

# Low-tech, bottom-up, place-based approaches to addressing environmental degradation

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## About the report

This scoping paper was written to inform and enhance the focus and research direction for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme. It was commissioned by The Economic and Social Research Council (ESRC). Summaries of all the scoping papers can be found at [www.redaa.org/scoping-studies](http://www.redaa.org/scoping-studies).



## About the REDAA programme

REDAA is a programme that catalyses research, innovation and action at local, national and regional levels across Africa and Asia through a series of grant calls. Funded projects are interdisciplinary, often locally led and focus on solutions for ecosystem restoration and wildlife protection, enabling people and nature to thrive together in times of climate, resource and fiscal insecurity.

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# Introduction

The 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystems is clear: biodiversity is declining faster than at any time in human history. Nature and its vital contributions to people are deteriorating worldwide (IPBES, 2019). The same report also notes, critically, that nature is declining less rapidly on land managed by Indigenous Peoples than in other lands. Yet pressure from resource extraction, commodity production, mining and transport, and energy infrastructure are growing and challenging the ability of Indigenous Peoples and local communities (IPs and LCs) to sustainably manage and conserve biodiversity and the environment.

Noting the lack of overall progress in addressing the loss of nature, many have argued that adjustments to existing policies and market settings are not enough to tackle the challenge and deliver a change to how people relate to and draw benefits from the environment (IPBES, 2019; IPCC, 2022; Ripple *et al.*, 2017; Martin, Maris and Simberloff, 2016). Instead, there needs to be a fundamental shift, including increased support for approaches that prioritise local values, culture, experience and knowledge. 'Place-based' and 'bottom-up' approaches have emerged as a viable approach to balancing poverty alleviation and biodiversity protection (Bray and Velázquez, 2009).

This scoping paper will look at the evidence and build the case for including 'low-tech, bottom-up and place-based approaches' more prominently in efforts to address poverty and environmental degradation. It will outline the critical role of IPs and LCs in driving locally-led action and considers how to create an enabling environment where top-down and bottom-up approaches work together. Finally, this scoping paper identifies possible research methodologies and research gaps, and proposes four practical recommendations for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme and similar research programmes to strengthen support for low-tech, bottom-up and place-based approaches.

## Definitions

### Low-tech, bottom-up, place-based approaches

To explore this topic, we first need to unpack what is meant by 'low-tech, bottom-up, place-based approaches' in the context of poverty alleviation and environmental restoration. These terms are used across different contexts and disciplines, and defining the concept will help to explain the scope of this paper.

The best way to define this concept is to break down the three main terms, as each have distinct nuances and definitions.

- **Low-tech** – low-technology approaches are **designed to be simple and easy to make or implement**, often with lower costs and resources needed for ongoing maintenance. By comparison, high technology approaches are more complex to make, and adopt advanced features and designs that can be costly to maintain into the future.
  - Low-tech solutions can be mistaken for being a lower form of technology, or 'primitive', compared to more contemporary and industrial-style technology. However, this overlooks the sometimes thousands of years that have gone into developing some low-technology solutions, such as those used by IPs and LCs.
  - These low-technology solutions are innovative in how they tackle key challenges, are often well tested, and can be just as — if not more — effective as more complex, costly and modern high technology solutions.
- **Bottom-up** – bottom-up approaches are **actions by on-the-ground actors who take on the ownership and risk in implementing ideas and actions**, even if the initiatives are externally initiated and supported (Brondizio *et al.*, 2021). Community involvement in designing and setting the goals of the initiative is central. Bottom-up approaches should be demand-driven by IPs and LCs

through a rights-based, inclusive and equitable process according to their needs, priorities and goals.

- Critical to the bottom-up approach is that decision making at the 'bottom' is done through a rights-based, inclusive and equitable process that enables all stakeholders to engage, including Indigenous Peoples, local communities, women, girls, people living with a disability, and others in the community that could be marginalised.
- By comparison, top-down approaches tend to involve decision making at a higher level by officials and experts, such as at the national, regional or international level, which can overlook community-level participation and further exacerbate issues of marginalisation. Bottom-up approaches are often considered an antidote to top-down approaches, but realistically, both are needed to tackle issues of poverty and environmental degradation.
- **Place-based** – place-based, or place sensitive approaches are built on a sense of belonging, a sense of presence and being in an environment (Entrikin, 2008), and are about ensuring solutions are **highly contextualised to the local circumstances**.
  - These approaches are based on a geographical area defined by social, economic, or environmental characteristics. Compared to a 'one-size-fits-all' approach, a place-based approach ensures that support and activities are tailored to and designed with the local context and needs at the forefront. It is closely linked to the bottom-up approach.
  - Importantly, place-based approaches draw from extensive local and traditional knowledge of the area, and often generations of experience with land and nature. They are closely linked to the well-known concept of community-based approaches, and have a strong emphasis on locality.

The concepts of low-tech, bottom-up and place-based approaches are not exclusively used in the context of restoration and poverty. These concepts are also well embedded in or are emerging across other sectors, including in climate change, education, health, arts, urban planning, and more.

## Indigenous Peoples and local communities

In this report, the term 'Indigenous Peoples and local communities' (IPs and LCs) takes the IPBES definition as typically being 'ethnic groups who are descended from and identify with the original inhabitants of a given region, in contrast to groups that have settled, occupied, or colonized the area more recently' (IPBES, 2022).

