes	No	Yes	Yes	Yes
Convention on International Trade in Endangered Species	Yes	Yes	Yes	Yes	Yes	Yes
UN Framework Convention on Climate Change	Yes	Yes	Yes	Yes	Yes	Yes
Convention on Biological Diversity	Yes	Yes	Yes	Yes	Yes	Yes
Cartagena Protocol	Yes	Yes	Yes	Yes	Yes	Yes
Nagoya Protocol	Yes	No	No	No	Yes	No
Ramsar Convention on Wetlands of International Importance	Yes	No	Yes	Yes	Yes	Yes
UN Declaration on the Rights of Indigenous Peoples	Yes	Yes	Yes	Yes	Yes	Yes
Convention on Indigenous and Tribal Peoples (ILO 169)	Yes	No	No	Yes	Yes	No
American Convention on Human Rights	Yes	No	Yes	Yes/No**	Yes	*
Governance Indicators						
- Control of corruption	-0.07	-0.43	-0.75	-0.37	-1.24	1.11
- Government effectiveness	-0.12	0.01	-0.14	0.01	-1.14	1.11
- Voice and Accountability	0.43	-0.11	-0.01	0.28	-0.92	1.11

* French Guiana is a French overseas department. As such, the country cannot ratify the American Convention on Human Rights.
** Venezuela ratified the American Convention on Human Rights in 1977, but denounced it in 2012.
*** Source: http://data.worldbank.org/data-catalog/worldwide-governance-indicators. Point estimates range from about -2.5 to 2.5. Higher values correspond to better governance outcomes in 2013

[14] *E.g. Chan et al. 2012. Where are cultural and social in ecosystem services? A framework for constructive engagement. BioScience 62(8): 744-756.*
[15] *Martín-López et al. 2014. Trade-offs across value-domains in ecosystem service assessment. Ecological Indicators 37: 220-228.*



services). At the higher scales of analysis, national CSO participants selected indicators which emphasised the need for Indigenous land rights in order to maintain resource quality and access, and for effective policy implementation. Thus, we were able to identify synergies within the land rights theme between the various scales of analysis: supporting community viability by allocating land rights could also sustain regional social and ecological systems.

However, although on paper we see consensus amongst stakeholders across scales on the importance of Indigenous land rights, in practice most Guiana Shield countries are far from demonstrating appropriate Indigenous land rights implementation. Both Guyana and Suriname are non-signatories of the Convention on Indigenous and Tribal Peoples (Convention ILO n°169). In Suriname and Venezuela, few Indigenous groups have land tenure. Although the Guyanese government is committed to increasing Indigenous land rights through the Amerindian Act of 2006, limited progress has been achieved to date (most Indigenous communities have been given land tenure around small zones surrounding settlements, rather than the customary territories that they have traditionally used in order to maintain their livelihoods). It is also notable that Guyana's 2006 Amerindian Act does not overrule pre-2006 mining and forestry concessions, even if they are located on titled Indigenous land. This situation across the Guiana Shield will only be exacerbated as pressures from mining, logging, and carbon projects grow.

Our analysis of System Viability strategies across scales shows that closely linked to land rights are issues of governance. Good leadership and solidarity were identified as survival indicators by community participants, particularly during times of variable pressures and resource scarcity. During community engagement events, participants identified community cohesion to be strong, but leadership and respect for customary rules was repeatedly questioned, including the extent to which leaders had autonomy and support in decision making. At regional scales, stakeholders identified control of corruption, and effective leadership, as key determinants of regional social and ecological viability. However, at this scale all the Guiana Shield countries (except French Guiana) have poor scores across a range of governance indicators. Guyana, in particular, has severe problems in the control of corruption and regulatory quality in the formulation and implementation of policies and regulations permitting and promoting private sector development, such as in the resource extraction industries.

Partnerships require involvement of multiple scales of organisation, so it should come as no surprise that there were substantial indicator representations by stakeholders at all scales of analysis. We identified significant sub themes within the indicator selection, including the generation of funding streams, and enabling capacity building opportunities through cooperation amongst Indigenous associations, national and international NGOs, governmental institutions, and international bodies. At the local scale, the Guyanese communities reported satisfactory relationships with local/national partners on the themes of natural resource management. For example, the North Rupununi District Development Board (NRDDB), a local CSO which has been acting as a bridge between communities and national / international stakeholders, has led to job opportunities in the region and capacity-building in the areas of ecotourism, resource management, research and administration. However, for the Tumucumaque communities, relationships with stakeholders were deemed inadequate and they expressed severe disappointment with the lack of sustained results from partnerships. Indeed, capacity-building activities, in particular, take considerable effort and time, and there was little evidence for sustained and stable cooperation and funding at regional and international scales to support collaborative initiatives at the local scale.

Lifestyle was a highly significant theme emerging primarily at the community level which comprised

of the 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). Technologies, particularly information and communication technologies (ICTs), were also key indicators identified by the national CSO participants. ICTs can play a pivotal role in ecotourism and other natural resource based enterprises, as well as a means of exchanging information locally and with stakeholders at other scales. However, here we see a gap between international and national intention and local realities. There are currently only six on-line access points through satellite connections in the North Rupununi, and the quality and reliability of those connections is considered very limited (note that Guyana has the lowest rate of internet users of the Guiana Shield countries, 34.31% of the population in 2012). Mobile phone coverage was installed in 2013 but is currently limited to the most central villages, excluding a large part of the North Rupununi population. This contributes to the communities' ability to adapt, with implications for how local communities in the Guiana Shield will be able to deal with inevitable changes in their environments.

As well as lifestyle, identity also featured strongly as a key component of community viability, particularly those indicators which focused on retaining Indigenous traditional practices (food preparation, celebrations) and language. This reflects current tensions at the local level between maintaining traditions and embracing modernity (to adapt or resist?). We were able to identify these tensions within the indicators selected by stakeholders at higher scales of analysis. For example, the Brazilian CSO working on the Tumucumaque regional analysis suggested Indigenous lifestyle changes as a threat to social and ecological viability. The Brazilian CSO strongly promoted the idea of reshaping traditional Indigenous lifestyles into a narrative of 'ecological custodians', for example, through their support for a new federal policy – the National Policy on Land and Environmental Management and Indigenous Lands (PNGATI). In essence, Indigenous communities would be actively

encouraged to abandon their subsistence 'non-engagement' approach with modern society, and instead take on professional roles as 'park rangers' and 'environmental managers' in order to protect, and be paid for, the global ecosystem services which are provided within their territories.

