International Institute
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# Potential priority issues for REDAA in sub-Saharan Africa

**A rapid literature review to inform the research-to-action programme Reversing Environmental Degradation in Africa and Asia (REDAA)**

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**Francesca Booker, Janine Duffy and Xiaoting Hou-Jones**

**International Institute for Environment and Development**

**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 International Institute for Environment and Development (IIED). Summaries of all the scoping papers can be found at 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.

For more information about this report, contact:
enquiries@redaa.org

**About the authors**

Francesca Booker, Researcher, IIED

Janine Duffy, Researcher, IIED

Xiaoting Hou Jones, Senior Researcher, IIED

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# List of abbreviations

| | |
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| AFR100 | African Forest Landscape Restoration Initiative |
| ALN | African Landcare Network |
| AREECA | Alliance for Restoration of Forest Landscapes and Ecosystems on Africa Large-scale Forest Landscape Restoration |
| CAR | Central African Republic |
| CAFI | Central African Forest Initiative |
| CBNRM | Community Based Natural Resource Management |
| CBD | The Convention on Biological Diversity |
| DRC | Democratic Republic of the Congo |
| FAO | Food and Agriculture Organization of the United Nations |
| FCDO | The Foreign, Commonwealth and Development Office of the United Kingdom |
| FLR | Forest and Landscape Restoration |
| FMNR | Farmer Manager Natural Regeneration |
| FRA | Global Forest Resources Assessment |
| ICLEI | Local Governments for Sustainability (formerly known as International Council for Local Environment Initiatives) |
| IIED | International Institute for Environment and Development |
| ILI | Integrated Landscape Initiatives |
| IPBES | Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services |
| IPCC | Intergovernmental Panel on Climate Change |
| IP | Indigenous Peoples |
| IUCN | International Union for the Conservation of Nature |
| JRC | European Commission's Joint Research Centre |
| LC | Local Communities |
| Mha | Million hectares |
| RED | Research and Evidence Division |
| REDAA | Reversing Environmental Degradation in Africa and Asia |
| REDD+ | Reducing Emissions from Deforestation and Forest Degradation |
| ROAM | Restoration Opportunities Assessment Methodology |
| RUE | Rain use efficiency |
| SAIIA | South African Institute of International Affairs |
| SSA | Sub-Saharan Africa |
| UNEP | United Nations Environment Programme |

UNEP-WCMC   United Nations Environment Programme World Conservation Monitoring Centre

UNU-INRA    United Nations University Institute for Natural Resources in Africa

# Executive summary

This report details a rapid literature review for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme, focusing on sub-Saharan Africa (SSA).

IIED led this rapid literature review to identify evidence published on SSA that details:

1.  'hotspots' – places where landscape, biodiversity or ecosystem degradation are occurring, show potential for restoration, or are areas that have been mapped for providing important contributions to people through ecosystems goods and services; and

2.  research-to-action priorities[1] to tackle degradation and/or encourage restoration in the region related to improving evidence, tools and governance processes and systems.

The report concentrates on analysis at a regional level (across SSA) and complements ongoing scoping efforts in the four sub-regions (West, Central, Eastern and Southern Africa) to review literature (at sub-regional, national and sub-national scales) and consult experts. Additional consultations for co-design of the SSA REDAA programme will follow these studies.

In total the IIED team identifies 61 relevant regionally-focused publications through searches on Google Scholar and Scopus. We supplement this with literature from existing IIED work, as well as targeted searches to fill gaps, for example on intersectionality. We only include research-to-action priorities in this review where they meet REDAA's eight criteria for potential investment – scale appropriate, timeframe fitting, value for money, site specific impact, cross-cutting impact, locally led, intersectional, and cross-disciplinary and multi-stakeholder (see section 1). Additionally, IIED facilitated a review workshop with those experts leading sub-regional scoping exercises to identify where the proposed research-to-action priorities in this report need further refinement and to help identify any gaps (see Annex 3 for workshop notes). We have added reflections from this workshop into this review paper, noting where additions or edits were suggested by these regional experts.

**Section 2** summarises our findings on regional hotspots. We find seven papers at the global or regional level that locate areas across SSA where biodiversity is under threat and one paper that discusses potential restoration priority areas considering potential gains for biodiversity. Four areas are mapped consistently across the papers suggesting hotspots as the coastal forests of Eastern Africa (particularly the Kenya/Tanzania border), the Eastern Afromontane (the Ethiopian Highlands and Albertine rift), the Guinean Forests of West Africa, and Madagascar and the Indian Ocean Islands (especially the eastern coast of Madagascar).

We review four papers and two online tools that detail SSA-wide deforestation trends (historical, future and restoration potential) mapping key hotspots as the coastal forests of Eastern Africa, the Congo Basin, the Guinean Forests of West Africa and Madagascar and the Indian Ocean Islands. We further incorporate two papers on desertification that use a multi-criteria approach to their analysis, though both papers are from more than ten years ago (yet they are similarly cited in other contemporary publications such as IPBES 2018b, suggesting a key evidence gap). Key areas that emerge as desertification hotspots are the Horn of Africa, the Sahel and Southwest Africa. Additionally, we look at two regional studies that map nature's contributions to people, both of which highlight the Congo Basin as a key hotspot – particularly for its role as a carbon sink.

Across these 18 sources, 11 key areas emerge as possible regional hotspots as illustrated in table 1 (see table 10 for an extended version in section 2.3). Areas identified by multiple analyses face various threats indicating that there is potential to address interlinked degradation and restoration issues at these locations. The areas we identify to be frequently recognised as hotspots are the Congo Basin, the Coastal Forests of Eastern Africa, the Eastern Afromontane, the Guinean Forests of West Africa and Madagascar and the Indian Ocean Islands (see section 2 for more detail).

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[1] 'Research-to-action' for REDAA, in its draft strategy, means locally led: research that is interdisciplinary, gap-filling, patient and producing accessible and actionable evidence; communications that are engaging stakeholders, and building trust, knowledge and capacity to use evidence; and action that is influencing better decisions and evidence-based actions by government, business and civil society stakeholders.

However, it's important to underline that overall, there is limited spatially-explicit research to draw from to identify hotspots – especially on ecosystems other than forests (and even then, for forests there is not much detailed analysis available regionally). Additionally, many of these global and regional analyses draw from biophysical data only, overlooking key social, political, and economic datasets which could further refine analyses and thus hotspot identification. They also risk perpetuating myths and misconceptions about degradation or restoration potential by not understanding national and local perspectives (see discussion in section 3.4 on intersectional inequities and power imbalances).

Table 1: Areas within SSA we identify as hotspots according to multiple criteria (includes biodiversity, deforestation, desertification, and restoration potential, as well as mapping of nature's contributions to people) are denoted by 'Y' for Yes. Note, blank cells do not necessarily indicate an absence of threat within those areas, but could be the result of a lack of data and/or information.

| Area | Biodiversity | Deforestation | Desertification | Nature's contributions |
|---|---|---|---|---|
| Guinean Forests of West Africa | Y | Y | Y | Y |
| Madagascar and the Indian Ocean Islands | Y | Y | Y | Y |
| Eastern Afromontane | Y | | Y | Y |
| Congo Basin | Y | Y | | Y |
| Coastal Forests of Eastern Africa | Y | Y | | Y |
| Horn of Africa | Y | | Y | |
| Maputaland-Pondoland-Alany | Y | | | |
| Cape Floristic Region | Y | | | |
| Sahel region | | | Y | |
| Southwest Africa | | | Y | |
| Succulent Karoo | Y | | | |

Altogether, we identify seven potential research-to-action priorities for REDAA in SSA, two relate to improving evidence, two to tools and three to governance processes and systems. See section 3 for more detail on the priorities, summarised below. Annex B lists an additional seven priorities from one single source of literature and with limited further contextual detail.

a) **Strengthen national and/or regional information systems and/or support locally led evidence generation (eg through citizen science). This is to respond to data and information gaps, which affect our understanding of degradation status and restoration potential, and the ability to make informed decisions locally and nationally.**

Key data gaps include, for example, relevant data and information on soil (for example status, vulnerability and potential for restoration) affecting SSA governments' abilities to make robust and

effective decisions to tackle environmental degradation (AfDB and WWF 2015). To address this, REDAA can support or strengthen national and regional systems on land and ecosystem restoration to enhance data management and sharing (CBD 2018). For example, developing frameworks to map degradation and restoration (CBD 2018, Gnacadja and Wiese 2016) – going beyond forest restoration.

In addition, REDAA should encourage efforts to fill data gaps related to integrating indigenous and traditional local knowledge and perspectives (CBD 2018) with 'scientific' information, so they are on an 'equal footing' (African Landscapes Dialogue, 2020, IPBES 2018b). REDAA could also support locally led, participatory research and monitoring activities by investing in citizen science programmes (African Landscapes Dialogue 2020, Ajjugo et al. 2020, Brito et al. 2021, IPBES 2018b, Mansourian and Berrahmoun 2021, Stephenson et al. 2017, Stringer and Dougill 2013). Participatory monitoring has been shown to ensure similarities between national and policy responses and local land users' concerns (Stringer and Dougill 2013).

b) **Support interdisciplinary and cross-border collaboration to strengthen understanding of nature's contributions to people and effective approaches to reverse degradation.**

The IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) Africa regional assessment of biodiversity and ecosystem services considers interdisciplinary collaboration as relatively scarce in the region and undertaken mainly as part of regional state of the environment reports and atlases (IPBES 2018b). A ten-point action plan for land restoration recommends investing in interdisciplinary research at various scales and levels to identify practical restoration action. For example, by incorporating collaboration across a range of disciplines, such as agriculture, anthropology, business management, forestry, indigenous and biocultural studies, and others (Abhilash 2021).

An opinion piece summarising key considerations for Africa in the UN's Decade on Ecosystem Restoration (2021-2030) recommends that at a regional level more could be done to encourage cross-border collaboration, including exchanges of expertise and evidence (Nsikani et al. 2022). Such collaboration processes also need to ensure co-production of knowledge between practice, policy, science and indigenous and traditional/local knowledge systems.

REDAA can support such interdisciplinary and cross-border research to address two key evidence gaps: 1) better understanding regionally of nature's contributions to people, especially long-term contributions to people's wellbeing (eg poverty alleviation, food security); and 2) strengthened interrogation of the effectiveness of landscape governance approaches to reversing degradation and contributing to restoration. While there are reported successes from landscape scale interventions (eg bringing stakeholders together (Minang et al. 2014)) there is very little evidence (in particular quantitative) on the concrete outcomes for nature and people.

c) **Develop relevant decision-support tools such as scenarios and spatial analyses that incorporate regional biophysical, social, political and economic data and information, and couple them with participatory approaches to improve their use and relevance.**

The IPBES Africa regional assessment recommends that a key priority for improving environment-related decision making is tackling the limited use of scenarios in policymaking across the continent. During a survey of studies and reports between 2005-2016, the IPBES Africa regional assessment found gaps in research design and application of scenarios that prevent them from being a useful decision-support tool in the region. This includes a lack of storylines specific to the region, limited attention to the direct links between biodiversity function, ecosystem services and human wellbeing, limited use of participatory approaches and very limited attention to gender. Our literature review found there are very few regional SSA analyses related to environmental degradation and restoration.

REDAA could improve the use of scenario research in policymaking with the development of nexus based[2] tools (von Maltitz 2020), to help policymakers understand the consequences of inaction on

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[2] Nexus based tools provide a web-based platform that incorporates multiple environmental models to allow for inter-model comparison of statistical results. An example includes an effort by Mannschatz and Hülsmann (2016) to create a water-soil-waste

environmental degradation and to identify regionally or nationally appropriate pathways to reverse degradation and support restoration. A further suggestion for REDAA is to couple scenario building exercises in the region with spatial analyses to aid policymakers in their land use planning processes, for example to identify priority restoration areas. Such scenario and spatial analysis should consider not only ecological factors and impacts, but also social, political and economic factors and impacts. However, any investment in tools should be coupled with significant attention to improving access to these tools and the ability to use them.

d) **Prioritise scaling locally led tools and approaches (especially those that build on indigenous and local knowledge) that have the potential for achieving positive outcomes for people and nature, working with Indigenous Peoples and local communities (IPs and LCs) as key partners in this process.**

Despite the involvement of IPs and LCs often being cited as a key factor for improving the effectiveness of restoration activities, evidence from the region suggests indigenous, traditional or local knowledge is often not sufficiently integrated into restoration activities and policies. REDAA should improve understanding of the conditions under which locally led tools and approaches — that are achieving positive outcomes for people and nature (especially those that build on indigenous and local knowledge) — can be used more extensively across ecosystems (IPBES 2018a). A comprehensive analysis of existing locally led tools and approaches in SSA that respond to land degradation and/or promote restoration, was beyond scope of (and time available for) this review. However, one example from the region includes Farmer Managed Natural Regeneration (FMNR) for Land Restoration. REDAA should support initiatives that work in close collaboration with IPs and LCs to unpack these approaches and what they look like in different contexts, interrogating how such initiatives might be adapted to other contexts, and exploring the possible costs and benefits of application elsewhere in the region (CBD 2018, Chomba et al. 2020, Djenontin et al. 2018).

e) **Develop existing and new approaches to cross-sectoral and cross-government decision making and implementation that identify the potential for synergy and challenge vested interests.**

Evidence from the region suggests that a key issue undermining progress on tackling degradation and encouraging restoration is a lack of connectivity between sectors, actors and different scales of governance (McLain et al. 2021). REDAA could address this gap by strengthening existing and developing new approaches to cross-sectoral and cross-government (local, provincial, national) planning and policy implementation related to land and ecosystem degradation and restoration (African Landscapes Dialogue 2020, AfDB and GGGI 2022, CBD 2018, Cordingley et al. 2015, UNECA 2015). This effort should be about improving synergies between sectors and levels of governance in policy and its implementation (CBD 2018, UNEP 2016), as well as identifying and influencing behaviour change among key actors, many of whom have vested interests in maintaining the status quo (Cordingley et al 2015).

Various case studies across SSA include recommendations to: 1) introduce new approaches and tools to existing planning, budgeting and institutional coordination mechanisms: and 2) encourage political leadership and will to break down silos and 'wire' institutions together (ibid). Many landscapes across SSA straddle international borders. As such, in some regions strengthening multi-functional landscape governance requires looking beyond a country's borders to understand where policy and landscape activities are positively or negatively affecting neighbouring countries (Ekins et al. 2019). More interdisciplinary, cross-border and multi-stakeholder partnership to co-produce research and improve research uptake, as suggested under priorities b and f, will also help improve cross-sectoral and cross-government policymaking.

f) **Advance approaches for multi-stakeholder dialogues that create a safe space for debate, critique and negotiation of specific outcomes, for tackling degradation and encouraging restoration among a variety of actors.**

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nexus platform which comprises 72 models to a) show the range of models, processes and application purposes and b) enable comprehensive model comparisons.