## Section 1: A brief exploration of the benefits, challenges and success factors

Building from the definitions in Section 1, this section outlines the benefits, challenges and success factors associated with using low-tech, bottom-up and place-based approaches. These approaches are built on a foundation of being demand-driven and highly contextualised to the local social, cultural, and environmental context. They should place IPs and LCs and their values and priorities at the centre of design and implementation, and draw on local and traditional knowledge and culture, as well as western science. They should work alongside or in harmony with top-down approaches, and should not rely on the use of high-tech or expensive interventions. Examples of approaches that can support low-tech, bottom-up, place-based approaches to reduce environmental degradation, support restoration and alleviate poverty include:

- People-centred protected areas
- Locally-controlled forestry
- Community forest management

- Place-based ocean conservation
- Nature-based Solutions (NbS)
- Culture-based solutions
- Biocultural and people-centred conservation, and
- Indigenous territories.

## Benefits

There is a large body of evidence that bottom-up, community-based processes, that work in concert with carefully-planned support from governments and NGOs, can achieve multiple desirable goals for people, climate change and nature (Bray and Velázquez, 2009). Initiatives involving individuals, rural communities, organisations, associations and cooperatives, while often overlooked at the regional and international level, have important roles in efforts to promote sustainable development (Brondizio *et al.*, 2021). If nurtured, these approaches can grow and foster critical benefits including:

- Delivering ecosystem services for people and businesses that can support food and water security, improved health and wellbeing, and action on climate change (Roe *et al.*, 2021).
- Reducing poverty and diversifying livelihoods through economic opportunities and jobs (WWF and ILO, 2021).
- Promoting collaboration, trust and new partnerships among stakeholders (Flitcroft *et al.*, 2016).
- Creating strong community ownership and public acceptance (Anderson and Renaud, 2021).
- Providing low-cost solutions compared to engineered solutions in some cases (Reid *et al.*, 2018).

### **CASE STUDY 1: Community-based dryland restoration, Mali**

A community-based dryland restoration project in Mali, supported by Tree Aid, is helping to protect and restore the biodiversity of the Duwa and Sutebwo forests (20,404 hectares in total) while increasing household incomes and contributing to poverty reduction in 41 local communities in the district of Tominian.

By taking a locally-led approach, where decision-making processes are decentralised and the rights and responsibilities of those who use and depend on the forests are prioritised, the project enabled participatory and inclusive forest governance. Local communities (organised through two cooperatives) were supported to take on stewardship of two communal forests through a forest dialogue group and a steering committee. More than 20,000ha of land is now under improved management plans, and more than 11,000ha has benefited from improved natural resource management techniques, such as farmer managed natural regeneration (FMNR), planting of indigenous tree species, and soil and water conservation practices. Forty-four community-led, non-timber forest product-based businesses were also established, and support was provided to these enterprises to improve production and expand market access (Tree Aid, 2020; Hou-Jones, Roe and Holland, 2021).

## CASE STUDY 2: Farmers' Seed Network, China

The Farmers' Seed Network in China has a focus on agroecology practices that increase biodiversity on farms and community-based collective actions to conserve traditional seeds, increase crop and seed diversity, and bring back indigenous crops. Interventions have also included reforestation and sustainable forest management on mountain slopes around the farms, centred around Indigenous Peoples' traditional practices of water and soil management which are based on their indigenous value system.

The project has seen a range of benefits for nature and people. For example, forest resource management has improved, and more bamboos and trees have been planted on community land and mountain slopes. The solutions have supported improved productivity, diversified livelihoods and increased income for farmers, and there is significantly higher food self-sufficiency. Strengthening community-based organisations to foster collective actions was key to success. Women leaders were able to establish informal groups to support each other in conservation farming and to strengthen communities and bonds within and among groups. Communities also helped to revive traditional knowledge and customary law to cultivate and nurture collective

## Challenges

Despite clear and multiple benefits offered by low-tech, bottom-up and place-based approaches, there are also risks and challenges associated with adopting them. Some documented examples include:

- Poorly consulted, designed and implemented approaches can unintentionally cause harm or maladaptation, and exacerbate poverty, inequality, or insecurity (Seddon *et al.*, 2020).
- Some approaches, such as NbS can be used as 'greenwash' for business-as-usual practices, or as a driver of landgrabbing from marginalised communities (Hou-Jones, Roe and Holland, 2021), and lead to serious human rights abuses (Oakland Institute, 2021).
- The perception that IPs and LCs are being left to shoulder the burden of fixing someone else's poor decision making (Brondizio *et al.*, 2021).
- Approaches can disadvantage already-marginalised groups, including through their continued exclusion from decision making, denied rights and land appropriation (Hou-Jones, Roe and Holland, 2021).
- Regional and national policies under-recognise place-based initiatives, which can result in these approaches being undermined or under-valued (Brondizio *et al.*, 2021).
- Managing trade-offs across social, environmental and economic outcomes. For example, if communities prioritise activities with low biodiversity value such as afforestation with non-native monocultures (Seddon *et al.*, 2020). This closely links to temporal dimensions, whereby benefits achieved today may come at the cost of benefits for future generations (Wells *et al.*, 2021).
- Growing interest in these approaches has triggered a 'pilot-project syndrome' which can leave long-lasting effects on local communities and livelihoods (Brown, 2003).
- Local-level factors, such as lack of administrative experience and unfamiliarity with complex bureaucracies have presented risks, and in extreme cases lead to the bankruptcy of local associations and cooperatives, community conflicts and frustration with collective engagements (Brondizio *et al.*, 2021).

## CASE STUDY 3: Tree planting

Although well-designed NbS can deliver multiple benefits for people and nature, much of the focus has been on tree planting for carbon sequestration. The wrong trees planted in the wrong place can disadvantage already-marginalised IPs and LCs, who have been excluded from decision-making processes, had their rights denied and their lands appropriated. However, the right trees in the right place can protect biodiversity and soils, store carbon and enhance human lives and livelihoods. In Niger, for example, the local negotiation of land use includes vulnerable people, and livelihood improvements and greening have gone hand-in-hand. And large-scale tree planting managed by local cooperatives in other locations in China, has had significant benefits for small-scale farmers (Mayers, 2021).