Yet, the long-term viability of these higher scale social and ecological systems, promoting Indigenous peoples as conservation champions, would require the preservation of Indigenous identity, because large territorial areas have been set aside for Indigenous communities primarily because of their distinctive culture and land use practices. However, local level data proposed by community participants indicate that a majority of young people were less keen to speak their Indigenous language compared to their parents and did not always want to participate in strenuous, labour-intensive traditional activities. Many communities showed signs of mass emigration of youth to non-Indigenous settlements and mining areas, while at the same time, Indigenous communities were increasingly confronted by the physical presence of non-Indigenous individuals (illegal gold miners, government officials, teachers, health workers, conservation and development practitioners) and virtual manifestations (DVDs of Hollywood films, access to Internet pornography).

Although the rhetoric of community, national and international conservation CSOs emphasise the compatibility between traditional Indigenous lifestyles and national / international conservation initiatives, our analysis shows that, on the ground, many communities may potentially support a much more rapid transition towards a Western lifestyle to the detriment of conservation initiatives. It is therefore imperative that conservation policies directly address the sustainable lifestyle needs of communities, including infrastructure development, if they are not to be undermined by the needs of community members, especially the youth, from seeking an alternative 'Western' lifestyle outside of the communities. It is clear that, once 'networked' into global socio-economic systems, these communities can no longer go back to an isolated, pre-globalization lifestyle. Thus, the challenge is to find ways in which communities can constructively adapt to globalisation without totally losing their Indigenous cultures and lifestyles, and without degrading their natural environment.

Find out more

Berardi et al. 2012. Report on the cross-scalar interactions and compatibilities governing sustainable development and ecosystem service management of the Guiana Shield. [online] URL: http://projectcobra.org/wp-content/uploads/D2.1Reportoncross-scalar interactionsandcompatibilities3.pdf

Berardi et al. 2013. Second report on the cross-scalar interactions and compatibilities governing sustainable development and ecosystem service management of the Guiana Shield: drivers of social and environmental degradation, and policy responses. [online] URL: http://projectcobra.org/second-report-on-cross-scalar-actions-and-compatibilities/

Berardi et al. 2013. From resilience to viability: a case study of indigenous communities of the North Rupununi, Guyana. EchoGéo 24. [online] URL: http://echogeo.revues.org/13411

Berardi et al. 2015. Applying the System Viability framework for cross scalar governance of nested social-ecological systems in the Guiana Shield, South America. Ecology and Society, in press

Mistry et al. 2014. Indigenous identity and environmental governance in Guyana, South America. Cultural Geographies, early view online, doi: 10.1177/1474474014560998

Tschirhart et al. 2014. Las políticas de cambio climático y las prácticas locales sostenibles: una evaluación de sinergias y conflictos en el Escudo Guayanés, América del Sur. Redesma 14, art. 9. [online] URL: http://revistavirtual.redesma.org/vol14/articulo9.

To what extent are policies future proof?

At present, local communities have had limited voice and representation on the management of the Guiana Shield. Yet, challenges at the local level, including extreme weather events, such as flooding or drought, will have implications for the evolution of national and international policy, while at the other end of the scale, international policy developments, for example affecting the repartition of natural resources, will have an impact on local livelihoods. Considering the relatively intact status of the Guiana Shield ecosystems, there are still many possible directions in which the region could develop. For example, large and small scale mining, logging and agricultural activities that have been rolled out in the region over the past decades could infer possible future directions. In contrast, international policies directed towards better protection of forests and other natural resources, such as PES schemes, may potentially drive us away from large scale exploitation of the region's natural resources. These are the two extreme visions of the future which regional, national and international decision makers are contending with.