This priority to establish or improve existing mechanisms for multi-stakeholder dialogue and consensus-building, featured prominently across the literature (African Landscapes Dialogue 2020, Abhilash 2021, Ajjugo et al. 2020, CBD 2018, Dewees et al. 2011, FAO 2021, Franks 2019, Mansourian and Berrahmoun 2021, Nsikani et al. 2022, Neely et al. 2014, Okello et al. 2021, UNEP 2019, von Maltitz 2020). It and is interlinked with other proposed evidence and governance priorities, such as on cross-sectoral and cross-government (local, provincial, national) decision making (priority e), interdisciplinary and cross border partnerships (priority b) and improving data availability and access (priority a). A key feature of such platforms is that they can provide a space for critically assessing policy responses (including any negative impacts) and explicitly discussing similarities and trade-offs between policy objectives, as well as improving capacities (of those in the dialogue) to navigate complexity and collaborate, reflect and learn (Okello et al. 2021). However, an important criticism of existing dialogue forums in SSA is that while they are valuable for engaging multiple perspectives and expertise in policy, they often do not create space for debate on contentious issues (von Maltitz 2020).

REDAA could address this by advancing methodologies and approaches to effectively engage actors in multi-stakeholder negotiation – especially including those who have a strong interest in the outcomes, but little influence over decision making (Franks 2019). Specific strategies suggested in the literature include: 1) linking local level actor platforms of research, learning and experience with national frameworks and spaces for dialogue (African Landscapes Dialogue 2020, Ajjugo et al. 2020), and; 2) support developing a Pan-African platform that brings together landscape-level networks on different ecosystems and natural resource and land uses to synchronise views, knowledge systems and institutions and share learning on successful landscape approaches (Neely et al. 2014).

**g) Organise and mobilise diverse local voices that can share perspectives on key issues (such as securing tenure and resource rights) that prevent progress and genuine devolution of authority to the local level.**

There is a rich history of decentralisation and devolution of authority and control over natural resources in SSA, such as forests (eg participatory forest management) and wildlife (eg community-based natural resource management) (Nelson 2011). However, there have been varying degrees of success, and often a lack of clarity on rights (including collective rights) and entitlements constrain devolution (Barrow et al. 2016). In addition to capturing evidence and learning to scale locally led tools and approaches, as suggested in priority d, REDAA can support approaches that promote IP and LC leadership and represent genuine devolution through helping to organise and mobilise local voices and increase pressure on policies that are barriers to systemic change and prevent progress – such as secure tenure and resource rights. REDAA efforts to build impetus for devolution to the local level should create a demand-driven, decentralised model of reform by building the capacity of local actors (including communities and civil society) to organise and mobilise and raise their voices (Roe, Nelson and Sandbrook 2009, Cooney et al. 2018 drawing on insights from Nelson 2010).

In addition to the seven research-to-action priorities, in subsection 3.4 we describe five cross-cutting themes that: a) intersect with land and ecosystem degradation and restoration; and b) are pertinent to the proposed priorities a – g, as well as the general areas of REDAA investment; evidence, tools and governance systems and processes. These are five thematic issues that either stood out during the rapid literature review (ie they are spoken about across multiple sources) or were highlighted by regional experts in the REDAA review workshop. Our suggestion is that REDAA grant making in SSA considers how proposals not just respond to regional research-to-action priorities (such as a-g), but also how well they integrate with these cross-cutting thematic issues.

i) Biodiversity mainstreaming

Nine studies or reports that we review suggest that a priority for countries in SSA is progressing biodiversity mainstreaming into countries' development planning (African Landscapes Dialogue 2020, CBD 2018, IPBES 2018b, King 2020, OECD 2012, Nhamo 2013, Sintayehu et al. 2018, UNEP 2015, UNEP WCMC 2016). When referring to biodiversity mainstreaming, typically authors suggested the need for mainstreaming national capital accounting into national budgets across SSA. It's not clear from the literature whether this priority is an issue related to limited access, availability or use of evidence, a lack of appropriate tools, or a product of governance challenges. However, we

suggest that biodiversity mainstreaming is a cross-cutting theme because it is likely elements of each of these areas inhibit progress. Experience in Uganda, for example, illustrates that progress requires attention to all three areas with priorities emerging from their experience, including the need for: generating better data and filling data gaps (including big data); developing tools to enable policy analysis and modelling using their natural capital accounts; and developing organisational roles and collaboration to interpret, communicate and use natural capital accounts (World Bank 2020).

ii) Climate change

Climate change was discussed as a potential cross-cutting theme in the REDAA review workshop. Experts from the region in particular, highlight that research-to-action strategies need to address the ways in which complex drivers, stressors and impacts of climate change and degradation interact to accelerate and magnify risks to people's wellbeing. Literature also highlights that responses to tackle degradation or to encourage restoration — such as through the sustainable use of biodiversity, land and watershed restoration and well-planned reforestation — could have key benefits for building peoples' and ecosystems' resilience to climate change in SSA (Niang et al. 2014, Trisos et al. 2022). Interestingly, literature on climate change in the region highlights very similar priorities for research-to-action as those proposed in a-g, including, transdisciplinary collaboration, multi-stakeholder partnerships, African-based leadership, locally led approaches and cross-sectoral coordination (The African Academy of Sciences et al. 2021, Trisos et al. 2022).

iii) Urban-rural linkages

This cross-cutting theme also emerged from discussions with regional experts during a REDAA review workshop. Urban-rural linkages describe "the reciprocal and repetitive flow of people, goods and financial and environmental services… between specific rural, peri-urban and urban locations" (UN Habitat 2019). This thematic area aims to explicitly recognise that urban-rural linkages do not necessarily support ecosystems and land, but rather often contribute to their degradation (Forster et al. 2021). For example, urban demand for charcoal in Kinshasa (Democratic Republic of Congo) affects forests up to 300km away from the city (Mayaux et al. 2013 in ibid). UN Habitat (2019) suggests ten guiding principles and a framework for action on urban-rural linkages that corroborate the priorities identified in this review, such as locally grounded interventions, integrated governance, balanced partnership, participatory engagement and data driven and evidence-based action. A clear emphasis of the principles and framework is including relevant actors (including at risk communities) across the rural-urban continuum.

iv) Tenure and resource rights (in)security

Tenure and resource rights (in)security emerges from the literature as an important cross-cutting theme, especially as systems of clear and secure rights are seen as underpinning Forest and Landscape Restoration (FLR) and Sustainable Land Management (SLM) success (Chigbu, Mabakeng and Chilombo 2021, Djenontin et al. 2018). Challenges that lead to degradation or impede restoration related to tenure and rights include overlapping legal frameworks, legal pluralism, large scale acquisitions, weak institutional frameworks, gender inequality, tenure insecurity, land and natural resource conflicts, lack of participation, evictions, weak conflict resolution mechanism and corruption (Chigbu, Mabakeng and Chilombo 2021). Proposed research-to-action strategies for REDAA to consider when operationalising priorities a-g include: learning on best practice related to tenure and rights arrangements and processes to advise on appropriate legislative and administrative reforms (evidence) (UNEP 2016): diagnosing the impacts of current arrangements related to tenure and/or rights (in)security on land degradation and restoration (Chigbu, Mabakeng and Chilombo 2021) (tools); and advancing experience on building accountability mechanisms, such as dispute resolution approaches that respond to land and natural resource conflict and provide restitution for damages (governance) (African Landscapes Dialogue 2020, Knapman et al. 2017).

v) Intersectional inequities and power imbalances

A key underlying theme in the literature review is recognising and challenging power imbalances and inequities across societies in SSA. Yet, it found limited attention to intersectional approaches in the design and analysis of research evidence, as well as the discussion of potential actions or recommendations to tackle degradation and encourage restoration. This emphasises the relevance

to the SSA region of Elmhirst's (2022) scoping paper recommendations to REDAA, and for REDAA-supported research-to-action across evidence, tools and governance (and priorities a – g) to embrace an intersectional approach.

Additionally, REDAA should recognise that power dynamics are prevalent in the way degradation and restoration narratives are framed (and mapped) across the region. For example, degradation myths of cracked soil (eg in the Sahel) and fence line contrast (eg South Africa) highlight that narratives are deeply political and cultural, not scientific fact. All this matters for the types of research-to-action solutions proposed to REDAA – technical and global North framing of degradation narratives can problematise local communities (Benjaminsen 2021), and exacerbate pre-existing inequities (Turner et al 2021). This prevalence of technical solutions can be seen in existing initiatives in the region such as the Great Green Wall and African Forest Landscape Restoration Initiative (also known as AFR100).

We identify a few papers discussing degradation and restoration in SSA that focus specifically on aspects of people's identities and social categories that that can create vulnerabilities – namely gender and age (specifically young people). Common barriers to women's and young people's engagement in efforts to tackle degradation or promote restoration are, for example, financial exclusion, a lack of rights (particularly tenure) and limited information sharing (Aguilar 2022, Kemeh and Kabalan 2021, Lewis 2022, Namubiru-Mwaura 2021, Regreening Africa 2022). Examples of specific research-to-action strategies cited in the literature include actions relevant to priorities d and g, such as, creating equal access to use and control over resources and benefits from restoration, and building capacities, partnerships and women or youth-led initiatives and networks (ibid).

**Section 4** considers the seven proposed priorities (a-g) and the extent to which nine ongoing regional initiatives are already addressing them. This includes the following key initiatives: African Forest Landscape Restoration Initiative, African Landcare Network, TerrAfrica, Great Green Wall Initiative, Alliance for Restoration of Forest Landscapes and Ecosystems on Africa Large-scale Forest Landscape Restoration, Central African Forest Initiative, Forests4Future, Habitat Restoration Initiative of Eastern Africa, Regreening Africa, and Restore Africa. Five existing regional initiatives are seeking to strengthen multi-stakeholder dialogue — such as with the private sector — and show *some* similarity with priority f. Yet, overall, there's limited crossover with the seven proposed SSA REDAA priorities – priorities a 'on addressing data and information gaps', c on 'decision support tools', and g 'on organising and mobilising local voices' do not appear to be well covered by these nine initiatives. However, this is based on a quick review of websites and published documents, which may have changed as initiatives have evolved.

Finally, in **section 5** we map the seven potential research-to-action priorities (a-g) against the eight REDAA criteria to identify where the priorities meet the criteria, and where they may fall short. Overall, there are few criteria that we assess as 'not well met'. See table 2 for a summary (two more detailed tables with clear justifications are available in section 5). However, we do consistently assess two criteria as 'not well met'; whether the priority is 'scale-appropriate' and 'timeframe-fitting'.

On scale, we observe that all seven potential REDAA research-to-action priorities are ambitious and will likely require a grant of between GBP200,000 and GBP1.5 million over four years, rather than a grant of between about GBP50,000 and GBP100,000 over 6 to 24 months. On timeframe, we assess that typically priorities will need to build on existing initiatives and efforts to make progress within a four year timeline. This may not be possible in some sub-regions and countries where there has been limited attention/support from international, regional and national initiatives, and this will additionally affect whether grant making on these priorities can fulfil the other REDAA criteria.

On timeframe, it is important to emphasise that to meet other related REDAA criteria – such as locally led, intersectional, cross-disciplinary and multi-stakeholder – grant making should embrace flexibility, be patient and give prominence to the goals of local resource managers (Holland 2022, Roe, Nelson and Sandbrook 2009). Moreover, REDAA-supported projects may need to build in time for dialogue between actors about the problem and how it is framed, or for building the capacity of cross-disciplinary, cross-border and/or multi-stakeholder projects to perform (eg through Transformation Labs and/or 'forming, storming, norming and performing a project process', see REDDA scoping paper by Scoones 2022).

Table 2: The potential research-to-action priorities (a-g) for SSA mapped against the eight REDAA criteria for investment. Cells with a 'Y' for Yes indicate where a criteria can be well met by REDAA support for the priority. Blank cells indicate where a criteria may not be well met by REDAA support for the priority, and so careful attention is needed to address this in REDAA planning for grant making in the SSA region. See section 5 for two detailed tables.

| | a) Data and information gaps | b) Interdisciplinary and cross-border | c) Decision support tools | d) Locally led tools and approaches | e) Cross-sectoral and cross-government | f) Multi-stakeholder dialogues | g) Organise and mobilise local voice |
|---|---|---|---|---|---|---|---|
| 1. Site-specific impact | | | Y | Y | | | Y |
| 2. Cross-cutting impact | Y | Y | Y | Y | Y | Y | Y |
| 3. Locally led | | Y | | Y | Y | Y | Y |
| 4. Intersectional | Y | Y | Y | Y | | Y | Y |
| 5. Cross-disciplinary and multi-stakeholder | Y | Y | Y | Y | Y | Y | Y |
| 6. Scale-appropriate | | | | | | | |
| 7. Timeframe-fitting | | | | | | | |
| 8. Value for money | Y | Y | | Y | Y | | Y |

# 1. Introduction

## 1.1 Background and objectives

This report compiles findings from a rapid review of literature relevant to the identification of 'research-to-action' priorities[3] for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme specifically for sub-Saharan Africa (SSA).

Our report complements REDAA scoping studies in each of four sub-regions; West, Central, Eastern and Southern Africa, carried out by the United Nations University Institute for Natural Resources in Africa (UNU-INRA) for West and Central Africa, and ICLEI (Local Governments for Sustainability) for Eastern and Southern Africa. Consultations in SSA for co-design of the REDAA programme will follow these studies. Our report focuses on only regional literature while the sub-regional studies will focus on sub-regional and country level literature and engage key stakeholders in those sub-regions to help identify potential REDAA priorities. The sub-regional study leads also reviewed and provided inputs to this report through a virtual workshop and will use this report as a reference when developing their studies.

## 1.2 Methodology

The IIED team conducted rapid literature searches to identify publications that: 1) offer analysis across the SSA region on 'hotspots' – places where landscape, biodiversity or ecosystem degradation are occurring, show potential for restoration, or are areas that provide significant contributions through ecosystems goods and services to people; and 2) discuss research-to-action priorities to tackle degradation and/or encourage restoration in the region.

Searches for academic and grey literature were undertaken using Google Scholar. This was complemented by a search using the bibliographic database Scopus. The scope of the search was restricted to publications from 2010 onwards, and only to regional analyses – ie sub-regional and country level analyses were not included (as these will be included in sub-regional scoping studies). Table 3. summarises the search terms used. The difference in search strings reflect the search functions of the two platforms, with Scopus allowing for a more sophisticated search string using Boolean operators and inclusion/exclusion based on the publication year.