Importantly, low-tech, bottom-up and place-based approaches are not a magic bullet. They should be prioritised alongside system-wide transformations including the rapid decarbonisation of the economy, halting practices and drivers of biodiversity loss, and addressing unsustainable production and consumption patterns.

### Success factors

Several success factors supporting effective low-tech, bottom-up and place-based approaches emerge from literature, reports and case studies:

1. Long-term success relies on public acceptance and engagement (Anderson and Renaud, 2021).
2. Approaches that focus on building women's empowerment have contributed to promoting inclusive governance and action on gender equality and women's rights (Brondizio *et al.*, 2021).
3. Hybrid and multi-level equitable governance arrangements are critical to bringing national policies, international funding and multi-stakeholder networks together to support local communities and institutions (Andersson, 2013).
4. Long-term engagements and planning that combine science with local and traditional knowledge, help to build trust among all stakeholders and ensure activities reflect the unique local socio-economic and political circumstances (Swiderska, 2021).
5. Participatory approaches that ensure strong community ownership and engagement will help to ensure what is implemented works in the local context and is sustained, and that benefits accrue to local people (Hou-Jones, Roe and Holland, 2021).
6. Integrated approaches that combine protection, restoration, and sustainable harnessing of nature to achieve multiple objectives, such as poverty alleviation and climate action can, in many cases, enable local communities to strengthen their resilience to climate change, sequester carbon, enhance biodiversity, and take advantage of other economic, social, and environmental benefits provided by healthy nature (Hou-Jones, Roe and Holland, 2021).

## Section 2: IPs and LCs at the centre of decision making

It is critical to engage IPs and LCs in efforts to address poverty alleviation and environmental degradation; doing so is also fundamental to the success of low-tech, bottom-up and place-based approaches. This section will analyse this further, outline the role of IPs and LCs in these approaches, and argue for effective bottom-up and top-down approaches.

### Why is it critical to meaningfully engage IPs and LCs in efforts to address poverty alleviation and environmental degradation?

IPs and LCs are the champions of low-tech, bottom-up, place-based approaches. The case for their genuine and full engagement in the planning and implementation of nature-based interventions is compelling. As outlined in Section 1, drawing on extensive local and traditional knowledge can lead to



better outcomes, can build trust and confidence across all parties, and provide additional opportunities such as jobs and diversified livelihoods (Hou-Jones, Roe and Holland, 2021). While not all solutions need to be locally-owned or led, countries and local stakeholders are demanding greater action on getting resources into local hands to get behind local priorities and initiatives (Soanes, 2021).

Most of the Earth's biodiversity is in the territories of Indigenous Peoples; around half a billion people who collectively manage about a quarter of the world's land. They are critical for addressing the crisis of biodiversity loss. Recent research with Indigenous Peoples in Peru, Kenya, India, and China shows that Indigenous values and worldviews promote balance with nature and social equity (Swiderska *et al.*, 2021). Many IPs and LCs already manage land in ways that would be considered low-tech, bottom-up and place-based, and these practices must be acknowledged and embraced when considering new or expanded interventions in these areas. Across the world, human cultural practices have produced sustained ecological benefits by expanding species habitats, enhancing plant diversity, increasing hunting sustainability, aiding seed dispersal and improving soil nutrients (Swiderska *et al.*, 2021). Deforestation rates are much lower on land managed by IPs and LCs than any other land uses across the globe (Notess *et al.*, 2018). Many of these practices provide public goods and ecosystem services, such as carbon sequestration, air quality and water cycle benefits, for areas extending beyond the IPs and LCs-managed land (Sangha, 2020).

Evidence shows that respecting IPs and LCs' rights and knowledge leads to effective, locally-owned, equitable and cost-effective conservation outcomes (UNEP-WCMC, 2021). Further, a 2021 evidence review by Roe *et al.* found that development outcomes were more often negative where there was little or no community engagement in the intervention's design or decision-making processes. The same evidence review, which looked at hundreds of interventions to protect, manage, restore, or harness nature, highlights a wide range of local development outcomes for people from investments in biodiversity. This emphasises that biodiversity loss is not only an environmental crisis, but also a major barrier to future development and a risk to hard-won development gains (Roe, Seddon and Elliott, 2019).

Not only are poorer communities and people disproportionately dependent on nature and biodiversity for their livelihoods, they are also disproportionately vulnerable to losses (Roe *et al.*, 2021). More than a decade ago, the Millennium Ecosystem Assessment warned that "the harmful effects of the degradation of ecosystem services are being borne disproportionately by the poor, are contributing to the growing inequities and disparities across groups of people, and are sometimes the principal factor causing poverty and social conflict" (Millennium Ecosystem Assessment, 2005). It is therefore critical to ensure communities and others at the frontline of the nature crisis are central to designing the solutions according to their priorities.

## What role should IPs and LCs have in decision making on potential restoration scenarios?

IPs and LCs should be at the centre of decision making for interventions that protect, manage, restore, create, and harness nature. They know the area and context best: they bring vast traditional and local knowledge to strengthen the design and outcomes and are best placed to shape the intervention in ways that won't adversely impact them or the environment and support sustained outcomes.

The UN Declaration on the Rights of Indigenous Peoples requires that free, prior, and informed consent of Indigenous Peoples be obtained in matters of fundamental importance for their rights, survival, dignity, and wellbeing. Consultations to obtain this consent must respect local governance and decision-making processes and structures. They must occur in Indigenous languages and on Indigenous Peoples' time frames and be free of coercion or threat.