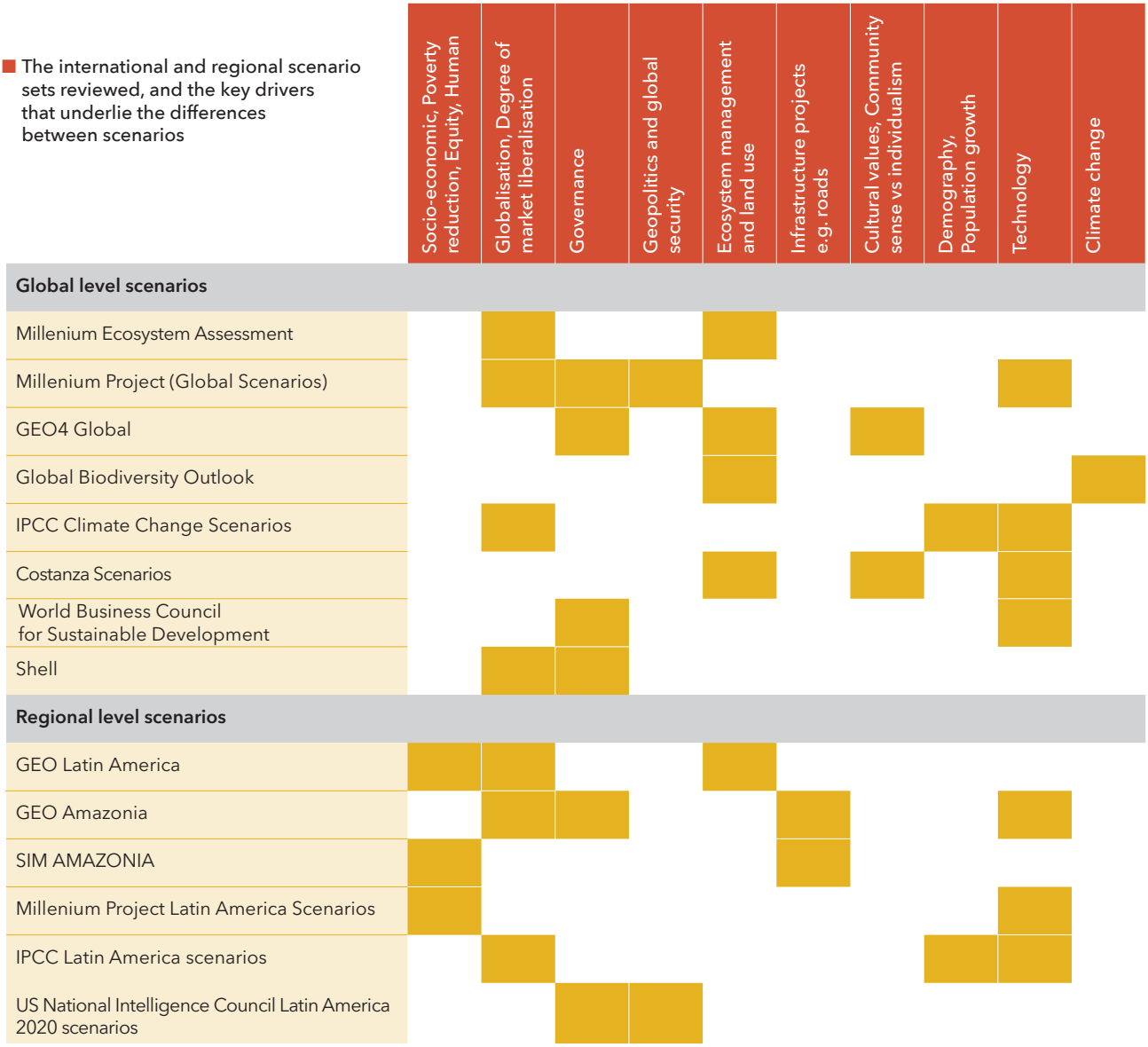
In light of these threats to, and potential opportunities for, sustainable management of the Guiana Shield ecosystems and its inhabitants, Project COBRA engaged a range of stakeholders across different levels of decision making to undertake a cross-scalar, multiple perspective assessment of social and ecological scenarios. These scenarios are stories of 'what might be', and can provide a mechanism for building a shared understanding of how interventions or activities may impact on people and the environment. Although some scenario studies have been carried out at the regional (Amazon, Latin America) level, there have been few studies at the national and local levels within the Guiana Shield. Yet, fewer studies have explicitly linked imagined futures at different social and ecological scales. Our aim therefore was to (1) explore future scenarios at different scales of analysis, (2) evaluate the compatibilities of national and local futures with regional and international scenarios, and (3) reflect on the use of participatory scenario analysis with Indigenous communities and national level stakeholders in Guyana. We hoped not only to draw on multiple sources of knowledge, but to strengthen community interests within policy making.

At the international and regional levels, we first undertook a desk-based literature review, analysing the main drivers behind different scenario sets. To help distinguish which drivers were the most relevant and appropriate to the goals of the project in relation to the published data, we then applied an adapted and simplified version of the Delphi technique[16] with a range of academics, practitioners and policy makers with both international and regional expertise in the field of sustainable development and natural resource management. This tool, ideal in the context where a panel of people can participate in a process at a distance, and by email, enabled us to elicit information and opinions from participants to help prioritise which scenarios would be used in the cross-scalar analysis. The outcome was that the scenario sets of GEO4[17] at the international scale and GEO Amazonia[18] at the regional scale were selected in order to compare to the scenarios identified by the local and national decision makers.

At the national and local levels, we focused on participatory scenario development[19]. In Georgetown, Guyana, we organised a two day scenario workshop with over thirty participants representing a combination of government agencies, non-governmental organisations, academics and independent consultants. Participants were asked to reflect on the current drivers important for the future of Guyana and what Guyana would look like in 2030. Using the two most uncertain and important drivers, eight possible scenarios were developed. In the North Rupununi, Guyana a three day scenario workshop was attended by thirty-two members of the sixteen communities that comprise the North Rupununi District Development Board (NRDDB) (Indigenous civil society organisation representative body). Participants were divided into men, women and youths, and using the two most important but uncertain drivers, eight possible scenarios were developed using storyboarding (pictorial representations) to develop the narration for each scenario. During the workshop, all activities and discussions were recorded using video and photography, and then developed into participatory films and photostories by community researchers. Through two cycles of community consultations in all the villages, the scenarios were then presented to wider community members for feedback.

[16] Goodwin, P. and Wright, G. 2009. Decision analysis for management judgment. 4th Edition. John Wiley & Sons, London.
[17] http://www.unep.org/geo/GEO4.asp - [18] http://www.unep.org/pdf/GEOAMAZONIA.pdf
[19] Wollenberg et al. 2000. Anticipating change: scenarios as a tool for adaptive forest management: a guide. Center for International Forestry Research (CIFOR), Bogor, Indonesia.

■ The international and regional scenario sets reviewed, and the key drivers that underlie the differences between scenarios



Steps in participatory scenario development

- Identify the drivers of change – what are the key issues and concerns for their future?
- Prioritise drivers of change – which factors or issues are the most important based on their potential impact on peoples' lives and the environment?
- Identify uncertainties – which factors or issues are the most uncertain for the future? It is these uncertainties that will produce the alternative paths that are used to build the scenario stories.
- Select the important/uncertain factors – what are the key factor(s) that are very important and very uncertain as the basis of the scenarios?
- Identify the potential scenarios – in which ways could the important/uncertain factor(s) potentially evolve in the future?
- Build the story for each scenario within a specified timeframe - what happens in the story to make the end situation a reality? Who is involved at different stages of the story? How do the key factors interact with other, less important or less uncertain factors that determine the future? Are there any events that happen along the way?
- Share the scenarios – how can the scenarios help participants to learn from one another? What are the commonalities and differences? Which scenarios would all participants support?

Using the data collected at each scale, all the 101 drivers featured in the narratives and their associated trends were coded into a database. The data was then analysed using iterative processes of visual mapping and multivariate statistics. This resulted in a set of cross-scalar themes from which cross-scalar interactions could be identified.

Results in brief

Our cross-scalar scenario analysis of the Guiana Shield shows that (1) there is considerable mismatch between the different scales of analysis, especially between the local and global scales, and the role of the national level as the intermediary scale, and (2) 'values' as an ultimate driver of change is a critical factor for determining future higher scale objectives.
Our analysis of international, regional, national and local scenario sets was novel in that it provided insights that are relevant to decisions being made today on environmental management in the Guiana Shield and beyond. We see the juxtaposition between national and higher scales focus on schemes such as PES and REDD+ as potential pathways to a 'green economy' and the lack of this vision in any of the local communities' scenarios. We also see that local communities as key stakeholders and the potential of grassroots movements to make significant changes, do not feature in any of the scenarios except those created at the local scale. Good governance is cited as a prerequisite for any form of effective cross-scalar social and ecological management, yet past trends and the current political situation in the Guiana Shield does not provide optimism for positive future outcomes which take into account the current contexts and future aspirations of local communities.