Table 3. Search strings for SSA literature scoping

| Google Scholar | 'Africa* priorities' or 'Africa* key considerations', AND 'environment degradation' or 'restoration' or 'biodiversity loss' or 'environmental governance' or 'natural resource management' |
| --- | --- |
| Scopus | (TITLE-ABS-KEY("sub saharan africa") AND TITLE-ABS-KEY("environmental degrad*") OR TITLE-ABS-KEY("biodiversity loss") OR TITLE-ABS-KEY("land degradation") OR TITLE-ABS-KEY(deforestation) OR TITLE-ABS-KEY(desertification) AND TITLE-ABS-KEY(action) OR TITLE-ABS-KEY(governance) OR TITLE-ABS-KEY(tool) OR TITLE-ABS-KEY(management) OR TITLE-ABS-KEY(evidence) OR TITLE-ABS-KEY(research) OR TITLE-ABS-KEY(recommend*) OR TITLE-ABS-KEY(restor*) OR TITLE-ABS-KEY(option*) OR TITLE-ABS-KEY(solution) OR TITLE-ABS-KEY("way forward") OR TITLE-ABS-KEY(strateg*) OR TITLE-ABS-KEY(challenge) OR TITLE-ABS-KEY(policy) OR TITLE-ABS-KEY(practice) OR TITLE-ABS-KEY(solution) ) AND PUBYEAR > 2011 AND PUBYEAR > 2011 AND PUBYEAR < 2024 |

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[3] 'Research-to-action' for REDAA, in its draft strategy, means locally led research that is interdisciplinary, gap-filling, patient and producing accessible and actionable evidence; communications that are engaging stakeholders, and building trust, knowledge and capacity to use evidence; and action that is influencing better decisions and evidence-based actions by government, business and civil society stakeholders.

| Note | TITLE-ABS-KEY refers to this search terms being applied to a paper's title, abstract and key words. |
|---|---|
| | * allows the key term to be searched with different endings - eg recommend*, recommends, recommending, recommendations |
| | "" or '' allows for phrases to be searched – eg "biodiversity loss" rather than biodiversity AND loss |

The searches resulted in a list of 61 academic and grey literature reports as relevant to land or ecosystem degradation in SSA. Where hotspots and research-to-action priorities were identified, these were noted and categorised using an Excel Spreadsheet based on the key questions being used in other scoping studies to identify research-to-action priorities for REDAA. The key questions are:

1. Hotspots

    a) Where are the environmental degradation hotspots where environmental degradation really matters for nature, people, climate? How were they identified?

2. Evidence

    b) What are the key evidence gaps that need to be addressed to tackle environmental degradation in the region?

    c) How can the use of evidence be improved to spur actions to better tackle environmental degradation in the region?

3. Tools

    d) What are the proven effective tools or approaches that can help reverse environmental degradation in the region and what are the opportunities and challenges in making them more widely used?

    e) What tools or approaches need to be developed to address specific issues and challenges, especially those faced by Indigenous Peoples (IPs), local communities (LCs) and marginalised groups?

4. Governance

    f) 'Who gets to decide what, and how do they do it' to reverse environmental degradation in the region - what are the key issues that need to be addressed related to governance?

    g) What are the opportunities to address these issues in decision-making processes?

The IIED team focused its rapid analysis on priorities that met the eight criteria for potential REDAA investment, which are:

1. Scale-appropriate. The issue can be usefully addressed with the scale of support that may be possible from the REDAA programme, eg, a grant of about GBP50,000 to GBP100,000 over six to 24 months, or a grant of between about GBP200,000 and GBP1.5 million over four years.

2. Timeframe-fitting. The issue can be completely addressed within six months to four years, or a significant contribution to addressing the issue can be made and verified within six months to four years.

3. Value for money. The way in which the issue is addressed will provide good returns on investment, benefits to costs and value for money.

4. Site-specific impact. If the issue was addressed it would have major impact in a specific place.

5. Cross-cutting impact. If the issue was addressed it would have major impact on systems or processes that affect many places.

6. Locally led. The issue is best addressed by locally led action, especially action led by local communities and Indigenous Peoples.

7.  <u>Intersectional.</u> The issue is best addressed through intersectional understanding and empowerment of vulnerable groups, including Indigenous Peoples, women, youth, migrant workers, landless labourers, and displaced peoples.

8.  <u>Cross-disciplinary and multi-stakeholder.</u> The issue is best addressed by fostering multi-stakeholder and cross/trans-disciplinary collaborations

We complemented the search results (ie 61 papers) with literature from existing IIED work and targeted searches (at the authors' discretion) to provide concrete examples to help the reader's understanding, and to address gaps specifically on intersectionality. The IIED team also facilitated a workshop of the proposed research-to-action priorities from this rapid literature review with those experts leading sub-regional scoping reviews and consultations (ie UNU-INR and ICLEI). This review workshop was held in March 2022 and focused on refining the priorities and identifying gaps. Notes from the workshop can be found in Annex 3. We have added reflections from this workshop into this review paper, noting where additions or edits were suggested by these regional experts.

## 1.3 Limitations

One limitation of our search strategy is the assumption that the literature will use descriptors such as 'degradation' and 'reforestation' in their title, abstract or keywords. There is a large body of literature, for example, on locally led approaches (eg community based natural resource management, community forestry), that will not necessarily use these descriptors. However, this body of literature is vast, and it will not necessarily identify priorities for future action, especially where academically published (where the emphasis is often on analysis and research results). The sub-regional studies led by regionally-based organisations and involving stakeholder consultations are likely to be better suited to fill those gaps on specific locally led approaches to tackling degradation and/or encouraging restoration.

A challenge for identifying regional hotspots (for example of biodiversity, degradation, restoration potential or significant contributions to people) is that analyses predominantly have been undertaken at the global rather than regional level. Often global analyses do not identify/name regional hotspots that they map or provide further geographical details. In section 2, we highlight hotspots that are clearly identifiable from global and regional maps. We may, however, miss smaller regions that have regional, sub-regional or national significance. Though as noted above, the sub-regional studies have a key role in identifying these landscapes.

Finally, research-to-action priorities identified in the literature often did not contain detail on why these specific priorities are relevant to the SSA context, or how to implement those priorities in SSA. As a result, it is difficult to gather information against all eight criteria to screen priorities for REDAA, especially for criteria 1-3. We expect this detail will also be missing from sub-regional and national level literature, and it will be important to address this through consultations with stakeholders in the sub-regions.

## 1.4 Report structure

**Section 2** of the report brings together the review's key findings on hotspots identified across SSA. Findings are split into two sub-sections, the first focuses on hotspots of biodiversity, degradation and restoration potential in SSA, the second on nature's contributions to people. At the end of this section, the data is collated to provide an overview of all hotspots identified across SSA.

**Section 3** of the report presents seven research-to-action priorities relevant to SSA and identified as having potential for REDAA investment (ie they meet eight REDAA criteria). Priorities are structured according to whether they related to evidence, tools or governance systems and processes. This section also discusses five cross-cutting themes that: a) intersect with land and ecosystem degradation and restoration; and, b) are pertinent to the proposed priorities a – g as well as the general areas of REDAA investment; evidence, tools and governance systems and processes.

**Section 4** of the report considers the seven proposed research-to-action priorities for SSA and the extent to which nine ongoing regional initiatives are already addressing them.

**Section 5** finalises the report with a summary table of the proposed research-to-action priorities for SSA mapped against the eight REDAA criteria for investment to identify where the priorities meet the criteria, and where they may fall short.

# 2. SSA Hotspots

This section brings together the literature on SSA hotspots identified in this review. The term 'hotspots' is used to refer to places where landscape, biodiversity or ecosystem degradation are occurring, that show potential for restoration, or are areas that provide significant contributions through ecosystems goods and services to people.

Note that the academic and grey literature sourced use different definitions and criteria to identify these hotspots. Some, for example, have a specific ecosystem emphasis, like forests, while others focus on richness of endemic species and future threats. Within the literature, there is a focus on biophysical and other environmental criteria, while mapping that analyses social and economic criteria is limited.

Summary tables provided within the sub-sections reflect the findings from this rapid literature review and should not be treated as a comprehensive summary of all available data (particularly for data published before 2010). Blank cells do not necessarily indicate an absence of threat within those hotspot areas, but rather they could be the result of a lack of data and information.

## 2.1 Hotspots of biodiversity, degradation, and restoration potential in SSA

### 2.1.1 Biodiversity hotspots

Africa's rich and diverse ecosystems create a unique set of natural assets. Not only does the continent contain some of the most important global ecoregions, but it is also home to three of the world's most biologically diverse countries: Madagascar, South Africa and the Democratic Republic of Congo (DRC) (UNEP 2013). It is also the last remaining region with a significant number of large mammals (IPBES 2018b). Despite the region's ecological significance, much of Africa's biodiversity is threatened.

Our rapid review identifies eight global and regional studies that locate areas across SSA where biodiversity is under threat, these are explored below.

**SSA biodiversity hotspots with global significance**

Initially introduced by Myers et al. (2000), the concept of 'biodiversity hotspots' refers to terrestrial regions that are both endemically rich (they contain at least 1,500 endemic vascular plants) and are highly threatened (they have lost more than 70% of their original natural vegetation). While intact habitats within these hotspots only constitute 2.5% of the earth's total land surface, they support more than 50% of the world's endemic plant species and 43% of endemic species of birds, mammals, reptiles and amphibians (Conservation International, 2023). Initially a list of just 25, this has expanded to include 36 hotspots (referred to as 'global biodiversity hotspots' in this paper), eight of which can be found in SSA (Conservation International 2023) (see figure 1).

These include:

1.  the Cape Floristic Region in South Africa

2.  the Eastern Afromontane, which encompasses several widely scattered — but biogeographically similar — mountain ranges in eastern Africa

3.  the Coastal Forests of Eastern Africa, including parts of Somalia, Kenya, Tanzania, Mozambique and all islands lying immediately offshore

4.  the Guinean Forests of West Africa, including the lowland forests of West Africa, from Guinea to the Sanaga River in Cameroon

5.  Madagascar and the Indian Ocean Islands

6.  the Maputaland-Pondoland-Alany, located along the east coast of Southern Africa below the Great Escarpment

7.  the Horn of Africa, which is centred on the arid Horn, east of the Ethiopian Highlands, and includes the Rift Valley, the Socotra Archipelago and a few hundred tiny islands in the Red Sea, and

8.  the Succulent Karoo, which runs along the Atlantic coast of Africa, from southwestern South Africa into southern Namibia.
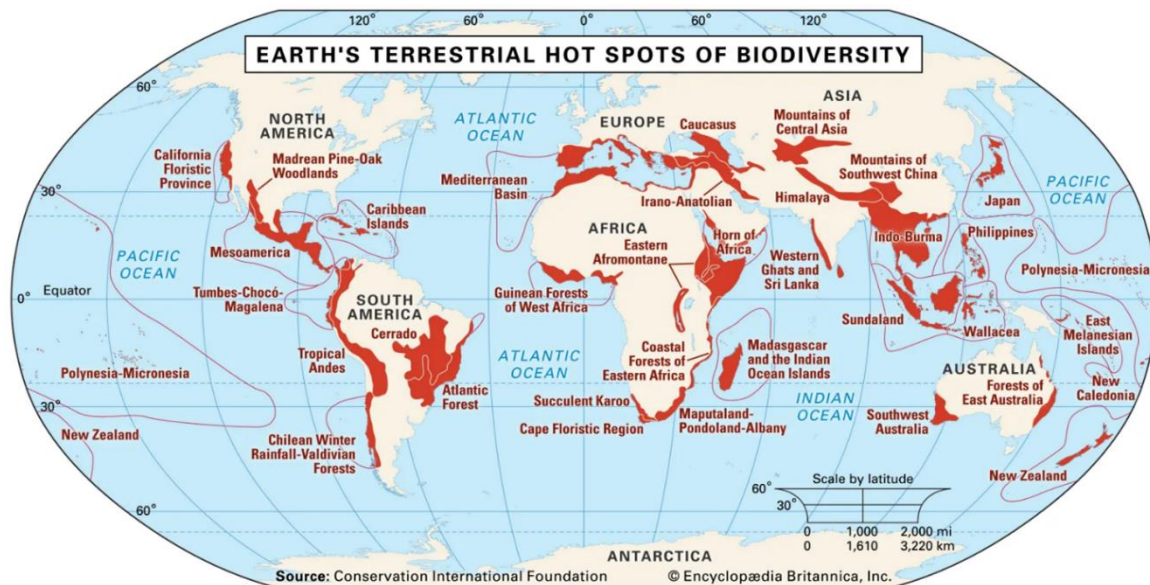


Figure 1: Global biodiversity hotspots within SSA. Hotspots (indicated in red) are areas that contain at least 1,500 endemic vascular plants and have lost more than 70% of their original natural vegetation, meaning they are both endemically rich and threatened. Source: Encyclopaedia Britannica 2022.

United Nations Environment Programme (UNEP) (2013) and Burgess et al. (2006) identify many of these global biodiversity hotspots as areas under threat.

Within their study, UNEP classifies areas within the Succulent Karoo and the Horn of Africa as 'vulnerable' and areas of the other six global biodiversity hotspots as 'critically endangered'. The analysis also suggests additional areas as 'critically endangered', including central Mali, Southern Chad, Central Africa Republic (CAR), South Sudan, and the western fringes of the Congo Basin (see figure 15 in annex A). This analysis does not provide information on the methodology or definitions used to classify and identify these locations as 'vulnerable' or 'critically endangered'.

Burgess et al. (2006) combine information on species richness (derived from data on species endemism and richness and non-species biological data, for example, the rarity of habitat types) and conservation status (derived from data on habitat loss, remaining habitat blocks, degree of habitat fragmentation, degree of habitat protection and future threats) to identify priorities for biodiversity conservation across Africa (see figure 2). From their Africa-wide analysis, we identify areas within the Cape Floristics region, the Eastern Afromontane, the Guinean Forests of West Africa, the Coastal Forests of Eastern Africa, Madagascar and the Indian Ocean Islands and the Maputaland-Pondoland-Alany as 'globally important but highly threatened' (Class I). Burgess et al. suggest these areas should be prioritised as they require 'urgent conservation work to prevent extinction' (2006 p395).