Building on Ostrom's Principles, many of which point to the need for inclusive and equitable governance, and drawing on an earlier typology of community participation (Bass, Dalal-Clayton and Pretty, 1995), there is increasing awareness of the role of local level power and decision making in environment-focused activities. Dawson *et al.* (2021) reviewed 169 case studies to understand how different forms of governance influenced conservation outcomes. Their research showed that most case studies where IPs and LCs played a central role in and had substantial influence over decision making resulted in a positive outcome for both people and conservation. This compared with case studies

where decisions were largely made by external organisations, often resulting in ineffective conservation and negative social outcomes (Dawson *et al.*, 2021).

Building on this analysis, the roles of IPs and LCs in decision making for interventions that address poverty alleviation and environmental degradation can be broadly defined in two simplified categories that are relevant to the REDAA programme; Self-mobilisation and building trust; and Active participation and influence. The REDAA programme should consider how it can support and invest in research that enables both modalities to function together, to maximise and support the influence of IPs and LCs in the programme.

**Self-mobilisation and building trust:** Dawson *et al.* (2021) found that relationships of trust were a prerequisite for community mobilisation. They found examples of this trust being developed over time and using conflict resolution processes, transparent and timely communication, intercultural understanding, and respect for local rights. Building this trust and mobilising across the community can enable stronger 'place leadership' that is inclusive, equitable and rights-based and can lead to stronger outcomes that deliver highly contextualised poverty alleviation and environmental restoration according to needs. Critical to this role is acknowledging local power dynamics and ensuring decisions made at the local level don't further exacerbate cycles of marginalisation for those not in leadership positions, essentially avoiding issues of 'elite capture'.

**Active participation and influence:** IPs and LCs have a crucial role to play as active agents of change and influencing all parts of the project cycle. In this role, IPs and LCs work in partnership with government or external agencies based on an inherent recognition of their knowledge, experience and rights being fundamental to the activity and delivering sustainable outcomes. IPs and LCs must be integral to both designing, implementing and monitoring the intervention. As local actors take control over local decisions and determine how available resources are used, they also develop a stake in maintaining structures or practices.

Both roles must work in harmony together to maximise the effectiveness of IPs and LCs' influence and decision making. Supporting this requires a balance of top-down and bottom-up approaches.

## How do top-down and bottom-up approaches interact and either complement or work against each other?

Top-down approaches are generally policy-driven approaches that set national and regional targets, compared to bottom-up approaches that set objectives based on the local social, economic, and environmental context and local needs (Meli *et al.*, 2019). In some cases, restoration efforts are driven by top-down approaches such as legal or regulatory requirements or government incentives, whereas in other cases they can be motivated by local demand. Realistically, top-down and bottom-up approaches are both needed and should work effectively and in harmony to drive the transformation. Unless the systems are in place to support IPs and LCs to actively participate in the design and implementation of both approaches, it is unlikely that top-down or bottom-up approaches will be fit-for-purpose and able to maximise local control and benefits.

Emerging evidence suggests the following enabling conditions are needed to support effective interaction between top-down and bottom-up approaches:

- Establishing feedbacks between top-down and bottom-up management actions is desirable, to ensure co-learning and dynamic refinement (Roux *et al.*, 2016).
- Community resistance to proposals from centralised agencies can be addressed using effective and meaningful participatory processes with consistent engagement over time, through increased transparency, and incorporating benefits for communities (Gaymer *et al.*, 2014).
- Local and traditional knowledge needs to be considered alongside the views of experts and western science. Without public participation and the inclusion and respect for local knowledge and experience, there is a risk that conflict can arise (Kati and Jari, 2016).

The eight Principles for Locally Led Adaptation (Soanes *et al.*, 2021), launched in 2021 and with endorsements from more than 70 governments, funds and organisations, provides an approach to put

IPs and LCs in the driving seat to lead sustainable and effective solutions at the local level. Although initially developed for climate adaptation action, the principles bear strong relevance to programmes like REDAA that seek to address poverty alleviation and environmental restoration. Of the eight principles, several stand out as relevant to REDAA and the way it could invest in research:

- **Principle 1: Devolving decision making to the lowest appropriate level** – the REDAA programme could look for opportunities to devolve decision making over research approaches, focus and investments, to local researchers and institutions in target countries and communities.
- **Principle 2: Addressing structural inequalities faced by women, youth, children, disabled and displaced people, Indigenous Peoples and marginalised ethnic groups** – the REDAA programme could structure its support for research that specifically addresses structural inequalities, including at the local level.
- **Principle 3: Providing patient and predictable funding that can be accessed more easily** – the REDAA programme could provide funding for research in a way that enables local researchers to access the support, and to support researchers with longer-term funding to gain a better understanding of the temporal dimensions of environmental degradation and poverty alleviation, and how these shift over time.
- **Principle 4: Investing in local capabilities to leave an institutional legacy** – the REDAA programme could structure its research investments in a way that also builds the capacity of local researchers and organisations according to their priorities and to leave a legacy once the programme concludes.

Where Ostrom's Principles and subsequent analysis of local leadership and governance provides a reference for how communities organise themselves — essentially a bottom-up self-mobilisation approach — the Principles for Locally Led Adaptation provide an approach for top-down efforts that put IPs and LCs in the driving seat. The two approaches could work together to deliver a rights-based, inclusive, and equitable approach that enables stronger locally-led action and puts a premium on low-tech, bottom-up and place-based approaches.

There is also a two-way learning relationship between top-down and bottom-up approaches. For example, place-based approaches have been shown to inspire effective top-down approaches. Research in the Brazilian Amazon shows that several top-down national public policies, including formal titling programmes, social safety-nets, Indigenous land demarcation, and environmental regulation, are in place largely because of longstanding coordinated external and bottom-up pressure from social movements (Brondizio *et al.*, 2021). Similarly, place-based research from the Brazilian Amazon showed that bottom-up initiatives, despite having success in transforming local spaces, are often insufficient to advance sustainable development at broader societal scales, largely because political and environmental factors are beyond their reach. They are needed alongside top-down approaches. There are several examples of effective top-down and bottom-up approaches that support locally-controlled forestry.