We therefore call on policy makers at higher levels of decision making, from national governments to international meetings and conventions, to devise future scenarios in participatory, visual and qualitative ways, and in which stakeholder values are explicitly articulated. Only with these approaches will we see greater compatibilities between the aspirations and actions of communities on the ground, and policy development at other scales, especially with regards to the emerging significant mobilisation of finance in mitigating and adapting to climate change. Although the upfront costs of community engagement in visioning futures may seem high compared to desk-based analyses carried out by professionals, through this process of engagement not only are communities preparing for 'living the future' in advance, but they are also helping to challenge mindsets, raise awareness and stimulate discussion and creative thinking amongst decision makers.

Results in detail

The main aim in linking scenarios across scales was to evaluate to what extent different viewpoints at multiple levels of governance converged, and the subsequent implications for effective and equitable management of the Guiana Shield. We wanted to assess how visions of the future may impact local communities of the Guiana Shield and what their own perspectives could bring to higher scales of decision making. We have two

■ Drivers of change used by the different groups for scenario development at national and local levels

Group	Drivers
National Level	
Environmental scientists	Renewable energy development, Natural resources management
Indigenous representatives	Mining, namely oil exploration Community spirit and values
Government agencies	Continuity and effective enforcement of policies, Transparent and accountable government institutions
Government ministries	Mining, namely oil exploration Agricultural diversification
Local Level	
Women	Values, Local governance
Men	Local governance, Mining, namely oil exploration
Youth	Local governance, Employment opportunities

main findings: (1) there is considerable mismatch between the different scales of analysis, especially between the local and global scales, and the role of the national level as the intermediary scale, and; (2) 'values' is a critical factor for determining future higher scale objectives.

At the global and regional scales, we see a strong focus on policies influencing society and the environment, with public-private partnerships as key facilitators. The GEO4 Scenarios, for example, play out the situation between economic development and the environment, and government and the market, as policy priorities. At the core of the GEO Amazonia scenarios is the role of public policies, particularly in the realm of sustainable development and nature marketisation. In Guyana, for example, the Low Carbon Development Strategy (LCDS) is focused on low-carbon and climate resilience through a reorientation of the economy from a (neoliberal) resource extraction development paradigm to a (neoliberal) supplier of environmental services[20].

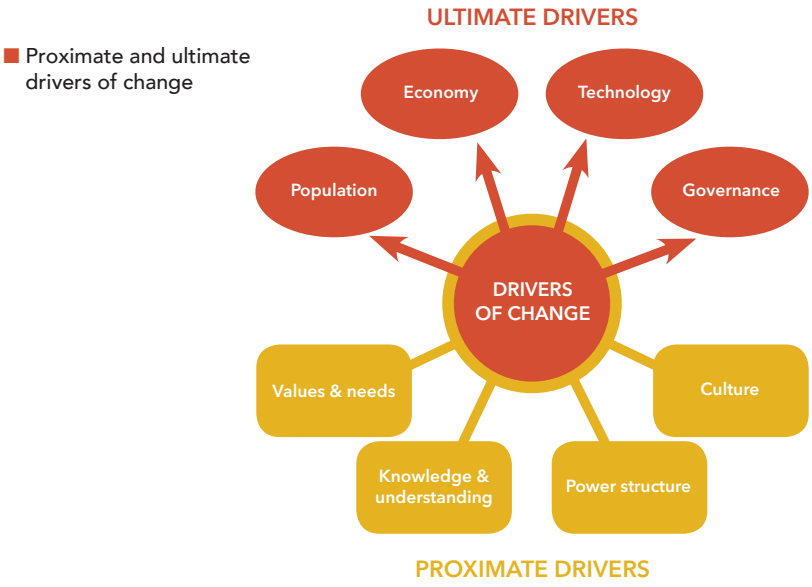
At the same time, Guiana Shield countries have gained substantial support from PES schemes, including REDD+.

However, this focus on policy is not reflected at lower scales where the uncertainties lie around practice; issues around the actual operationalisation and implementation of effective development and environmental management. Local-level futures include education and capacity-building, mechanisms for safeguarding natural resources, with communities joining government and private enterprises in collaborative decision making. Yet, none of the higher scale scenarios feature local communities as dominant stakeholders in future environmental management. This mismatch is particularly significant considering local communities are most likely to play a key role as 'stewards' of resources in PES schemes, particularly in the process of monitoring the quality of ecosystem services in order to justify payments[21].

In the few cross-scalar win-win situations identified by our analysis, local and national scale outcomes are linked by good governance structures and processes, highlighting the influence of effective and equitable power structures at national level on local level sustainable futures. This leads us to reason that the national scale is a key mediator between the local and regional / global scales, as can be seen in most REDD+ processes and implementation. However, in relation to national REDD+ agencies, the concerns are less about gaps in institutional or technical capacity, and more about gaps in legitimacy and governance principles such as transparency, quality control assurance, and fiduciary accountability[22]. On this front, the outlook in the Guiana Shield is not optimistic; there is a high and growing dependency on natural resource extractive industries, such as mining, and logging, regularly linked to malpractice and corruption, and governance indicators such as effective regulatory control, transparency and corruption (the focus of national and local scenarios) show either little change or an actual worsening over the last fifteen years[23].