In addition to these Class I areas, this study points to globally important but less threatened locations (Class III) that should be prioritised. The authors highlight that in these areas, conservation activities are needed to maintain habitats and large-scale ecological processes. Despite being published in 2006, this paper continues to be cited in contemporary literature, for example IPBES 2018b, suggesting its continued relevance in the absence of more contemporary analyses.
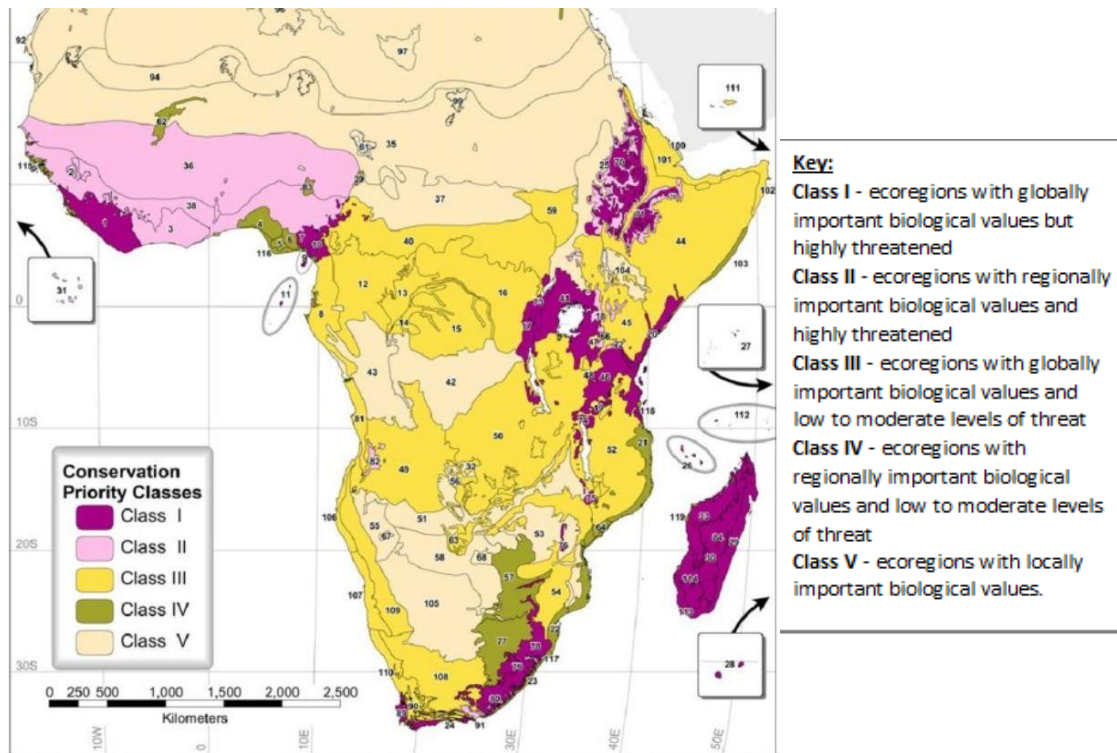
Figure 2: Priority areas for biodiversity conservation across SSA, derived from the integration of data on species richness and conservation status. Source: Burgess et al. 2006.

**SSA restoration priority areas with global significance**

Combining data on biodiversity, climate change mitigation and cost minimisation, Strassburg et al. (2020) develop a multi-criteria approach to identify global priority areas for ecosystem restoration. Within this study only converted terrestrial land is examined. The authors state this is because the restoration costs and benefits are poorly quantified for unconverted yet degraded ecosystems. Their analysis indicates that the spatial distribution of priority areas varies considerably depending on the restoration objective. For example, wetlands and forest biomes are found to hold the highest relative importance for biodiversity conservation and climate change mitigation, while focusing on arid ecosystems and grasslands is the most cost effective. The study shows that when targeting all three objectives simultaneously, all biomes have an important role to play.

Figure 3 shows Strassburg et al.'s restoration priority areas for SSA if all three objectives are combined (biodiversity, climate mitigation and costs minimisation). From this analysis, we identify the eastern coast of Madagascar, the Guinean Forests of East Africa (Guinea, Sierra Leone, Liberia, Côte d'Ivoire, Ghana and Nigeria), the Coastal Forests of Eastern Africa (particularly Kenya and Tanzania), the Albertine Rift, areas within the Ethiopian Highlands and the fringe areas of the Congo basin (see figure 3) as being the highest priority restoration areas in SSA. These areas largely mirror the global biodiversity hotspots found within SSA.
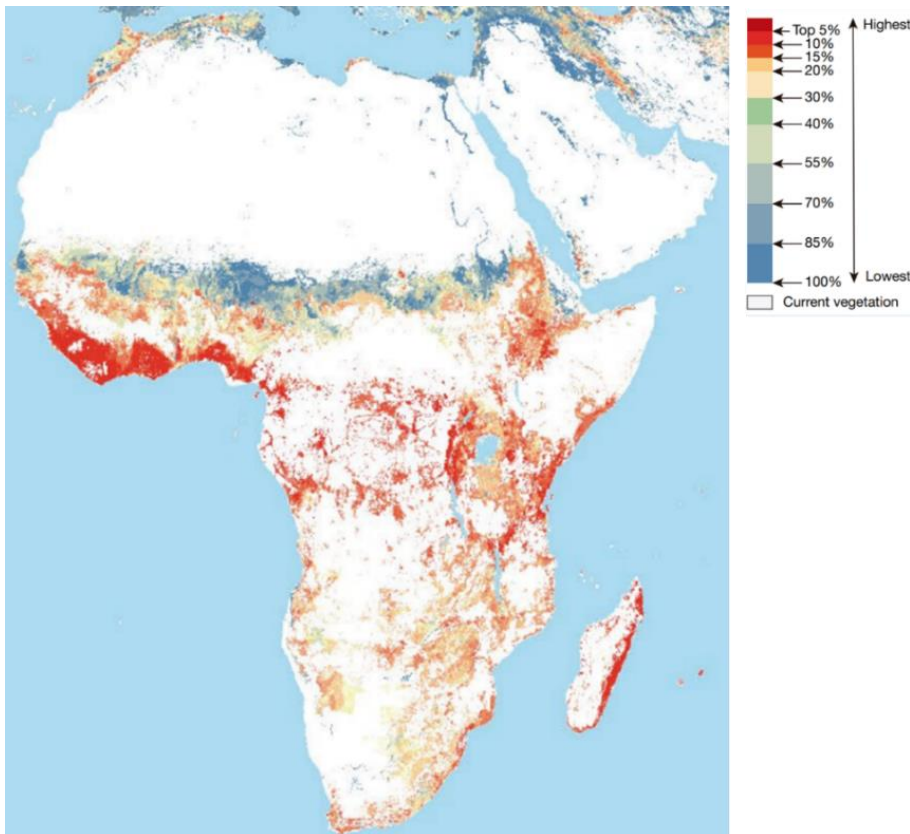
Figure 3: Restoration priority areas within SSA when biodiversity, climate change mitigation and cost minimisation objectives are combined. Dark red areas represent the highest priority areas. Source: Strassburg et al. 2020.

**SSA biodiversity hotspots under threat from urbanisation**

Using urban growth simulations, Seto et al. (2012) examine the impacts of urban expansion on 34 global biodiversity hotspots, including the eight found in SSA. Their analysis highlights the Guinean Forests of West Africa as one of the five global biodiversity hotspots most threatened by urbanisation, with 7% of the total area predicted to become urban by 2030. The Guinean Forests of West Africa and the Eastern Afromontane constitute two out of three global biodiversity hotspots[4] expected to see the highest urban growth rates within the same period. Compared to their 2000 levels, urban areas are expected to increase by 1,900% and 920%, respectively (Seto et al. 2012). The highest levels of urban expansion are anticipated in the Lake Victoria Basin (particularly around the northern borders of the lake) and along the Nigerian coastline (see figure 4).

Vliet et al. (2017) similarly recognise The Guinean Forests of West Africa and the Eastern Afromontane as the two SSA biodiversity hotspots that are regionally most at risk from urbanisation. Their analysis examines the percentage area within each hotspot that is threatened by urban land expansion for the period 2000-2040 (see table 4). Further methodological information for this study is not provided.

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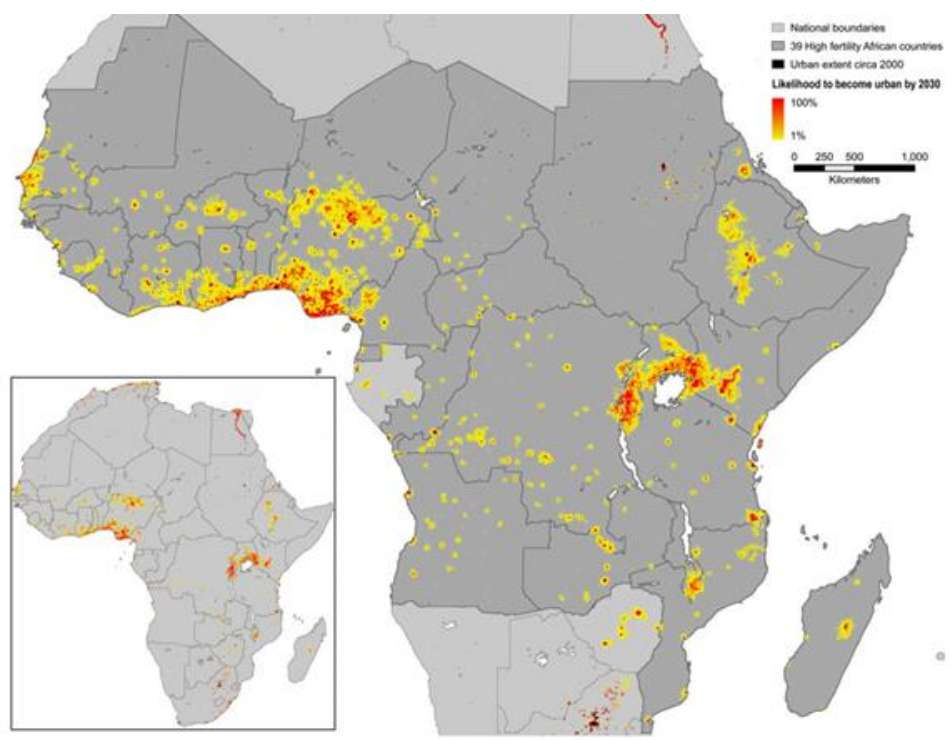[4] the third hotspot being the Western Ghats and Sri Lanka.

Figure 4: Forecasts of urban expansion in Africa by 2030. The probability for each location is estimated using growth simulations. Probability varies from 1% to 100% (yellow to red on the map) and refers to the likelihood of that area becoming urban by 2030. Source: Seto et al. 2012.

Table 4: Global biodiversity hotspots in SSA threatened by urban expansion between 2000 and 2040. Source: van Vliet et al. 2017 in IPBES 2018b.

| Biodiversity hotspot | Hotspot area not threatened by urban expansion (km²) (% of hotspot) | Urban expansion in hotspot (km²) by probability quartile range (% of hotspot) | | | | Urban extent in hotspots ca. 2000 (km²) (% of hotspot) |
|---|---|---|---|---|---|---|
| | | >0–25 | >25–50 | >50–75 | >75–100 | |
| Cape Floristic Region | 80,400 (97) | 175 (0.2) | 25 (0.0) | 0 (0.0) | 1,100 (1.3) | 875 (1) |
| Coastal Forests of Eastern Africa | 287,575 (95) | 9,775 (3) | 275 (0.1) | 300 (0.1) | 5,350 (2) | 800 (0.3) |
| Eastern Afromontane | 902,950 (86) | 99,775 (10) | 8,400 (1) | 6,500 (0.6) | 28,400 (3) | 1,500 (0.1) |
| Guinean Forests of West Africa | 482,775 (75) | 101,950 (16) | 5,800 (1) | 3,775 (0.6) | 43,675 (7) | 4,725 (1) |
| Horn of Africa | 1,597,450 (96) | 57,275 (3) | 2,650 (0.2) | 4,650 (0.3) | 5,300 (0.3) | 1,575 (0.1) |
| Madagascar and the Indian Ocean Islands | 590,525 (99) | 6,050 (1) | 350 (0.1) | 75 (0.0) | 2,100 (0.4) | 275 (0.0) |
| Maputaland-Pondoland-Albany | 260,125 (94) | 6,300 (2) | 1375 (1) | 1,475 (0.5) | 7,225 (3) | 1,075 (0.4) |
| Mediterranean Basin | 1,687,550 (80) | 302,825 (14) | 23,750 (1) | 16,650 (1) | 54,675 (3) | 33,450 (2) |
| All hotspots | 21,666,625 (91) | 1,325,225 (6) | 100,750 (0.4) | 77,200 (0.3) | 436,175 (2) | 203,900 (1) |

**Areas in SSA where biodiversity is threatened by multiple drivers**

By combining the International Union for Conservation of Nature (IUCN) Red List of Threatened Species with data on agriculture, hunting, logging, pollution, invasive species and climate change, Harfoot et al. (2021) evaluate the level of risk posed to terrestrial vertebrates, highlighting areas that contain the species most at risk from major threats. Their analysis identifies nine global hotspots that are most under threat — of these three are found within SSA (see figure 5):

1. the dry forest of Madagascar

2. the Albertine Rift and the Eastern Arc Mountains (both within the Eastern Afromontane), and

3. the Guinean forests of West Africa.

Zabel et al. (2019), who examine the predicted impact of cropland intensification and cropland expansion on biodiversity by 2030, identify the same three areas as being 'at risk', along with areas within the Ethiopian highlands and the coastal fringes of the Congo Basin (see figure 16 in Annex A). To assess risk level, they combine data on 17 major agricultural crops with information on biophysical constraints (eg, topography, soil quality, climate change) and socioeconomic conditions (eg population growth, consumption patterns and endemism richness).

Interestingly, when mapping the two risks separately, cropland expansion is shown to threaten the Guinean Forests of West Africa, the Eastern Afromontane, Madagascar, the Maputaland-Pondoland-Alany and the Cape Floristic Regions. In contrast, cropland intensification poses a risk to similar regions but to a much lower extent, and instead impact is more prominently focused in Madagascar and eastern Africa.
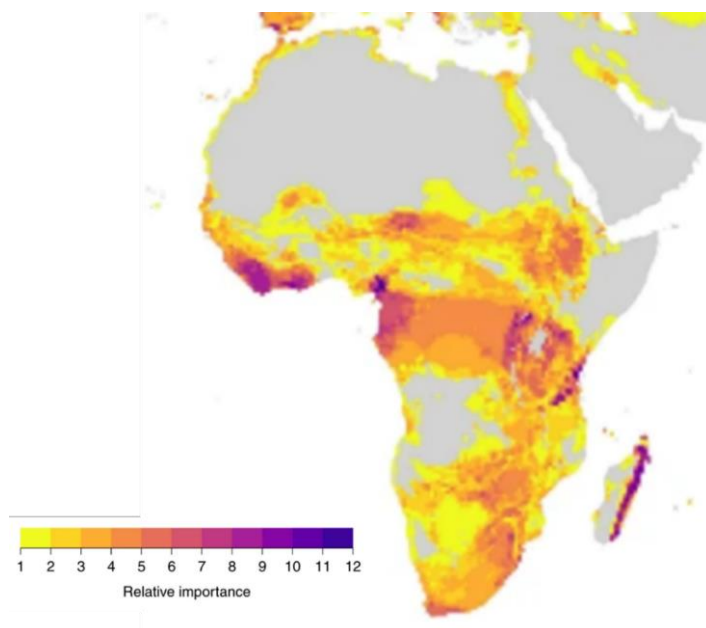


Figure 5: Areas where biodiversity is threatened by multiple drivers of loss. The higher the relative importance score, the darker the colour in the map, indicating higher level of risks for further biodiversity loss. Source: Harfoot et al. 2021. (Note: this is the highest resolution image available. Please refer to the original source to view the full-sized image)

Drawing on all the studies summarised above, table 5 compiles the areas we identify as priority biodiversity restoration areas and /or where biodiversity is under threat from current or future loss.