Equitable governance must be central to both bottom-up and top-down approaches. It is an approach that encompasses stakeholder engagement in all aspects of governance, including respecting rights, transparency, accountability, rule of law, dispute resolution and the sharing of costs and benefits. Furthermore, 'equitable' embraces not only the concept of inclusion of key social groups, but also a range of options for prioritising social groups where equality is not the answer. For example, according to poverty level (needs-based), rights-holders (rights-based), those contributing to, or harmed by, conservation (merit-based), or to counter historical marginalisation (for example, based on gender, ethnicity). Transformative change requires governance that is not only inclusive in terms of decision making, but also equitable in its respect for rights, transparency, rule of law, dispute resolution, and sharing of costs and benefits (Franks, 2021).

## CASE STUDY 4: Locally-controlled forestry

Over the past 40 years, locally-controlled forestry has been increasingly recognised for delivering strong outcomes for local livelihoods, forest protection and sustainable and equitable development. In this time, the reach of community-based forest management has steadily extended across all regions and gained traction in many countries with different political, historical, cultural and economic contexts (Gilmour, 2016).

An example of top-down and bottom-up approaches to locally-controlled forestry is in Nepal. In 1978, amid failure to curb widespread deforestation of state-owned forests, the government of Nepal legitimised community forestry, which paved the way for the legal handing over of forested land to local communities. Community-owned forest makes up around a fifth of all forested land in the country, with 17,685 groups of local community members managing more than 1.6 million hectares. More than two million households are benefiting from the change, with enhanced access to forest products, stronger local institutions, community development and more business opportunities.

Across the country, community forestry is helping to conserve biodiversity and improve ecological conditions in Nepal's forests, turning barren mountains into green ones and reversing one of the worst cases of deforestation in recent history. Amritdhara, in the central region of Nepal, is just one example. Established in 1996, this community forest is managed by a group of 814 households that have worked hard to restore degraded forest land. Through sustainable harvesting and silviculture, the group earns approximately three million Nepalese Rupees (US\$36,179) every year, a large part of which is re-invested in forest management or used to support local community development projects (Macqueen *et al*, 2012). Additional examples of locally-controlled forestry have also been supported through the Tenure Facility and the Forest and Farm Facility.

## Section 3: Research methodologies, research gaps and good practice programmes

### Research methodologies

Two research methodologies emerged through the literature that could inform the development of the REDAA programme and future research programmes that are looking to strengthen low-tech, bottom-up and place-based approaches. These methodologies are included here as examples to inform planning; however, they would need to be adapted to fit the specific context of the REDAA programme.

### Community acceptance

Anderson and Renaud (2021) looked at the success factors of public acceptance of NbS. Through the analysis, they found that efforts to increase acceptance should focus on providing and promoting awareness of benefits combined with effective communication and collaboration. They developed the Public Acceptance-NbS model that provides a starting point for the design and testing of strategies to increase NbS acceptance, which is also relevant to broader low-tech, bottom-up and place-based approaches beyond just NbS.

The methodology used could be incorporated into research programmes. It focuses on four primary categories: 1) provide benefits, 2) increase awareness of benefits, 3) communicate effectively, and 4) promote participation and collaboration. These categories are further split into four corresponding success criteria, which could be incorporated into the REDAA programme. The four categories link closely to the eight Principles for Locally Led Adaptation, which could also be used as a reference for designing the programme.

### Trade-offs and equity

Managing trade-offs and equity across multiple dimensions – temporal, socio and spatial – is critical. For example, restoration and poverty needs shift over time. What works today may not be beneficial for

the future, and actions designed today without considering these temporal dimensions can disadvantage future generations.

Wells et al. (2021), demonstrate how restoration outcomes are influenced by different dimensions of equity, and explain that incorporating equity in project planning and implementation processes can improve restoration outcomes. Their research showed that equity dimensions are intimately linked, and trade-offs can occur between equity dimensions, across socio-temporal scales, and that choosing the right ethical framework to apply is essential.

Of relevance to REDAA, Wells et al. (2021) developed a conceptual framework of how equity relates to restoration to inform their analysis. From this, they developed a staged research methodology to guide their research and restoration activity at the local level, which could be adapted and explored in more detail to inform REDAA's approach to research.

1. Identify the community's priority ecological issue and co-develop possible solutions
2. Develop a research question(s)
3. Co-develop methodology for restoration work
4. Implement the restoration work
5. Organise a scoping workshop to frame the equity issues
6. Conduct questionnaires designed using important equity-related questions identified in the scoping workshop
7. Identify key informants using stakeholder mapping (using a power/interest matrix) and conduct key informant interviews using a semi-structured approach based on the results of the questionnaires.

Other equity-focused methodologies that could help to identify spatial, socio and temporal trade-offs, and address issues of equity through improved governance include the [Site-level assessment of governance and equity \(SAGE\)](#) tool (case studies forthcoming from IIED).