[20] *Mistry, J. 2014. Natural resource management – a critical appraisal. In: Desai, V and Potter, R.. (eds). The Arnold Companion to Development Studies (3rd Edition). Pp.361-365. Edward Arnold, London.*
[21] *E.g. Danielsen et al. 2013. Community monitoring for REDD+: international promises and field realities. Ecology and Society, 18(3): 41.*
[22] *de Oliveira et al. 2013. Governing the forests: an institutional analysis of REDD+ and community forest management in Asia. International Tropical Timber Organization (ITTO) and the United Nations University Institute of Advanced Studies (UNU-IAS), Japan.*
[23] *World Bank. 2012. Governance matters. [online] URL: http://data.worldbank.org/data-catalog/worldwide-governance-indicators.*

So, what can politicians and practitioners focus on in order to promote the development of win-win scenarios? Research shows that mainstream environment / development policies focus almost exclusively on 'proximate' drivers; those that are responsive to short-term intervention, and include population size and growth, economic volume and patterns, technological choice, governance (with a focus on policies) and environmental quality[24]. These proximate drivers are clearly reflected in the global, regional, and to a certain extent, national scenarios. However, our cross-scalar analyses show that there are other themes that can provide strong positive threads linking scales: values, participative democracy, social policies, environmental policies and dominant stakeholders. Values, in particular, are 'ultimate' drivers, or the root causes that shape society and the human experience. In contrast to other scales, it is at the local level where we see 'values', subject to gradual cultural and political processes, as a clear and explicitly articulated determinant of futures, intimately connected to sustainable natural resource management. This is particularly pertinent for local participation and potential ownership of environmental management schemes. If current and future generations move away from their land centred worldview and environmental identity towards more Western nature detached lifestyles, Indigenous peoples may no longer have the capacity to play the 'nature guardian' role assumed within current policy paradigms.



Proximate and ultimate drivers of change

Find out more

Mistry et al. 2014. Our common future? Cross-scalar scenario analysis for social-ecological sustainability of the Guiana Shield, South America. Environmental Science & Policy 44: 126-148.

Mistry et al. 2013. Report on the cross-scalar social-ecological scenarios of the Guiana Shield. [online] URL: http://projectcobra.org/wp-content/uploads/WP3Report.pdf

Mistry, J. and Verwer, C. 2013. Participatory Scenario Development. Project COBRA Briefing No. 16. [online] URL: http://projectcobra.org/wp-content/uploads/15-ParticipatoryScenarios.pdf

[24] *Raskin et al. 2002. Great transition, the promise and lure of the times ahead. Stockholm Environment Institute and Global Scenario Group, SEI PoleStar Series Report n. 10. Boston.*

Payments for community owned solutions: identifying and sharing best practices

Having supported Indigenous communities in identifying their current survival strategies and worked through potential future scenarios in relation to higher levels of governance, Project COBRA then focused on helping communities identify ideal practices initiated at community level which would avoid moving the current situation towards conflict/worst-case scenarios, but instead maximise the chances of achieving positive synergistic outcomes with higher levels of governance. These ideal practices are what we term 'best practices' - the selection of community owned solutions that make a community viable now and in the future, and that can be an inspiration to other communities. Having supported communities in identifying their best practices, we then investigated the effectiveness and impact of transferring best practices between communities in peer-to-peer knowledge exchange. Crucially, we advocate that this sharing and implementation of community owned best practices should generate support from policy makers and development practitioners i.e. there should be financial mechanisms for 'payments for community owned solutions'.

Working at the local level in the North Rupununi, Guyana, the methodology of identifying best practices involved using multi-criteria analysis to compare current strategies for community viability against the local future scenarios, as well as other collectively developed criteria including whether it fulfilled the criteria for a community owned solution, the level of transferability of the best practice, the presence of champions who could represent and execute the indicator/practice well, and the level of community ownership of the practice. Each criterion was weighted and then scored to allow the identification of a sub-set of best practices for further investigation. Undertaking an in-depth study of these best practices was important in order to understand critical underlying factors for their success, and using participatory video and participatory photography allowed a shared understanding of the practices to emerge.

Recording the best practices through video and photography was also critical in order to be able to share the best practices with other communities (and stakeholders at higher levels of decision making) and get feedback in subsequent phases of the research. However, in further discussion with the community researchers, it became apparent that a study of all the identified best practices would not be possible in the timeframe of the project. Therefore, a collective

decision to focus on one practice per System Viability strategy was made based on discussions about time, budget and logistical constraints (e.g. geographical accessibility, transport links), and the sensitivity of the information collected (e.g. for traditional medicine further discussions on intellectual property rights would be required). The community researchers then started a six month participatory video and photography study of the six best practices in their communities, culminating in the production of participatory films and photostories.

These participatory films and photostories were then used as the basis of a peer-to-peer exchange between the North Rupununi and six other communities in the Guiana Shield: Kwamalasamutu, a Tiriyo community in Suriname; Kavanayén, a Pemon Arekuna community in Venezuela; Katoonarib, a Wapishana community in Guyana; Maturuca, a Makushi community in Brazil; Laguna Colorada, a Sikuani community in Colombia; and Antecume Pata, a Wayana community in French Guiana. The exchanges involved the support of key civil

■ Shortlist of best practices after the multi-criteria analysis scoring exercise, with final best practices investigated in-depth shown with an asterisk

System Viability strategy	Practice
Existence	Traditional and modern knowledge for extracting timber Traditional knowledge for fishing*
Resistance	Practices for transmitting traditional culture to youth* Community rules for the use of natural resources Activities to encourage youth to stay in the village
Flexibility	Maintaining a local health practitioner in the community Maintaining a variety of farming techniques*
Adaptability	Community and/or individual systems to adapt new mediums of transports (e.g. renting system of boats and engines) Modern communication tools adapted for optimal community and/or individual use and benefit e.g. community radio*
Ideal Performance	Self-help at household and community levels* Effective planning and applications of community natural resource plans Leadership (transparency, democracy, communication)
Co-existence	Partnerships between communities Partnerships with NGOs*

society organisations that had extensive and long-term experience of working with these communities. During the exchanges, which were led by community researchers and supported by academic/practitioners facilitators, the focus was on three tasks: (1) a training component to build capacity within the exchange community to enable them to engage with the concepts for identifying community owned solutions and to use the photo and video technologies; (2) sharing of the best practices to see whether these might inspire the exchange community to take action in relation to their own challenges, and; (3) implement a process of monitoring and evaluation, through questionnaires, interviews and focus groups, to develop practical criteria to evaluate the effectiveness and impact of the exchange process.

Results in brief

The North Rupununi communities identified and documented six best practices, distinguished by the cross-cutting themes of Indigenous knowledge, local leadership and collective spirit/values, partnerships and networks. Although critical at local level, these best practices are also relevant at the global scale, with implications for

food security, ecosystem integrity, and effective and long-term natural resource management.