Table 5: Areas across SSA we identify as hotspots of biodiversity, restoration potential and/or at threat of biodiversity loss

| Area | Endemically rich and has experienced significant species loss | Global biodiversity restoration priority area | Threatened by urbanisation | Threatened by multiple drivers of loss | Prominent location(s) mentioned within these areas |
|---|---|---|---|---|---|
| Guinean Forests of West Africa | Y | Y | Y | Y | |
| Eastern Afromontane | Y | Y | Y | Y | Both the Ethiopian Highlands and Albertine rift are mentioned numerous times |
| Madagascar and the Indian Ocean Islands | Y | Y | | Y | Eastern coast of Madagascar |
| Coastal Forests of Eastern Africa | Y | Y | | | Kenya/Tanzania border |
| Congo Basin | | Y | | Y | Coastal areas of Cameroon, Equatorial Guinea, Gabon and along the fringes of the basin |
| Cape Floristic Region | Y | | | | |
| Horn of Africa | Y | | | | |
| Maputaland-Pondoland-Alany | Y | | | | |
| Succulent Karoo | Y | | | | |

## 2.1.2. Areas under threat from deforestation

Africa is home to around 17% of the world's total forest area (FAO 2011), with an estimated 595 million hectares (Mha) found within SSA (FAO 2015). This includes the Congo Basin, one of the world's largest rainforests, second only to the Amazon (FAO 2011). Despite several of Africa's forests being classified as high biodiversity areas, Africa has become the global deforestation hotspot. Of the world's six regions, Africa lost the largest area to deforestation between 2010 and 2020, surpassing the previous leader South America. And while deforestation rates across Asia and South America have fallen, rates in Africa continue to grow (FAO 2020). Deforestation is now a key form of land-use change, driving land degradation across the continent (Nkonya et al. 2016).

We found four papers, and two online tools that include spatial data on deforestation in SSA. One of the online tools and two of the papers focus on existing deforestation trends, while the other two papers focus on future deforestation risks. An additional online tool maps restoration potential for deforested and degraded land[5]. These are explored in more detail below.

**SSA areas with high levels of existing deforestation**

Considering existing deforestation trends, WWF's 2021 report identifies 24 global fronts where deforestation significantly increased between 2004 and 2017 and where large areas of forest remain under threat (Pacheo et al. 2021). Of the 24 fronts identified, eight are located within SSA (figure 6).



SUB-SAHARAN AFRICA
10 West Africa – Liberia/Ivory Coast/Ghana
11 Central Africa – Cameroon
12 Central Africa – Gabon/Cameroon/Republic of Congo
13 Central Africa – DRC/CAR
14 Central Africa – Angola
15 East Africa – Zambia
16 East Africa – Mozambique
17 East Africa – Madagascar

■ Forest area (2018)
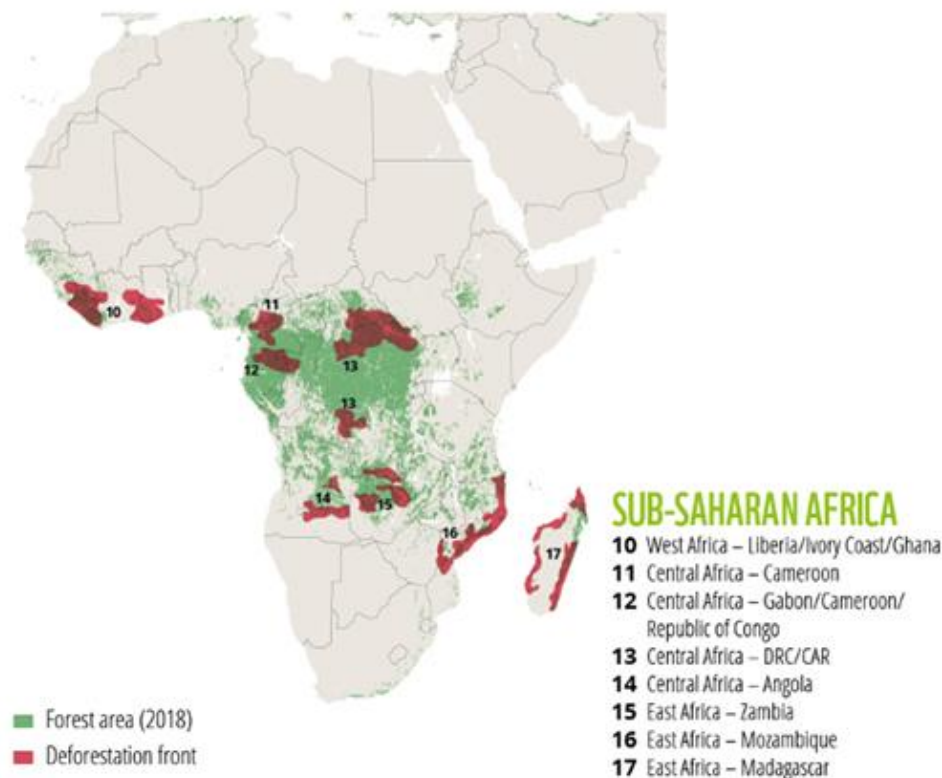■ Deforestation front

Figure 6: Deforestation fronts in SSA. Fronts constitute areas where deforestation significantly increased between 2004 and 2017 and where large areas of forest remain under threat. Source: Pacheco et al. 2021.

These include:

1.  Liberia/Côte d'Ivoire/Ghana, which lost 0.8Mha of forest cover[6], primarily in Western Liberia and Southwest Ghana

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5 The 2022 FAO State of the Forests report is not included within the synthesis as data is provided at the sub-regional level (Eastern and Southern Africa, Northern Africa and Western and Central Africa) and as such is beyond the scope of this report. Similarly, analysis of country-level data from the associated FAO online database was beyond the scope of this review.

6 All figures refer to the area of forest lost between 2004 and 2017.

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2.  Cameroon, which lost 0.4Mha of forest cover, primarily in the south, southwest and north-east of the country. While there was a decline in deforestation between 2000 and 2010, rates have increased more recently.

3.  Northern Gabon/Cameroon/Republic of Congo, which lost 0.1Mha of forest cover, primarily in Northern Gabon (on the border with Cameroon) and the Republic of Congo

4.  DRC/CAR, which lost 0.7Mha of forest cover, primarily in the east and south of the region

5.  Angola, which lost 0.1Mha of forest cover, primarily in the south and east

6.  Zambia, which lost 0.4Mha of forest cover, primarily in the southeast

7.  Mozambique, which lost 0.3Mha of forest cover, primarily in the west and east

8.  Madagascar, which lost 0.7Mha of forest cover, primarily in the west and east, although forest loss was relatively scattered.

Within this study, Pacheco et al. locate fronts by examining satellite images of land use change, supported by a literature review and expert input. Deforestation is recorded where two or more data sets observe a change from forest to non-forest anytime between 2004 and 2017.

Hansen et al. (2013) examine global tree height and canopy cover and their results show similarity to those of WWF 2021.[7] Canopy cover includes both natural forests and plantations and 'loss' refers to the removal or mortality of tree cover[8]. From their 2011-2021 data, we identify hotspots of loss within the Guinean Forests of West Africa, the Congo Basin, Eastern Madagascar and the Coastal Forest of East Africa (see figure 7).
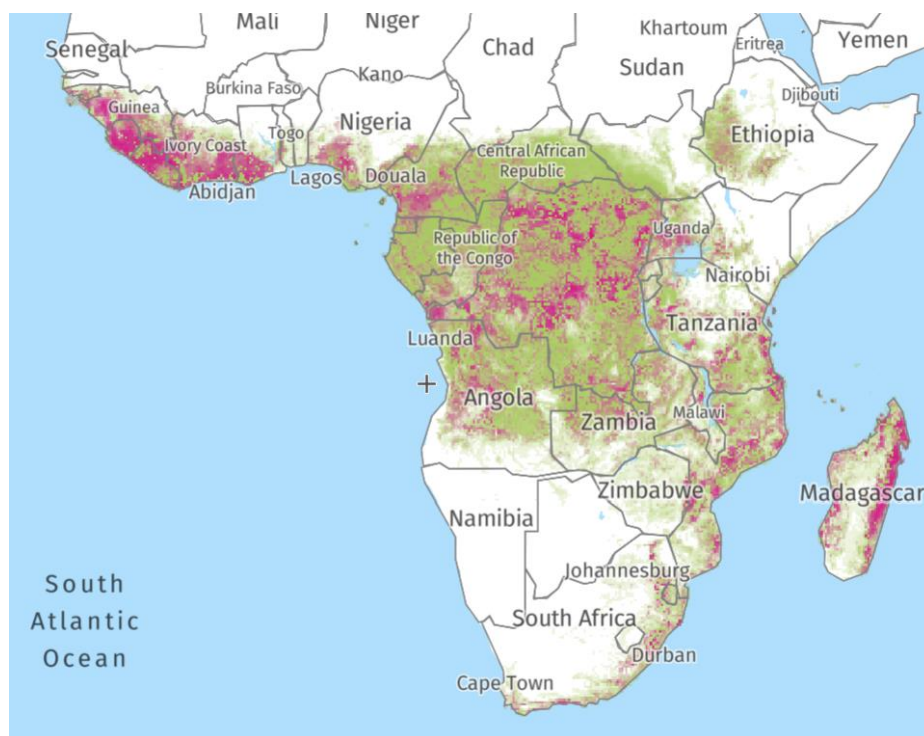


Figure 7: Tree cover loss in SSA between 2011 and 2021. While loss in this analysis can represent deforestation (conversion of natural forests to other land uses), it can reflect other factors such as mechanical harvesting, fire, disease, or storm damage. Pink areas reflect tree loss and green areas represent tree cover in 2010 where canopy cover is above 30%. Source: Hansen/UMD/Google/USGS/NASA, accessed through Global Forest Watch 2023.

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[7] Data accessed via Global Forest Watch online tool. This data relies on a methodology initially created by Hansen et al. 2013. The data set has since been updated five times and now includes loss data up to 2021.

[8] While loss in this analysis can represent deforestation (conversion of natural forests to other land uses), it can reflect other factors such as mechanical harvesting, fire, disease or storm damage.

The location of some of these fronts is also supported by Mayaux et al. 2013, who examine forest loss in SSA between 1990 and 2010. From their analysis, we identify the Guinean Forests of West Africa (specifically Liberia, Southern Côte d'Ivoire, Southern Ghana, Southern Nigeria), fringes of the Congo Basin and Eastern Madagascar as areas with high levels of deforestation (see figure 17 in Annex A). In this study, forest loss is calculated by comparing satellite images from 1990, 2000 and 2010. Only areas where 50% of tree cover has been removed are recorded as degraded.

While their analysis shows that Central Africa accounts for 50-60% of the total deforested area, when compared specifically with the Congo Basin, the annual deforestation rate is three times higher in West Africa and nine times higher in Madagascar. Despite being more than a decade old, this data appears to hold true within more recent analysis by WWF, which also signifies higher annual deforestation rates in the Western Africa and Madagascar fronts, than most fronts in Central Africa.

**SSA areas at risk of deforestation**

By analysing recent trends and projected land use change, the Living Forests Report (WWF 2015) identifies 11 global deforestation fronts predicted to have the largest concentrations of forest loss or severe degradation between 2010 and 2030. In their report, forest loss is defined as the "conversion of forest to another land use or significant long-term reduction of tree canopy cover"[9] and severe degradation is understood as "changes within forests that cause serious and permanent negative changes to the structure or function of the stand or site".

Of the 11 fronts identified, two are found within SSA (see figure 8). The first is located within the Congo Basin (namely the border area between Gabon, Cameroon, Republic of Congo and east and west DRC), and the second is in Eastern Africa (namely the Zambia/Zimbabwe border area, the coastal areas of Kenya, Tanzania and Mozambique and four development corridors, Mtwara, Nacala, Beira and Limpopo). Under a business-as-usual scenario, the report estimates that both fronts will each lose around 12Mha of forest cover by 2030.
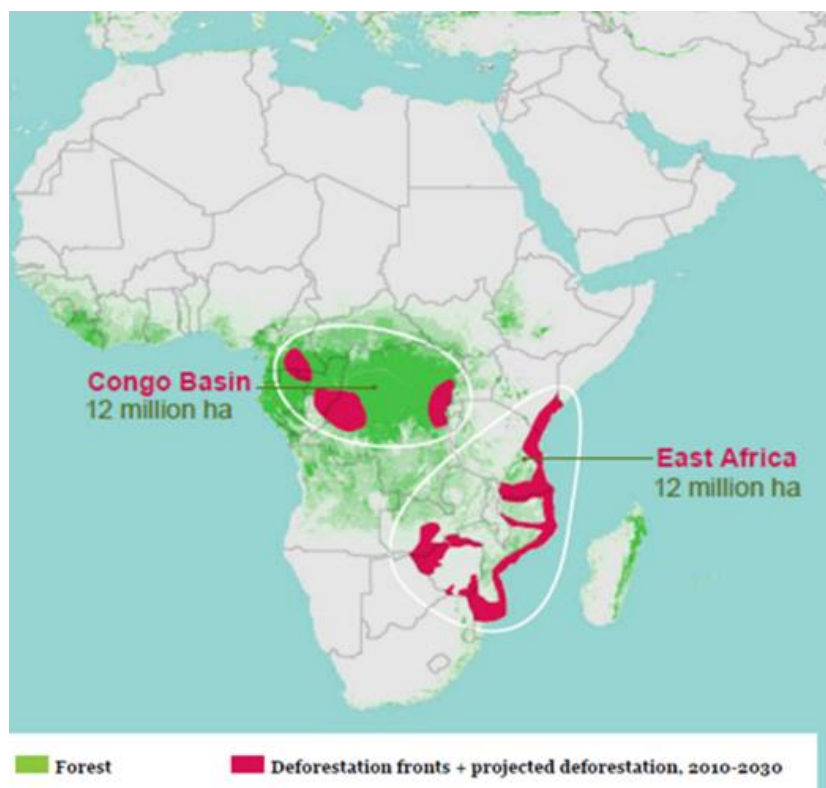


Figure 8: Deforestation fronts in SSA predicted to have the largest concentrations of forest loss or severe degradation between 2010 and 2030. Source: WWF 2015.

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[9] Includes conversion to tree plantations, agriculture, pasture, reservoirs and urban areas, but excludes logging.