## Research gaps

This paper references a range of research that already looks at and analyses how low-tech, bottom-up and place-based approaches can support action to restore the environment and reduce poverty. There is a large body of evidence and research already, however some research gaps stand out:

1. There is a need for **more place-based research, where researchers are embedded within the 'place', rather than as an observer**. Place-based and human-centred research, where researchers have strong community partnerships have been successful in increasing the relevance of research to environmental decision making (Cid and Pouyat, 2013). This approach also supports human-centred approaches, where people are seen as part of the components of the system rather than as separate external entities.
  - The REDAA programme could help to address this by giving preference to researchers and organisations who are based in the context in which the research is focused, and have direct lived experience of the issues.
2. There is also a need for **additional research that looks specifically at the role of different groups in place-based decision making**, for example the role of young people (Houseal, 2018).
  - The REDAA programme could also help to address this by investing in research that seeks to understand the opportunities and limitations of different voices and their involvement in local level decision making, including by documenting good practice examples.
3. Finally, **learning from failure** is essential. Recognising factors and conditions that have undermined the successes of previous low-tech, bottom-up and place-based sustainable development initiatives is critical for informing future efforts (Brondizio *et al.*, 2021). Yet, much of the research documents positive examples that hamper the ability of critical reflection on what didn't work and why.

- The REDAA programme could consider investing in research that seeks to understand why some low-tech, bottom-up and place-based approaches did not work, to inform and influence future initiatives.

## Good practice research programmes

There are several programmes in different countries, regions and contexts that seek to prioritise action for low-tech, bottom-up and place-based approaches. For example, programmes that invest in community-level collaboration and self-mobilisation, funding initiatives that prioritise local-level decision making and power, and government approaches that embed local voices in national policymaking. These examples occur across multiple sectors, including development, nature, health, education, arts, climate change, urban planning and more. However, it has been much harder to identify specific **research** programmes that offer good practice examples for supporting low-tech, bottom-up and place-based approaches in the context of poverty alleviation and restoration. This presents a potential opportunity for REDAA to be an early leader.

## Section 4: Recommendations for the REDAA programme

Drawing on the available research and the scoping in this paper, the following four recommendations are provided to support the REDAA programme to expand its research and support for low-tech, bottom-up and place-based approaches. While framed for the REDAA programme, many of the recommendations will also be relevant to current and emerging ESRC work.

**Recommendation 1:** The REDAA programme should structure its approach to support a positive enabling environment to invest in research on low-tech, bottom-up and place-based approaches by:

- Devolving decision making to the lowest appropriate level: the REDAA programme could look for opportunities to devolve decision making over research approaches, focus and investments to local researchers and institutions in target countries and communities.
- Addressing structural inequalities faced by women, youth, children, disabled and displaced people, Indigenous Peoples and marginalised ethnic groups: the REDAA programme could structure its support for research that specifically addresses structural inequalities, including at the local level.
- Providing patient and predictable funding that can be accessed more easily: the REDAA programme could provide funding for research in a way that enables local researchers to access the support, and to support researchers with longer-term funding to gain a better understanding of the temporal dimensions of environmental degradation and poverty alleviation and how these shift over time. This should also include sufficient funding and time to enable an establishment phase.
- Investing in local capabilities to leave an institutional legacy: the REDAA programme could structure its research investments in a way that also builds the capacity of local researchers and organisations.

Limitations to these approaches are likely to come from FCDO contract and administrative processes. Reviewing and adjusting these processes and creating a culture of taking calculated risks will be necessary.

**Recommendation 2:** To expand and build the evidence base for low-tech, bottom-up and place-based approaches to reducing environmental degradation and addressing poverty alleviation, the REDAA programme should prioritise funding for research proposals that can demonstrate:

- The integration and delivery of co-benefits across multiple challenges, including poverty alleviation, environmental restoration, and climate action
- That IPs and LCs are leading, have ownership of or are central to the design and implementation of the proposal, and that local power dynamics are taken into consideration
- Equitable governance practices are in place to support the ongoing engagement of IPs and LCs in multi-stakeholder long-term partnerships across sectors



- The presence of robust social safeguards for when interventions, such as NbS, are designed and implemented to avoid negative impacts to local stakeholders
- That traditional and local knowledge and technology is a central part of the design and implementation of the proposal, alongside western science and technology
- Potential to tackle policies that can remove barriers and drive the systemic changes needed to support more locally-led approaches.

A limitation to enabling this will be using direct observations to discover how 'locally-led' research proposals really are, and ensuring that it isn't a cover for business-as-usual approaches that don't have strong community-level influence or ownership. This will require additional groundwork from proposal reviewers during shortlisting, but can be helped by, for example, requesting evidence of local leadership endorsement with the submission.

**Recommendation 3:** The REDAA programme should designate one or more Demonstrator Projects to support low-tech, bottom-up and place-based approaches. This could help to address one or more of the research gaps, including:

1. Supporting place-based research, where researchers are embedded within the 'place', rather than as observers, and where researchers have strong community partnerships.
2. Supporting new research into the role of different groups in place-based decision making, for example the role of young people, and better understanding the opportunities and limitations of different voices and their involvement in local-level decision making, including by documenting good practice examples.
3. Support research that seeks to understand why some low-tech, bottom-up and place-based approaches did not work, to inform and influence future initiatives.

**Recommendation 4:** Consider additional steps to strengthen the inclusion of low-tech, bottom-up and place-based approaches in the REDAA programme, with an emphasis on supporting locally-led research, including:

- Look for opportunities to strengthen direct involvement with Global South researchers and practitioners to inform the shape and direction of the programme, for example through research partnerships, to help strengthen capacities, strengthen lived experiences in research and practice, and enhance ability to directly access future research funding.
- Shift to an approach where the REDAA programme increases transparency and accountability downward to local stakeholders, and where local stakeholders have a more direct role in shaping the design and delivery of the programme in the longer term. This could involve the development of a Community of Practice, for example, linked to REDAA proposals who then play an active role in shaping future programmes.
- Connect with other FCDO-funded programmes, including the Darwin Initiative, that also have research elements linked to low-tech, bottom-up and place-based approaches. Sharing research, lessons and experience across related programmes can strengthen the expansion of approaches that support locally-led action (and is also consistent with recommendations from the ESPA programme).