Project COBRA's community owned best practices approach suggests that natural resource management requires a suite of strategies that the local communities have themselves identified and assessed. In our case this included 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 communication technologies. Crucially, our System Viability framework enabled the identification of best practices which have synergistic effects and are mutually reinforcing i.e. they do not focus on promoting one aspect of a community while undermining other aspects. For example, self-help appeared in traditional farming and fishing, as part of ecotourism and in cultural transmission. This is in stark contrast to many development and conservation policies and initiatives pushing simplistic interventions which skew a community towards 'one-size-fits-all' strategies. The participatory visual methods approach also helped to reinforce sustainable practices, by discussing and showcasing them within communities, and by engendering a sense of pride in local solutions.

Peer-to-peer knowledge transfer and exchange has proven to be, overall, a successful way of instilling positive change in communities of the Guiana Shield. Indigenous-to-Indigenous knowledge exchange creates a climate of trust that motivates communities to participate and carry out the project successfully. In the videos and photostories presented in the communities, people could see evidence of similar cultural practices and lifestyles, they could relate to the facilitators' background and were curious about their way of life. Working with fellow Indigenous people also motivated people to deliver on objectives, having seen that they had gone through similar experiences before being able to facilitate such a process and transfer their knowledge. Although Indigenous community facilitators were in many ways put in a 'teacher' position, the sharing of a very similar background helped break the hierarchy and build trust. Furthermore, the videos and photostories presenting the best practices helped people to understand and visualise commonalities and differences between the different contexts to instigate positive peer-pressure, with the discovery that other communities had implemented solutions to deal with similar challenges.

Our in-depth evaluation and monitoring of the knowledge exchange process also provided important evidence of the range of enabling factors that not only ensure effective knowledge exchange between communities, but also contribute to potentially lasting impacts. For a successful implementation of peer-to-peer knowledge exchange, these are determining factors which should be taken into account:

- Ensure a mixed team of facilitators (community facilitators, project practitioners, CSO support, male and female, different levels of experience in facilitation).
- Encourage a mixed team of participants (gender, age, status and influence in community, ICT capacity).
- Include leaders in the process, at least for supervision and encouragement.
- Engage communities for a minimum of six months and at least three visits to support the process, but leave a minimum of a month between visits to allow the community to take ownership of the process.
- Use participatory visual methods, including participatory video and photography where appropriate.
- Involve a CSO that has community trust.
- Compensate for language barriers, take all possible measures to limit their negative impact on communication between people.
- Make sure that there is an appropriate minimal infrastructure to carry out the project (e.g. energy supply in the evenings).
- Include champions to reinforce the transmission of community solutions as they can provide direct, hands on experiences.

Results in detail

The communities of the North Rupununi identified six best practices that are essential for their viability. These practices enable them 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 partners (co-existence), adapt to aspects which demonstrate permanent change (adaptability) and work efficiently with scarce resources (ideal performance). Although the best practices emerge from the particular cultural, historical and environmental contexts of the communities, we are able to distinguish key cross-cutting themes that appear crucial for Indigenous social and ecological viability. Through these cross-cutting themes – Indigenous knowledge, local leadership and collective spirit/values, partnerships and networks - and within the guiding principles that emerge from them, they also become relevant at the global scale.

Community best practices identified in the North Rupununi, Guyana

- Local traditional fishing practices (Existence) - maintains a healthy environment in order to sustain the regular and predictable production of a basic resource for survival: food in the form of fish.
- Successful partnerships through a local CSO (Coexistence) – through the presence and effective functioning of a local civil society organisation, local communities can maintain relationships with external stakeholders.
- Transmission of culture to youth (Resistance) – maintains community identity and togetherness, and subsequently the sustainability of the local social-ecological system, in the face of an increasingly globalised world.
- A community radio (Adaptability) – allows communication and information gathering between communities, and in light of changes in environmental governance happening at higher scales, as well as external activities such as mining, logging and illegal fishing taking place in Indigenous lands.
- Local traditional farming practices (Flexibility) – maintains food security within a highly diverse environment; climate, diseases and pests, income, food supply, and job opportunities can vary significantly from one month to the next, or one year to the next.
- Community self-help (Ideal Performance) - maintains a sense of togetherness and community spirit, as well as efficient use of human resources for communal activities in remote areas where public and private services are limited.

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[25]. Almost all of the best practices 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 – it is responding to new social and ecological changes. For example, in the Adaptability best practice of the community radio, the story illustrates that, by the very fact that it is community owned, it

[25] *Mistry J. 2009. Indigenous knowledges. In Kitchin R., and N. Thrift eds. International Encyclopedia of Human Geography, Volume 5, 371–376, Elsevier, Oxford, UK.*

Community	Local Community Owned Solution	Main challenge identified	North Rupununi best practice chosen to be implemented
Antecume Pata	Fishing practices	Lack of community togetherness and local governance	A local COBRA team for self-representation and voicing concerns
Katoonarib	Forest island management	Culture loss	Culture group
Kavanayén	Tourism cooperative	Culture loss	Culture group
Kwamalasamutu	Two-farm system	Lack of community togetherness and local governance	Self-help
Laguna Colorada	Traditional cultural education	Lack of communication facilities between communities	Community radio
Maturuca	Cattle raising to assert land rights	Lack of communication facilities between communities	Community radio

Challenges, solutions, and North Rupununi best practices chosen in the six exchange communities of the Guiana Shield

has enabled the communities to use the radio to reinforce Indigenous knowledge and stimulate traditional oral modes of communication. There are traditional storytelling programmes for children, radio programmes broadcast in the Indigenous language of Makushi, and programmes facilitating the exchange of traditional knowledge to face new challenges (such as fighting diseases within traditional rotational farming systems which avoid the use of artificial pesticides). People also come together to listen to the radio, supporting communal interaction for Indigenous knowledge production.