Also focusing on areas at risk of future deforestation, Ordway et al. 2017 examine the threat level in relation to commodity crop expansion across tropical countries in SSA[10]. Their study highlights four Congo Basin countries (DRC, Cameroon, the Republic of Congo and Gabon) as being most at risk of deforestation, along with the Guinean Forests of West Africa (Sierra Leone, Liberia and Côte d'Ivoire). Countries defined as having the highest level of risk were those with high levels of forest cover and low levels of available cropland. Risk was calculated at the country level and refers to exposure, vulnerability and pressure from agricultural expansion.

**SSA areas with opportunities for wide-scale forest restoration**

Using global data on forest condition and current land use (population density, urbanised/industrial areas, and cropland distribution), Patapov et al. (2011[11]) assess opportunities for restoration for deforested and degraded land. Restoration potential is mapped across four categories: wide-scale restoration, mosaic restoration, remote restoration and forests without restoration needs (see figure 9 and caption for definitions). Areas with high population density and areas with intensively managed croplands are categorised as having little or no forest restoration potential. Areas that hold the highest restoration potential include scattered cropland areas, pastures, agroforestry and all types of forest plantations. From their analysis, we identify the following areas within SSA as holding wide-scale restoration potential: fringe areas of the Guinean Forests of East Africa, fringe areas of the Congo Basin (particularly to the south of the basin), the Coastal Forests of Eastern Africa and scattered areas within the eastern coast of Madagascar.
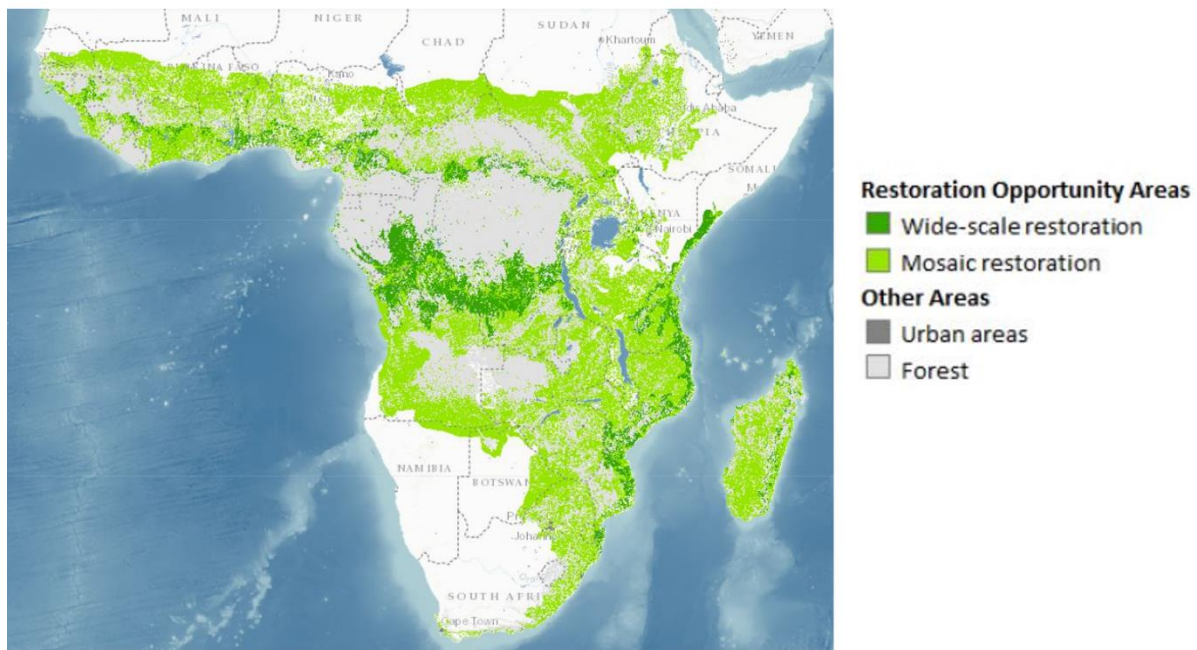


Figure 9: Opportunities for restoration within SSA derived from forest condition and current land use data. Wide-scale restoration: Fewer than 10 people per square km and potential to support closed forest. Mosaic restoration: Moderate human pressure (between 10 and 100 people per square km). Source: Patapov et al. 2011 via WRI Atlas of Forest Landscape Restoration Opportunities www.wri.org/forest-restoration-atlas.

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[10] Only tropical countries with at least 1% of their land classified as tropical forests were included.

[11] accessed via WRI's online tool - Atlas of Forest Landscape Restoration Opportunities

Drawing on the above studies, Table 6 summarises the areas within SSA that we identify as deforestation hotspots. These areas have experienced high levels of deforestation and degradation and/or are at high risk of future deforestation.

Table 6: Deforestation hotspots identified for SSA

| Area | Under threat from existing deforestation | Under threat from future deforestation | Wide-scale restoration potential | Prominent location(s) mentioned within these areas |
|---|---|---|---|---|
| Congo Basin | Y | Y | Y | Cameron, Gabon, DRC, the Republic of Congo |
| Madagascar and the Indian Ocean Islands | Y | | Y | East and West Madagascar |
| Guinean Forests of West Africa | Y | Y | Y | Southern areas of Liberia, Côte d'Ivoire, Ghana, Nigeria |
| Coastal Forests of Eastern Africa | Y | Y | Y | Kenya, Tanzania and Mozambique |

## 2.1.3. Areas under threat from desertification

Desertification is the degradation of land in arid, semi-arid and dry sub-humid areas, although the best way to measure or define 'degradation of land' to classify it as 'desertification' remains contentious (UN 2016). As a result, desertification is defined differently within the literature and many studies examine only one indicator of desertification (eg soil erosion). We include studies that use a multiple-criteria approach within their analysis. In our search, we found two papers that examine desertification at the regional level. However, it should be noted that contemporary (ie in the last ten years) analysis for SSA appears to be lacking. The first paper has a specific focus on desertification, while the second examines desertification through the lens of land degradation.

By combining data on climate, soil quality, vegetation and land management issues, The European Commission's Joint Research Centre (JRC) and UNEP map areas across SSA most at risk of desertification[12]. This study estimates that 26% of the continent is vulnerable to desertification (approximately 4.5 millionkm$^2$), and of this area, 55% is at moderate to high risk (Jones et al. 2013). Semi-arid desert fringes are shown to have the highest level of vulnerability. From their analysis, we identify the northern borders of the Sahel, the Horn of Africa, and the Eastern fringes of the Namib desert as being highly vulnerable (see figure 10).

UNEP (2006) uses a land degradation lens to analyse the combined impacts of soil erosion, salinisation, pollution and desertification to classify highly degraded land across SSA. From their analysis, we identify the northern borders of the Sahel (particularly Western Senegal, Southern Mauritania, Central Mali, Burkina Faso, Southern Niger and Central Sudan), the Eastern Afromontane (specifically the Ethiopian Highlands), and Southern South Africa as having 'very high levels of land degradation'[13].

In addition to these areas, Nigeria (particularly the central and the Guinean Forest areas), the eastern coast of Somalia, Western Angola and Madagascar are identified as highly degraded (see figure 10). Detailed information on the methodology used in this study is not available. Despite being conducted in 2006, this data continues to be referenced in more recent reports, including the Global Environment Outlook Regional Assessment for Africa (UNEP 2016) and IBPES (2018b).

[12] Regions with a tropical climate and those already classified as deserts are excluded from this analysis.
[13] Definition not provided.
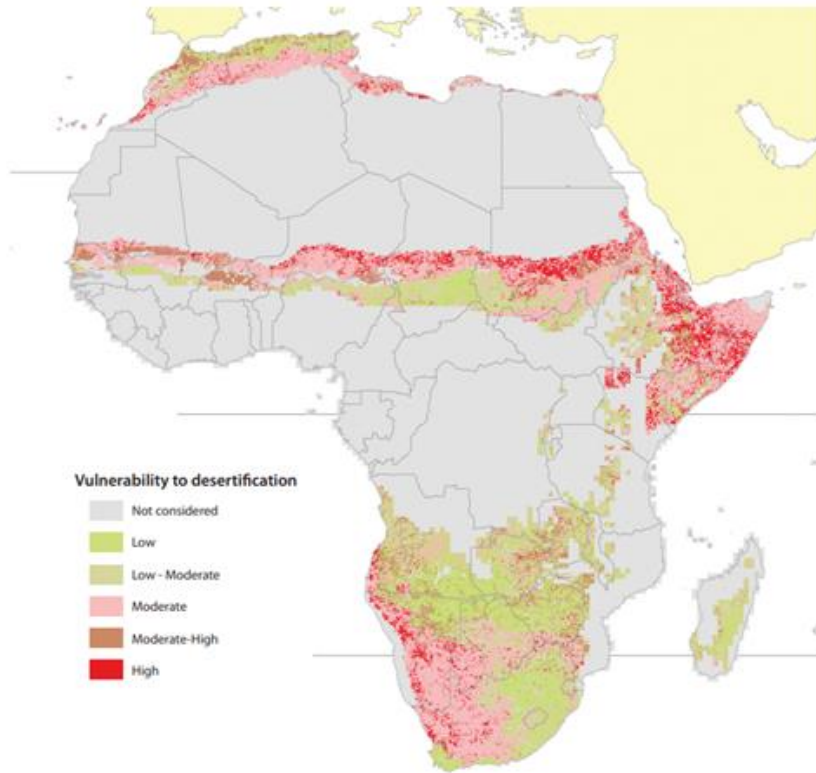
Figure 10: Areas estimated to be at risk of desertification across Africa. Areas already classified as desert and regions with a tropical climate are excluded from this analysis. Source: Jones et al. 2013.
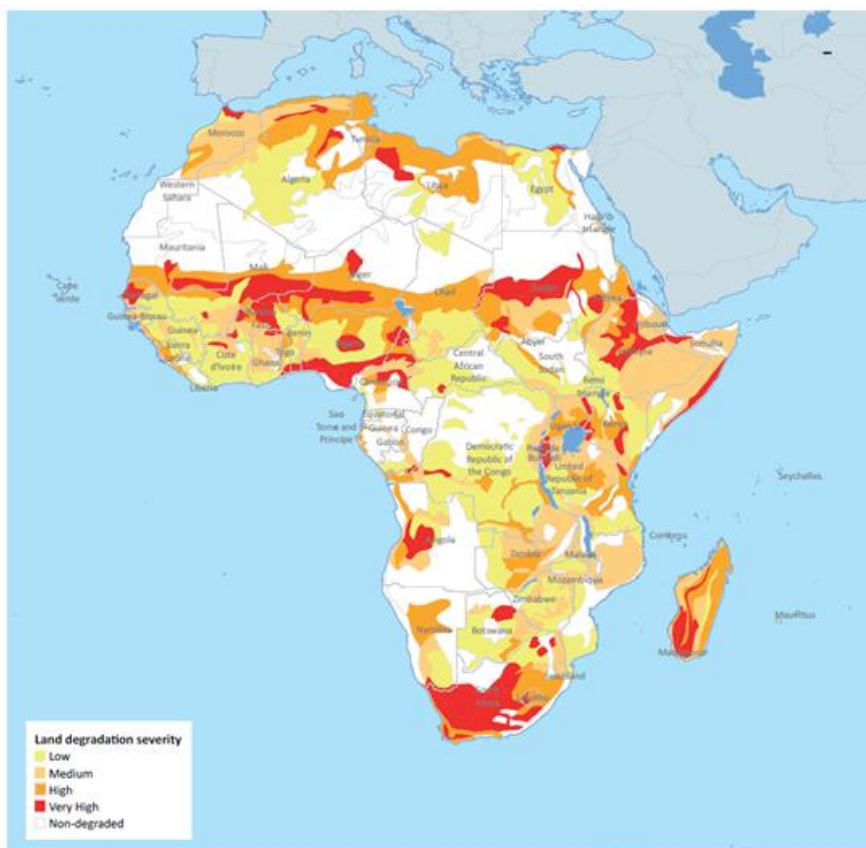


Figure 11: Severity of land degradation across Africa. Severity is calculated by combining data on soil erosion, salinisation, pollution and desertification. Source: UNEP 2006.

Drawing on the above studies, Table 7 summarises the areas across SSA that we identify as being under threat from desertification.

Table 7: Areas across SSA under threat from desertification

| Area | Predominant area(s) mentioned within landscape/country |
| --- | --- |
| The Eastern Afromontane | Ethiopian Highlands |
| Horn of Africa | Northern Ethiopia, Eritrea and the Eastern coast of Somalia |
| Madagascar and the Indian Ocean Islands | East and Southwest Madagascar |
| Southwest Africa | Western Namibia (fringes of Namib desert) and Southern South Africa |
| Sahel Region | Western Senegal, Southern Mauritania, Central Mali, Burkina Faso, Southern Niger, and Central Sudan |
| Guinean Forests of West Africa | Southern Nigeria |

## 2.2 Nature's contributions to people

Africa is abundant in natural assets that provide a range of ecosystem goods and services to people (described by IPBES as "Nature's Contributions to People" (2018b)). These contributions can take three forms; material contributions, which include the provision of food and feeds; regulating contributions, which include climate regulation and pollination, and non-material contributions, which are linked to physical and psychological experiences (IPBES 2018b). For much of Africa, species abundance and richness are crucial for the provisioning of these contributions, and as such, habitat degradation and declines in biodiversity can have serious consequences for the ecological processes that underpin human wellbeing, economic growth and livelihood security (IPBES 2018b, Schwartz et al. 2000).

This section looks at studies that map nature's contributions to people in SSA, highlighting the areas where degradation or biodiversity loss would have significant impacts on people. However, as noted by Fisher (2022) in a REDAA scoping paper, to date there are very few studies that examine nature's contributions to people at a regional scale across SSA[14], particularly in relation to regulatory and non-material values. This literature gap was apparent within our literature search and we reflect on this as an evidence priority for the region in section 3 (see section 3.1). In our rapid review, we identify just two global studies that examine nature's contributions to people in a spatially explicit way. The first paper focuses on regulatory contributions and the second considers the combined value of regulatory, material and non-material contributions. Note that we expect the sub-regional reviews (especially of countries in Southern Africa) to identify relevant literature at a country/national or lower level, particularly related to material contributions.

The first study by Noon et al (2022) uses remote sensing data and applies three criteria (recoverability, manageability, vulnerability) globally to map irrecoverable carbon;[15] ecosystem carbon stocks that if lost, could not be recovered within a 30-year timeframe. This study highlights the Congo Basin as the fourth largest irrecoverable carbon reserve globally, holding 8.2 gigatonne (Gt) of carbon. From their analysis, we also see areas within the Guinean Forests (particularly Guinea, Sierra Leone and Nigeria) and the coastline of Mozambique as locations with high carbon stocks regionally (see figure 12). Areas high in carbon stocks provide key regulatory contributions to people globally by storing carbon that could otherwise cause runaway climate change.