## References

- Anderson, C, and Renaud, F (2021) A review of public acceptance of nature-based solutions: The 'why', 'when', and 'how' of success for disaster risk reduction measures. *Ambio* 50, 1552–1573. <https://doi.org/10.1007/s13280-021-01502-4>
- Andersson, K (2013) Local Governance of Forests and the Role of External Organizations: Some Ties Matter More Than Others, *World Development*, Volume 43, 226-237. <https://doi.org/10.1016/j.worlddev.2012.09.001>
- Bass, S, Dalal-Clayton, B and Pretty, J (1995) Participation in strategies for sustainable development, Environmental Planning Group International Institute for Environment and Development, ISBN: 1 84369 043 8. IIED, London. <https://pubs.iied.org/sites/default/files/pdfs/migrate/7754IIED.pdf>
- Bray, D and Velázquez, A (2009) From Displacement-Based Conservation to Place-Based Conservation. *Conservation and Society*, 7(1), 11–14. <http://www.jstor.org/stable/26392957>
- Brondizio, E, Andersson, K, de Castro, F, Fudemma, C, Salk, C, Tengö, M, Londres, M, Tourne, D, Gonzalez, T, Molina-Garzón, A, Russo Lopes, G and Siani, S (2021) Making place-based sustainability initiatives visible in the Brazilian Amazon, *Current Opinion in Environmental Sustainability*, 49, 66-78, ISSN 1877-3435. <https://doi.org/10.1016/j.cosust.2021.03.007>
- Brown, K (2003) Innovations for conservation and development, *The Geographical Journal*, Vol. 168 (1), 6-17. <https://doi.org/10.1111/1475-4959.00034>
- Cid, C and Pouyat, R (2013) Making ecology relevant to decision making: the human-centered, place-based approach, *Frontiers in Ecology and the Environment*, 11 (8), 447-448. <https://doi.org/10.1890/1540-9295-11.8.447>
- Dawson, N, Coolsaet, B, Sterling, E, Loveridge, R, Gross-Camp, N, Wongbusarakum, S, Sangha, K, Scherl, L, Phuong Phan, H, Zafra-Calvo, N, Lavey, W, Byakagaba, P, Idrobo, C, Chenet, A, Bennett, N, Mansourian, S and Rosado, F (2021) The role of Indigenous peoples and local communities in effective and equitable conservation. *Ecology and Society* 26 (3):19. <https://doi.org/10.5751/ES-12625-260319>
- Entrikin, N (2018) Geography of experience: Place and region. In: Paasi, A., Harrison, J and Jones, M (eds). *Handbook on the Geographies of Regions and Territories*. Edward Elgar Publishing, Croydon.
- Flitcroft, R, Bottom, D, Haberman, K, Bierly, K, Jones, K, Simenstad, C, Gray, A, Ellingson, K and Baumgartner, E (2016) Expect the unexpected: place-based protections can lead to unforeseen benefits, *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26(1), 39-59. <https://doi.org/10.1002/aqc.2660>
- Franks, Phil (2021) Global Biodiversity Framework: equitable governance is key. Briefing Paper. ISBN: 9781784319120. IIED, London. <https://pubs.iied.org/20386iied>
- Gaymer, C, Stadel, A, Ban, N, Francisco Cárcamo, P, Ierna, J and Lieberknecht, L (2014) Merging top-down and bottom-up approaches in marine protected areas planning: experiences from around the globe, *Aquatic Conservation*, 24(2), 128-144. <https://doi.org/10.1002/aqc.2508>
- Gilmour, D (2016) Forty years of community-based forestry, FAO Forestry Paper 176. <https://www.cbd.int/financial/doc/fao-communityforestry2016.pdf>
- Hou-Jones, X, Roe, D and Holland, E (2021) Nature-based Solutions in Action: Lessons from the Frontline. Bond, London. <https://pubs.iied.org/sites/default/files/pdfs/2021-09/20451g.pdf>
- Houseal, P (2018) Making Meaning of Place : Facilitating Ecological Place-Based Experiences with Youth. University. <https://jstor.org/stable/community.31982626>
- IPBES (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Díaz, S, Settele, J, Brondizio, E, Ngo, H, Guèze, M, Agard, J, Arneth, A, Balvanera, P, Brauman, K.A, Butchart, S, Chan, K, Garibaldi, L., Ichii, K, Liu, J, Subramanian, S, Midgley, G,



Miloslavich, P, Molnár, Z, Obura, D, Pfaff, A, Polasky, S, Purvis, A, Razzaque, J, Reyers, B, Roy Chowdhury, R, Shin, Y, Visseren-Hamakers, I, Willis, K and Zayas, C (eds). IPBES secretariat, Bonn, Germany. 56 pages. <https://doi.org/10.5281/zenodo.3553579>

IPCC (2022) Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Pörtner, H, Roberts, D, Tignor, M, Poloczanska, E, Mintenbeck, K, Alegría, A, Craig, M, Langsdorf, S, Lösschke, S, Möller, ., Okem, A and Rama, B (eds). Cambridge University Press. In Press.