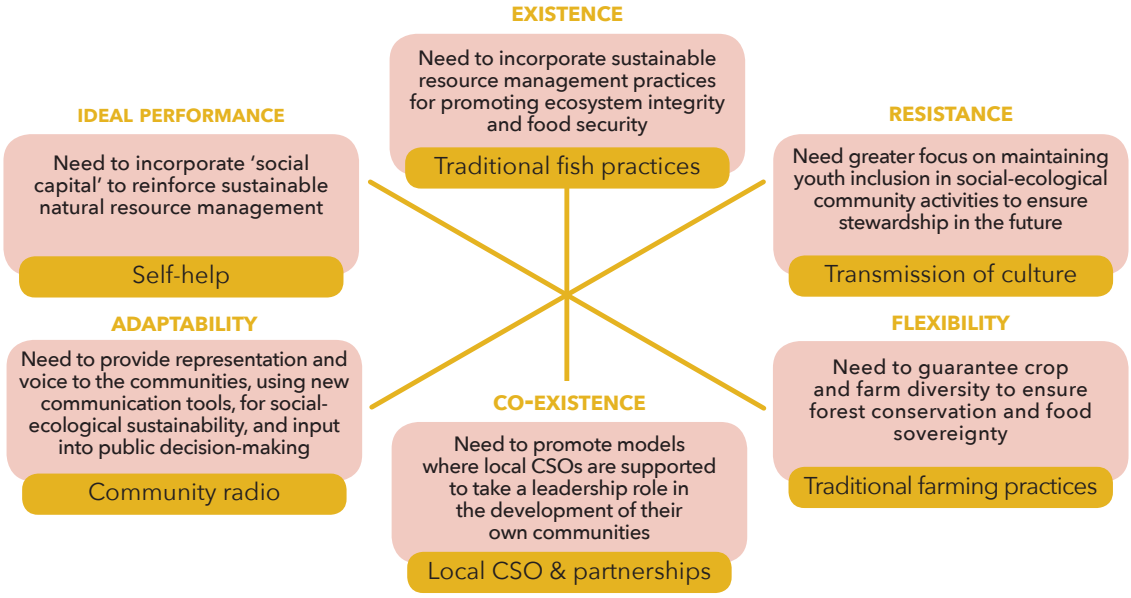
The best practices identified demonstrate the critical importance of prominent local leaders and strong social capital for community owned approaches to social and ecological management. The presence of at least one individual, highly motivated, respected as a local leader, with appropriate/innovative skills, and making a personal commitment and 'self-sacrifice' to the best practice and the process of implementation, was essential. These best practice 'champions' were 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 also participate in the best practice. At the same time, a sense of collectiveness underpinned 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 is the foundation of the best practice. However, we also see the importance of community cohesion within almost all the other best practices e.g. within the Coexistence best practice, where communities voluntarily work together to build infrastructure for an 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.

Most of the best practices are built upon an array of partnerships and networks. Crucial to their success is the role of the local civil society organisation, the North Rupununi District Development Board (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[26], while at the same time retaining local control over the development agenda. The Coexistence best practice is based on building partnerships to effectively develop and run community-based enterprises. In the Adaptability best practice, the long-term and on-going support of Iwokrama (national level NGO), UNESCO, the

[26] *Verwer, C., and R. Glastra. 2012. Report on the effectiveness of CSO policies and strategies pertaining to sustainable development and ecosystem services management in the Guiana Shield. [online] URL: http://projectcobra.org/report-on-the-effectiveness-of-cso-policies.*

International Development Research Centre (Canada) and Guyana Broadcasting Corporation/ National Communication Network are highlighted in the creation and maintenance of the community radio. As we have shown in the identification and sharing of best practices, capacity building is critical for effective strengthening of community owned solutions, and this capacity building needs to be long-term, hands-on, personal and engaging[27] through the direct involvement of champions: individuals who can inspire and be role-models for others.

In fact, in the peer-to-peer exchanges, we found that community researchers played a critical role in the success of the exchange. Research shows that actors may be more likely to view information produced by those with similar interests as more credible and legitimate[28], and also interact with people similar to themselves. Indeed, not only did the community researchers have a better understanding of the local contexts in which the exchanges took place, they were also more familiar with the kinds of local dynamics that might occur in the community while the Project COBRA team was away. Therefore issues encountered by participants in order to implement best practices were more easily shared, and dealt with much more tact and efficiency, than by non-Indigenous project practitioners.



■ The six best practices from the North Rupununi, Guyana and their relevance at the national and international levels

Find out more

Mistry et al. 2013. Report on best practice case studies. [online] URL: http://projectcobra.org/wp-content/uploads/WP4-BestPracticesReport.pdf

Mistry et al. 2015. Community owned solutions: identifying local best practices for social-ecological sustainability. Ecology and Society, in press

Tschirhart et al. 2014. Report on best practice sharing, implementation and evaluation. [online] URL: http://projectcobra.org/work-package-5-report

Tschirhart et al. 2015. Learning from one another: the effectiveness of horizontal knowledge exchange for natural resource management and governance. Ecology and Society, in press

[27] *Mistry et al. 2011. Capacity building for adaptive management: a problem-based learning approach. Development in Practice 21(2): 190-204.*
[28] *E.g. Moeliono et al. 2014. Information networks and power: confronting the «wicked problem» of REDD+ in Indonesia. Ecology and Society 19(2): 9.*

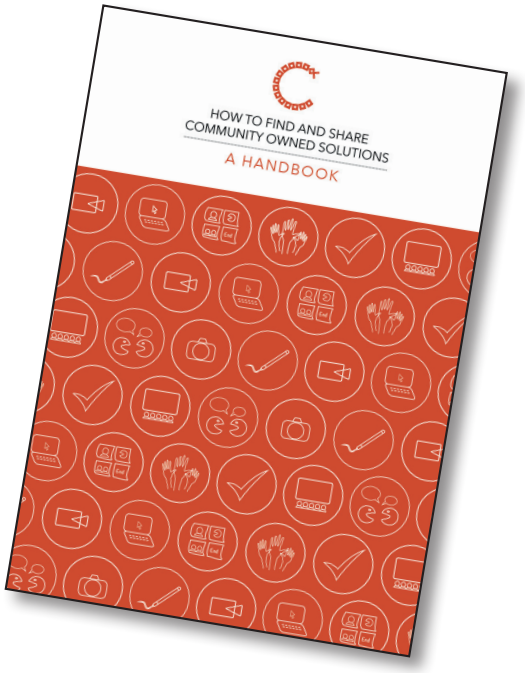
VI. UP-SCALING THE COMMUNITY OWNED SOLUTIONS APPROACH

Currently, significant financial resources are being mobilised at international level in the fight against climate change, and other emergencies, such as species extinctions, poverty and social unrest, health epidemics, and the rise of organised crime fuelled by the drugs trade. We argue that these financial resources should be implemented in a way that supports community owned solutions through a process similar to the one that has been developed within Project COBRA in the Guiana Shield.