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[14] IPBES 2018b provides useful sub-regional, country level and case study analysis.

[15] Carbon that could not be recovered before the end of the century.

The second study by Li and Fang (2014) combines global data on eight biomes and 22 types of ecosystem services (regulatory, material, and non-material) to map the economic value of terrestrial ecosystem services (see figure 13). From their analysis, we note the Guinea Forest of West Africa, the Congo Basin and the eastern coast of Madagascar as areas of high economic ecosystem value within SSA.
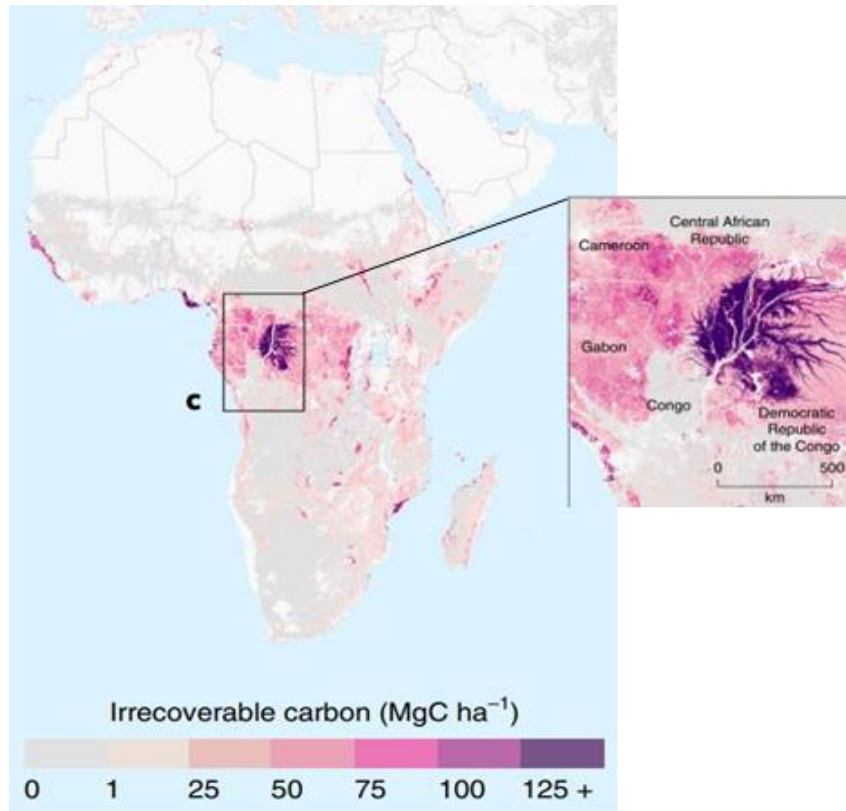


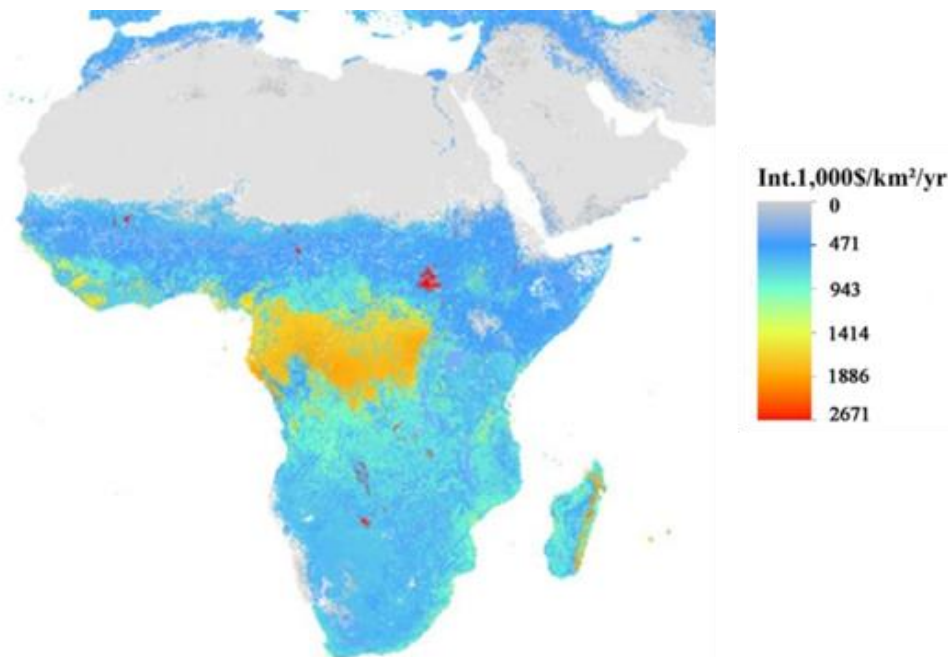Figure 12: Ecosystem carbon stocks within SSA. Source: Noon et al. 2022.



Figure 13: Economic valuation of terrestrial ecosystem services across SSA. Values are adjusted to account for accessibility of resources. Values expressed in US$ for 2009. Source: Li and Fang 2014.

Drawing on the two studies above, Table 9 summarises the areas within SSA that we identify as providing significant contributions to people.

Table 9: Areas in SSA providing significant contributions to people.

| Area | Predominant location(s) mentioned within landscape/country |
|---|---|
| Eastern Afromontane | Albertine rift |
| Congo Basin | |
| Guinean Forests of West Africa | |
| Madagascar and the Indian Ocean Islands | Eastern coast |
| Coastal Forests of East Africa | Mozambique |

## 2.3 Summary of hotspot areas across SSA

As demonstrated, there are various ways to identify hotspots. In some instances, information on how these terms are applied, the methods used and their limitations are not discussed (particularly for older papers). While studies often use different criteria and methods within their analysis, interestingly, they point to common geographical areas (see table 10). Those areas identified by multiple analyses face various threats, suggesting that there is potential to address interlinked degradation and restoration issues in these locations. The areas we identify to be frequently recognised as hotspots across multiple criteria include:

• the Guinean Forests of West Africa

• the Eastern Afromontane

• Madagascar and the Indian Ocean Islands

• the Congo Basin, and

• the Coastal Forests of Eastern Africa.

These areas were assessed as hotspots across the literature according to five or more criteria.

Within our search, we found a lack of easily accessible and spatially explicit research at the regional level, which can be used to inform land use decisions. While the UN Food and Agriculture Organization (FAO), for example, has a database on deforestation trends for many African countries, this data is collated at the country level with no explicit spatial references to where deforestation occurs. Another instance relates to data on nature's contributions to people; some evaluation does exist (see IBPES 2018b) but typically it takes the form of individual case studies or sub-regional analyses, which again are not spatially explicit.

In addition, there is more spatial analysis on status and loss of forest ecosystems compared to other ecosystems, notably including wetlands, peatlands, drylands, mangroves and grasslands. For example, data on the monitoring and assessment of wetlands appears to be largely absent from global and regional analyses, and as a result, no literature was identified that mapped wetland degradation across SSA from 2010 onwards[16]. This data gap has led to a lack of understanding on the rate of wetland loss and level of degradation both globally and within Africa (Mandishona and Knight 2022, Thamaga et al. 2022, Xu et al. 2019). This is concerning as UNEP (2019b) illustrates more generally a downward trend in the status of Africa's natural wetlands between 1970 and 2015, and highlights that following Latin

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[16] Some country-level analysis is available eg, Driver et al. 2011.

America and the Caribbean, Africa is the region experiencing the highest loss in the total extent of wetland area.

Importantly, the REDAA team needs to be mindful of these data gaps to ensure that grant making does not bias ecosystems (such as forests) for which there is more data available on status, trends and restoration potential. This bias is evident in the literature with a scoping review of 6,023 papers revealing that 78% focused on forests, 6% grasslands, 4% drylands and 4% mangroves (Meli et al. 2022). The same is also true for 'hotspots'. Places/areas identified as priority hotspots can easily become self-perpetuating as more research is dedicated to these places/areas at the expense of other regional, national and sub-national places/areas that could be just as important/significant regionally for their biodiversity, degradation risk and/or restoration potential. Finally, it is additionally important to underline that many of the global and regional analyses draw from biophysical data only and do not include key social, political and economic datasets. This data is key to refining analyses and hotspot identification, and without it analyses risk reinforcing myths and misconceptions about degradation or restoration potential by not considering national and local realities (see discussion in section 3.4 on intersectional inequities and power imbalances).

Table 10: Areas within SSA we identify as hotspots according to multiple criteria (includes biodiversity, degradation and restoration potential, as well as mapping of nature's contributions to people). As indicated in the introduction to section 2, blank cells do not necessarily indicate an absence of threat within those areas, but rather could be the result of a lack of data and/or information.

| Area | Biodiversity | | | | Deforestation | | | Desertification | Contributions to people |
|---|---|---|---|---|---|---|---|---|---|
| | Endemically rich and has experienced significant species loss | Global biodiversity restoration priority area | Biodiversity threatened by urban-isation | Biodiversity threatened by multiple drivers of loss | Threatened by existing deforestation | Threatened by future deforestation | Wide-scale restoration potential | Threated by desertification | Significant contributions to people |
| Guinean Forests of West Africa | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Madagascar and the Indian Ocean Islands | Y | Y | | Y | Y | | Y | Y | Y |
| Eastern Afromontane | Y | Y | Y | Y | | | | Y | Y |
| Congo Basin | | Y[17] | | Y | Y | Y | Y | | Y |
| Coastal Forests of Eastern Africa | | Y | | | Y | Y | Y | | Y |
| Maputaland-Pondoland-Alany | Y | Y | | Y | | | | | |
| Horn of Africa | Y | | | | | | | Y | |

[17] Only fringe areas were identified.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cape Floristic region | Y | | | | | | | | |
| Sahel region | | | | | | | | Y | |
| Southwest Africa | | | | | | | | Y | |
| Succulent Karoo | Y | | | | | | | | |

# 3. Potential SSA research-to-action priorities

In the following section we elaborate on potential research-to-action priorities where they emerged strongly from the literature – often from four or more sources. Overall, we identify seven emerging regional priorities for REDAA; two relate to evidence, two to tools and three to governance. We also describe five cross-cutting themes that are relevant to the deployment of evidence, tools and efforts to improve governance systems. Annex B lists an additional seven priorities that are identified by only one source in literature with limited further contextual detail. As noted by regional experts in the REDAA review workshop, there are huge differences across SSA and these priorities will need to be operationalised in very different ways across the region.

## 3.1 Evidence-related priorities

**a) Strengthen national and/or regional information systems and support locally led evidence generation (eg through citizen science). This is to respond to data and information gaps, which affect our understanding of degradation status and restoration potential, and the ability to make informed decisions making locally and nationally.**

The IPBES Assessment Report on land degradation globally notes that a high priority for action is improving access to and availability of information and data to improve assessments of land degradation and to inform evidence-based policymaking (IPES 2018a). Our literature review found that this is a priority for SSA countries (Abhilash 2021, AfDB and WWF 2015, Brito et al. 2021, CBD 2018, Jones et al. 2013, UNEP 2019, UNEP 2016, UNEP WCMC 2016). For example, the African Ecological Futures Report (2015) concludes that a lack of available and relevant information and data is undermining governments' ability to make robust and effective decisions to tackle environmental degradation (AfDB and WWF 2015).

Key gaps include information and data on biodiversity (UNEP-WCMC 2016), soil (Gnacadja and Wiese 2016, Jones et al. 2013) and water (UNEP 2019). Taking soil as an example, an effort by the EU, the African Union and FAO (2013) to create a soil atlas for Africa determines that for African scientists and policymakers a significant challenge is establishing a long-term monitoring system to understand soil degradation over long periods (Jones et al. 2013). Similarly, a review of land degradation neutrality across Africa suggests that important gaps in soil and degradation data constrain understanding on soil status, vulnerability to degradation and potential for restoration (Gnacadja and Wiese 2016).

To address those data gaps, REDAA can support or strengthen national and regional information systems on land and ecosystem restoration to enhance data management and sharing (CBD 2018). For example, REDAA can support developing frameworks for the assessment and mapping of degradation (including risk) and restoration potential, including the integration of national and local priorities (CBD 2018, Gnacadja and Wiese 2016). This effort can move beyond forest restoration to other opportunities to address key data gaps, for example, agricultural and agroforestry restoration hotspots (Gnacadja and Wiese 2016).

In addition, REDAA should encourage efforts to fill data gaps related to integrating indigenous and traditional local knowledge and perspectives (CBD 2018) with 'scientific' information so they are on an 'equal footing' (IPBES 2018b). REDAA could support this by strengthening local skills and investing in community resource centres for locally led landscape monitoring and research (African Landscapes Dialogue 2020). Careful attention is needed to create inclusive processes for community leadership and engagement, knowledge exchange and co-production/learning, and to ensure indigenous and traditional knowledge is not displaced for 'western science' or rendered useless by being detached from the local context (IPBES 2018b).

To this end, a potential solution for REDAA to address data availability in SSA is supporting locally led, participatory research and monitoring activities by investing in citizen science programmes (African Landscapes Dialogue 2020, Ajjugo et al. 2020, Brito et al. 2021, IPBES 2018b, Mansourian and Berrahmoun 2021, Stephenson et al. 2017, Stringer and Dougill 2013). The IPBES Africa regional assessment of biodiversity and ecosystem services highlights that citizen science approaches are valuable to African countries with information and data challenges, and increasingly relevant due to the

steady intergenerational degradation of indigenous and traditional knowledge. An example includes Cybertracker[18], an open-source software that allows the Kalahari Desert bushmen to contribute to biodiversity monitoring (IPBES 2018b). The World Resources Institute notes that to build a system for monitoring forest and landscape restoration, it could range from the local collection of a few cost-effective indicators, to this data being integrated with big data from satellite imagery or social media (Buckingham et al. 2019).

Experience from participatory monitoring of land degradation in Africa's drylands shows that participatory monitoring through community leaders helps to ensure national policy responses are compatible with local land users' concerns, as well as providing a network for outreach and dissemination of sustainable land management initiatives (Stringer and Dougill 2013). Crucially, improving locally led evidence generation is not just valuable for improving national policy and government action, but also for promoting informed local governance. For example, evidence from West Africa – Liberia – shows that citizen monitoring of community forests is associated with broadened participation in rulemaking, increased accountability of local leaders and improved equity in benefit distribution processes (Christensen et al. 2021). In addition, evidence from the region related to forest restoration suggests locally led, participatory monitoring represents value for money (a REDAA criteria of interest) as it is a cost-effective way to implement multi-scale, multi-site monitoring systems that require lower labour and transport costs in comparison to 'professional' monitoring systems (Evans et al. 2018).