IPBES (2022) Definition: Indigenous peoples and local communities. [Indigenous peoples and local communities | IPBES secretariat.](#)

Kati, Vierikko and Niemelä Jari (2016) Bottom-up thinking—Identifying socio-cultural values of ecosystem services in local blue–green infrastructure planning in Helsinki, Finland, *Land Use Policy*, 50, 537-547. <https://www.sciencedirect.com/science/article/abs/pii/S0264837715003191>

Macqueen, D., deMarsh, P., Shyam Pandey, G., Castro Diaz, E., Robinson, L. and Lewis, S (2012) Investing in locally controlled forestry: natural protection for people and planet. Pocketbook. Published by IIED in association with The Three Rights-Holders Group (G3). IIED, London. <https://pubs.iied.org/17130iied>

Martin, J, Maris, V and Simberloff, D (2016) The need to respect nature and its limits challenges society and conservation science. *Proceedings of the National Academy of Sciences* 113 (22), 6105-6112. <http://dx.doi.org/10.1073/pnas.1525003113>

Mayers, J (2021) Trees need locally-grown politics. IIED, London. <https://www.iied.org/trees-need-locally-grown-politics>

Meli, P, Calle, A, Calle, Z, Ortiz-Arrona, C, Sirombra, M and Brancalion, P (2019) Riparian-forest buffers: Bridging the gap between top-down and bottom-up restoration approaches in Latin America, *Land Use Policy*, 87, 104085, ISSN 0264-8377. <https://doi.org/10.1016/j.landusepol.2019.104085>

Millennium Ecosystem Assessment (2005) Ecosystem and human well-being synthesis Island Press Washington, DC. <https://islandpress.org/books/ecosystems-and-human-well-being-synthesis>

Notess, L, Veit, P, Monterroso, I, Sulle, A, Larson, A, Gindroz, A, Quaedvlieg, J and Williams, A (2018) The Scramble for Land Rights: Reducing Inequity between Communities and Companies. World Resources Institute (WRI), Washington, DC, USA.

Oakland Institute (2021) Stealth Game: "Community" Conservancies Devastate Land & Lives in Northern Kenya. <https://www.oaklandinstitute.org/stealth-game-community-conservancies-devastate-northern-kenya>

Reid, H, Bourne, A, Muller, H, Podvin, K, Scorgie, S and Orindi, V (2018) A framework for assessing the effectiveness of ecosystem-based approaches to adaptation. In: Zommers, Z and Alverson, K (eds). *Resilience*. 207-216. Elsevier, London, UK.

Reid, H and Zhang, Y (2018) Ecosystem-based approaches to adaptation: strengthening the evidence and informing policy. IIED, London. <http://pubs.iied.org/17624IIED>

Ripple, W, Wolf, C, Newsome, , Galetti, M, Alamgir, M, Crist, E, Mahmoud, M and Laurance, W (2017) World scientists' warning to humanity: a second notice. *BioScience* 67(12), 1026-1028. <http://dx.doi.org/10.1093/biosci/bix125>

Roe, D, Seddon, N and Elliott, J (2019) Biodiversity loss is a development issue: a rapid review of evidence. IIED Issue Paper. IIED, London. <http://pubs.iied.org/17636IIED>

Roe, D, Turner, B, Chausson, A, Hemmerle, E and Seddon, N (2021) Investing in nature for development: do nature-based interventions deliver local development outcomes? IIED, London. <https://pubs.iied.org/20206iied>. ISBN: 978-1-78431-891-8

Roux, D, Nel, J, Fisher, R and Barendse, J (2016) Top-down conservation targets and bottom-up management action: creating complementary feedbacks for freshwater conservation, *Aquatic Conservation*, 26(2), 364-380. <https://doi.org/10.1002/aqc.2577>

Sangha, K (2020) Global Importance of Indigenous and Local Communities' Managed Lands: Building a Case for Stewardship Schemes, *Sustainability*, 12(19), 7839. <https://doi.org/10.3390/su12197839>

Seddon, N, Chausson, A, Pam, B, Girardin, C, Smith, A and Turner, B (2020) Understanding the value and limits of nature-based solutions to climate change and other global challenges *Philosophical Transactions of the Royal Society B*, 375, 20190120. <https://doi.org/10.1098/rstb.2019.0120>

Swiderska, K (2021) Why traditional knowledge and Indigenous Peoples' rights must be integrated across the new global biodiversity targets. IIED. <https://www.iied.org/why-traditional-knowledge-indigenous-peoples-rights-must-be-integrated-across-new-global>

Swiderska, K, Argumedo, A, Song, Y, Rastogi, A, Gurung, N, Chemuku, W, Guanqi, L (2021) Indigenous knowledge and values: key for nature conservation. Briefing Paper. IIED, London. <https://pubs.iied.org/20351iied>

Soanes, M, Bahadur, A, Shakya, C, Smith, B, Patel, S, Rumbaitis del Rio, C, Coger, T, Dinshaw, A., Patel, S, Huq, S, Musa, M, Rahman, M.F, Gupta, S, Dolcemascolo, G and Mann, T (2021) Principles for locally led adaptation. Issue Paper. IIED, London. <https://pubs.iied.org/10211iied>

Tree Aid (2020) Strengthening forest management to protect biodiversity and alleviate poverty in Mali, West Africa. Learning Brief. <https://www.treeaid.org/media/1ivjzndb/tree-aid-strengthening-forest-management-learning-brief-2020-english.pdf>

UNEP-WCMC (2021) Safeguarding Traditional Knowledge: How to better recognise and include traditional knowledge in biodiversity conservation. [https://cobracollective.org/wp-content/uploads/2021/07/TK-Policy-Brief\\_Final.pdf](https://cobracollective.org/wp-content/uploads/2021/07/TK-Policy-Brief_Final.pdf)

Wells, H, Kirobi, E, Chen, C, Winowiecki, L, Vågen, T, Ahmad, , Stringer, L and Dougill, A( 2021) Equity in ecosystem restoration. *Restoration Ecology*, 29(5), 13385. <https://doi.org/10.1111/rec.13385>

WWF and ILO (2021) Nature hires: How Nature-based Solutions can power a green jobs recovery. [wcms\\_757823.pdf \(ilo.org\)](https://www.wwf.org.uk/what-we-do/our-programmes/nature-based-solutions/nature-hires)