We have shown that strengthening community owned solutions will support the survival of communities and their natural environments in a way that is ethically just. It is an emerging approach - there are still too few examples of projects taking a community owned approach, which we have found to be critical for community motivation and ownership of the process. For example, even after many decades of external development intervention in Kwamalasamutu, Suriname, no projects were focusing on community togetherness; in Katoonarib, Guyana, no projects were reviving traditional knowledge; in Maturuca, Brazil, no projects were promoting communication between communities; in Antecume Pata, French Guiana, no projects were building the capacity of young people to mobilise themselves into a group for a community purpose. The reason why there were no projects engaging with these crucial aspects of community survival was that none had engaged in a participatory process asking community members themselves what they wanted to see implemented.

Community owned solutions foster a multifunctional approach to environmental management, based on maintaining synergistic relationships between different survival strategies. We have shown that the most effective way to promote community owned solutions is through peer-to-peer knowledge exchange. Schemes such as PES, REDD+ and funding for climate change mitigation and adaptation should therefore include knowledge exchange in support of community owned solutions.

To facilitate the uptake of a community owned solutions approach, we have developed a Handbook[29]; a step-by-step and rigorously tested guide to allow academics, practitioners



and governments alike, to undertake the identification, documenting, sharing and impact evaluation of community owned solutions. This Handbook, available in English, Portuguese, Spanish and French, can be used within a range of development and conservation interventions with diverse local communities.

- We have demonstrated that community owned solutions approach is financially feasible, effective and sustainable.
- In 2013/14, our average cost of delivery for full community engagement was €15k for a six-month intervention, including the participation of professional facilitators, support from local civil society organisations, salaries for local participants, and the costs of equipment and logistics.
- The cost of one-day training of up to 30 professional facilitators was €3k (€100 per participant), which included training in participatory video and photography.

[29] *Berardi et al. 2014. How to find and share community owned solutions. A Handbook. [online] URL: http://projectcobra.org/how-to-find-and-share-community-owned-solutions.*

We strongly urge policy makers to support community owned solutions by enabling:

- The engagement of a wider set of communities to discover and implement a larger set of best practices, including development of the best practice dissemination online platform, the COBRA MediaGate (www.projectcobra.org/media-gate).
- A comprehensive training programme for practitioners, including the promotion of the COBRA community owned solutions handbook.
- Further social, ecological and economic evaluation of the impact of community owned solutions.

We have started a chain reaction that we hope will open opportunities for communities of the Guiana Shield to be the instigators of community empowerment. We have already seen some signs of this; the community of Maturuca is pursuing exchanges with the North Rupununi and have independently organised internships to the North Rupununi to explore ecotourism and learn Indigenous languages, while at the same time inviting students to study vegetable growing in their agricultural school. Identifying and sharing community owned solutions constitutes a unique opportunity to find alternative ways of dealing with climate change and complex social and ecological challenges. It also provides one of the most ethically appropriate frameworks

COBRA Handbook training in Brussels, on 23 January 2015

FACTS

Project COBRA has:

- Evidence of increased capacity of local communities to use community owned solutions to address social and ecological challenges.
- Evidence of increased capacity of local communities to use films and photostories as powerful communication media for raising awareness, education, advocacy and lobbying.
- Trained over 100 practitioners and community facilitators in the use of the community owned solutions approach.
- Published ten peer-reviewed journal articles to date.
- Disseminated findings at over 20 academic, non-governmental and policy related events.
- Established a dynamic website (www.projectcobra.org) and social media engagement, with over 45,000 pageviews and numerous active followers on Facebook and Twitter.
- Signed a Memorandum of Understanding with the multi-donor funding facility, the Guiana Shield Facility.

for research and 'development' projects within Indigenous communities. Communities are becoming aware that the solutions to their challenges do not lie exclusively in the hands of professional experts, but also in people just like them.

The onus is now on policy makers at all levels of decision making to strengthen, rather than undermine, community owned solutions. Solutions identified by Indigenous communities are not nice things to study about their past…they are the future which the whole of humanity depends on. Some policy makers have demonstrated vision and are already embracing community owned solutions. We would like to conclude this report by highlighting the first major policy success of Project COBRA in the form of a Memorandum of Understanding between Project COBRA and the Guiana Shield Facility (UNDP), a multi-donor funding facility for the long-term financing of national and regional activities to conserve ecosystems, protect biodiversity, and to sustain livelihoods within the Guiana Shield eco-region.

Areas of cooperation in Project COBRA and Guiana Shield Facility Memorandum of Understanding

- The exchange and consolidation of technical and other strategic information in the areas of conservation and sustainable development of the Guiana Shield eco-region.
- To facilitate the exchange of experiences and perspectives on conservation and sustainable development issues of importance to the Guiana Shield eco-region, among local and Indigenous populations.
- To initiate discussion on the alignment between the priorities of the Guiana Shield Facility and those of COBRA with respect to the conservation and sustainable development of the Guiana Shield eco-region.
- For COBRA to provide specific advice to the Guiana Shield Facility on community engagement, participation in decision making and leadership of the process of ecosystem service management planning, implementation and evaluation.
- To support, wherever practical, the application of COBRA's concepts and techniques in Guiana Shield Facility activities, as outlined in the COBRA Practitioner Manual.
- To organize joint conferences/workshops, whenever possible, on relevant and timely topics.
- To undertake joint fundraising, when possible, to support research and other activities of mutual interest and benefit.

We are looking forward to seeing many more policy makers signing up to such initiatives.

The COBRA team

"Project COBRA has shown the impact of taking a community owned solutions approach for supporting community development without destroying their local environment. We have demonstrated that community owned solutions are financially feasible, effective and sustainable over the long-term. This report urges policy makers to use the in-depth, rigorous evidence presented from this research to up-scale support for community owned solutions."

Dr. Jay Mistry,
COBRA Project Coordinator

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