**b) Support interdisciplinary and cross-border collaboration to strengthen understanding of nature's contributions to people and effective approaches to reverse degradation.**

Again, the IPBES Africa regional assessment of biodiversity and ecosystem services considers interdisciplinary collaboration as relatively scarce in the region and undertaken mainly as part of regional state of the environment reports and atlases (IPBES 2015b). Additionally, a review of the future of SSA's biodiversity highlights that research outputs from the region are less than 0.7% of the global total and that citations to SSA articles are just 0.2% of global citations (Chapman et al. 2022). A key recommendation of the Convention on Biological Diversity's (CBD) Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience (2018) is to simply involve universities and other research institutions in finding scientific and technological solutions to land and ecosystem degradation (CBD 2018).

A ten-point action plan for land restoration recommends investing in interdisciplinary research at various scales and levels to identify practical restoration action. For example, by incorporating collaboration across a range of disciplines, such as agriculture, agroforestry, anthropology, business management, ecology, economics, engineering, forestry, indigenous and biocultural studies, geography, geology, governance, law, microbiology, modelling, plant science, remote sensing, sociology and zoology (Abhilash 2021). This is echoed in a review of vertebrate conservation in the Sahara-Sahel wetlands, which concludes that advancing research and action requires the integration of research fields (eg biogeography, population genetics, climate and landscape, social and economic sciences) by developing existing and emerging technologies such as eDNA, population genomics, remote sensing, ecological modelling, network analyses and advanced decision-support tools (Brito et al. 2021).

An opinion piece summarising key considerations for Africa in the UN's Decade on Ecosystem Restoration (2021-2030) recommends that, at a regional level, more could be done to encourage cross-border collaboration, including exchanges of expertise and evidence (Nsikani et al. 2022). This is echoed in IPBES's regional assessment, which notes that there is insufficient information sharing and lesson learning among countries in the various regions of Africa (IPBES 2018b). The need for cross-border collaboration is also noted in a review of land degradation neutrality, which highlights that limitations in resources and expertise could be confronted by educational and training exchanges and collaboration between African research centres (Gnacadja and Wiese 2016).

Such collaboration processes also need to ensure co-production of knowledge between practice, policy, science and indigenous and traditional/local knowledge systems. A lack of consistent and context appropriate language in scientific research in SSA can limit its uptake in policy and practice. "It is

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[18] https://cybertracker.org/

important that Africa develop its own common understanding and interpretation of the different concepts to inform decisions and facilitate the design of appropriate policies" (page 392 in IBPES 2018b). This will involve improving researchers' ability to communicate evidence on landscape management in terms that are meaningful for policymakers and other stakeholders (African Landscapes Dialogue 2020). Additionally, including the target audience — such as government officials — in evidence generation can facilitate the acceptance of evidence even where it might challenge prevalent policy discourse and practice (Westman et al. 2017).

REDAA can support such interdisciplinary and cross-border research to address two key evidence gaps that emerged from our literature review:

1.  Better understanding of nature's contribution to people. Much of the existing work on nature's contributions in SSA focuses on material contributions, and there is a regional bias towards research in Southern Africa (IPBES 2018b). Although, for both material and non-material contributions, there is very little regional spatial analysis to inform policy design and implementations, as highlighted in section 2. There is also a lack of understanding on how land and ecosystem degradation then changes those material and non-material contributions to people in the long term. This also results in a lack of appreciation of how restoration can improve nature's contributions to people and support the delivery of many Sustainable Development Goals, including poverty alleviation and food security (CBD 2018, Gnacadja and Wiese 2016, Nkonya et al. 2016).

2.  Improved understanding of the effectiveness of landscape governance approaches for reversing degradation and contributing to restoration and how, including how to scale up successful activities. While there are reported successes from landscape scale interventions (eg bringing stakeholders together (Minang et al. 2014)) there is very little evidence (in particular quantitative) on the concrete outcomes for nature and people. This is partly due to lack of cost-effective approaches in assessing impacts of landscape scale interventions on people and nature given the complexity involved in establishing causal links (Cordingley et al. 2015, Fisher 2022, Milder et al. 2014). Research needs to better capture best practice and learning from existing efforts to reverse environmental degradation in the region (African Landscapes Dialogue 2020, CBD 2018, Neely et al. 2014, UNEP 2016). Those best practices and lessons can help inform action on how to improve incentives to scale up successful activities that reverse degradation and promote restoration activities at local, intermediate, commercial and/or large scales (Djenontin et al. 2018). For example, research that can help understand how existing incentives and disincentives contribute to or undermine pro-sustainable land management and poverty alleviation, such as recent research by the World Resources Institute (WRI) in Zambia that illustrates how agricultural subsidies are not working for food security, poverty alleviation or sustainable land management (Ding et al. 2021). Such analysis can improve understanding of the short- and long-term costs and benefits of action, inaction and the trade-offs and help identify appropriate areas for investment to incentivise wider uptake of sustainable land management (Abhilash 2021, Ding et al. 2021 Gnacadja and Wiese 2016).

## 3.2 Tool-related priorities

**c) Develop relevant decision-support tools such as scenarios and spatial analyses that incorporate regional biophysical, social, political and economic data and information, and couple them with participatory approaches to improve their use and relevance.**

The IPBES Africa regional assessment recommends that a key priority for improving environment-related decision making is tackling the limited use of scenarios in policymaking across the continent. In a survey of 355 scenario studies and reports between 2005 and 2016 focused on the continent, they find significant gaps in the research design and application of scenarios that prevent them from being a useful decision-support tool. This includes:

1.  Few studies with their own storylines specific to the region, mainly opting to use existing scenarios (eg IPCC (Intergovernmental Panel on Climate Change) scenarios). This for example, affects the sets of drivers considered, with key gaps including tenure, migration and urbanisation. It also affects understandings of human wellbeing, which when described without recognising key regional diversities miss large differences in culture and inequality across the region.

2. A focus on forecasting species range shifts, extinction risks and habitat loss, and limited attention to the direct links between biodiversity function, ecosystem services and human wellbeing. Important aspects of wellbeing such as equity, security and freedom of choice, are rarely explored.

3. Limited use of participatory approaches and, as a result, little integration of indigenous or traditional knowledge into scenarios.

4. Very little attention to gender – just five of the 355 studies.

Additionally, the authors note that across the studies there is a bias to countries in Southern Africa (especially South Africa) and somewhat countries in East Africa, with Central African countries being poorly represented. During this literature review, we similarly observe that there are very few regional SSA analyses, noting that many of the sources for mapping hotspots of degradation (for section 2) are at the global scale. A journal article that analyses the impacts of cropland expansion and intensification on biodiversity globally, suggests that a priority to advance this research and its application is to use regional biodiversity data and downscaled economic analyses for regional and country scenario-based research (Zabel et al. 2019). Within the REDAA review workshop, regional experts suggested they see value in this where decision-support tools help policymakers to understand how multiple drivers, stressors and/or impacts related to degradation can interact in complex ways.

One relevant suggestion for REDAA that could improve the use of scenario research in policymaking is the development of nexus-based tools[19] (von Maltitz 2020). The proposal is that nexus-based tools should be developed to create a platform for policymakers to interact with and compare the results of different models, for example, to assess the outcomes of a range of plausible future scenarios (UNU year unknown). The objective of such tools should be to assist policymakers to understand the consequences of inaction on environmental degradation and to identify regionally or nationally appropriate pathways to reverse degradation and support restoration. The first step of a nexus-based tools approach would be to map out the capabilities and application of existing models to identify where models can be brought together or developed to address gaps (Mannschatz and Hülsmann 2016) (eg developing storylines specific to the region). This approach could be further advanced by coupling application with participatory approaches to policy formation processes — such as decision theatre — to improve use and relevance (von Maltitz 2020).

A further suggestion for REDAA is to couple scenario building exercises in the region with spatial analyses to aid policymakers in their land use planning processes, for example, to identify priority restoration areas. Such scenario and spatial analysis ideally should not look only at ecological factors and impacts but also social, political and economic factors and impacts. For instance, forest reform laws overlaid with measures of tenure security could help researchers and policymakers in the region predict where investing in forest tenure could achieve desirable outcomes (Minang et al. 2014). Section 2 of this report highlights there are significant gaps in such regional spatial analyses, especially those that integrate social, political and economic data to identify hotspots of biodiversity, degradation, restoration potential or areas with significant contributions (from ecosystem goods and services) to people.

A note of caution though, while strengthening existing approaches and developing new accepted decision-support tools is a priority, current approaches are often costly and complex, preventing their wider uptake (AfDB and WWF 2015). This was also noted in the REDAA review workshop, with regional experts advising that any investment in tools should be coupled with significant attention to improving access to these tools, abilities to use them, as well as the efficacy of institutional processes to employ them – particularly within government departments.

A key learning from the Poverty Environment Initiative in Africa is that there is value in applying existing tools such as economic assessments of natural resources use and ecosystems, strategic environmental and social assessments, poverty and social impact assessments, gender gap analysis, public environment and climate expenditure reviews (Westman et al. 2017). Here the focus instead is on

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[19] Nexus-based tools provide a web-based platform that incorporates multiple environmental models to allow for inter-model comparison of statistical results. An example includes an effort by Mannschatz and Hülsmann (2016) to create a water-soil-waste nexus platform which comprises 72 models to a) show the range of models, processes and application purposes and b) enable comprehensive model comparisons.

regular application of the tools and building partnerships with local research institutes to overcome staffing capacity and resource constraints (ibid).

**d) Prioritise scaling locally led tools and approaches (especially those that build on indigenous and local knowledge) that have the potential for achieving positive outcomes for people and nature, working with IPs and LCs as key partners in this process.**

The involvement of IPs and LCs is often cited as a key factor for restoration activities to improve their effectiveness and to deliver positive outcomes for people and nature. Despite this, there is evidence from the region that often indigenous, traditional or local knowledge is not sufficiently integrated into restoration activities and policies. For example, in Botswana, research has found that the local customs and knowledge of pastoralists (eg local spatial knowledge on traditional land and resource tenure) is missing in restoration policy and that policy guidelines are, as a result, misleading because they do not reflect the reality of the local context (Djenontin et al. 2018). Additionally, there is conflicting literature on the benefits to IPs and LCs from successful restoration initiatives, with some evidence from SSA identifying negative impacts (see Reyes-Garcia et al. 2019).

REDAA should work towards improving understanding of the conditions under which locally led tools and approaches — that are achieving positive outcomes for people and nature (especially those that build on indigenous and local knowledge) — can be used more extensively across ecosystems (IPBES 2018a). This is a suggestion that is emphasised in REDAA's scoping paper 'low tech bottom-up place-based approaches', which recommends understanding not just what has worked, but also why some locally led tools and approaches have not worked and why, to inform and influence future initiatives (Holland 2022).

A comprehensive analysis of existing locally led tools and approaches in SSA that respond to land degradation and/or promote restoration, and show promise for further development and upscaling, was beyond the scope of (and time available for) this review. Across SSA, there are a plethora of grassroots movements from the 1980s onwards that have led change in response to land degradation. It would be valuable to understand and capture — through collaboration with IPs and LCs — evidence and learnings from piloting models of IP and LC engagement and leadership, including how these locally led initiatives developed and sustained (Gnacadja and Wiese 2016). One example from the region is Farmer Managed Natural Regeneration (FMNR) for Land Restoration, which has emerged as an 'iconic practice' with evidence of restoration and livelihood benefits in Niger. Research-to-action activities could focus on co-learning and scaling up of grassroots initiatives – such as FMNR – unpacking these approaches and what they look like in different contexts, interrogating how such initiatives might be adapted to other contexts, and exploring the possible costs and benefits of application elsewhere in the region (CBD 2018, Chomba et al. 2020, Djenontin et al. 2018).

REDAA can also focus on supporting research-to-action activities that are led by a variety of actors (eg research, government, private sector) but in close collaboration with IPs and LCs, that enable the spread and upscaling of such locally led tools and approaches. For example, a previous IIED review[20] on 'unseen foresters' points to 13 landscape and supply chain initiatives that show potential for enabling the spread of IP and LC led sustainable forest management, including through landscape governance interventions that improve rights, responsibilities and rewards, and supply chain interventions that offset the costs of investment. The review points to several case studies including how on-farm tree planting could be scaled through social investment and access to loans via an Equity Bank in Kenya. Another looks at how international nature and climate finance could capitalise on communities' existing revolving credit facilities in Kenya and Tanzania to create simpler routes to distribute finance locally (see boxes 6 and 7 on pages 52 and 53) (Macqueen and Mayers 2020).

Note that funding opportunities to advance locally led tools and approaches should embrace flexibility, be patient and provide adequate time for a project 'establishment phase', promote opportunities for innovation and give prominence to the goals of local resource managers (Holland 2022; Roe, Nelson and Sandbrook 2009). Additionally, the literature also underlines that while a key entry point is the local level where customary authorities and decentralised administrations mediate multiple pressures on land and ecosystems (Knapman et al. 2017), attention to the local level alone is unlikely to be sufficient as

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[20] See Macqueen, D and Mayers, J (2020)

progress here is typically constrained by national policy and legal barriers (Reij and Winterbottom 2015).

## 3.3 Governance-related priorities

**e) Develop existing and new approaches to cross-sectoral and cross-government decision making and implementation that identify the potential for synergy and challenge vested interests.**

A key priority that has emerged globally as a response to land and ecosystem degradation is strengthening integrated, multi-functional landscape governance systems that for example: harmonise national legal frameworks; create deliberate linkages across institutions, scales and sectors; broaden the physical and economic landscape boundaries considered in decision making; and foster collaborative decision making between actors that have diverse knowledge, experience and values (FAO 2021, FAO 2021b). In a REDAA Scoping Study, Fisher (2022) also identifies the relevance of multifunctional landscape approaches to REDAA in SSA, noting the potential of such approaches for tackling threats to biodiversity, restoring ecosystems, and integrating the priorities of Indigenous and local people, but highlighting the lack of evidence supporting these ideas. Practical experiences in SSA show that this global priority is key for the SSA region (UNEP 2016, African Landscapes Dialogue 2020, CBD 2018, Cordingley et al. 2015, Djenontin et al. 2018, Knapman et al. 2017, Neely et al. 2014, Mansourian and Berrahmoun 2021, McLain et al. 2021, Westman et al. 2017).

For example, a review of six country[21] level reports using the decision-support tool – the Restoration Opportunities Assessment Methodology (ROAM) – reveals a common emerging challenge is a lack of connectivity between sectors, actors and different scales of governance (McLain et al. 2021). Similarly, an FAO review of forest and landscape restoration practice in Africa noted that there are few examples of government institutions collaborating across sectors and integrating diverse priorities, and that more systemic change is needed (Mansourian and Berrahmoun 2021). Additionally, a systematic review of the factors shaping outcomes for FLR across SSA highlights evidence that the governance context is key to FLR success. Key challenges are cited as non-integration of policies and programmes across scales and an absence of communication and collaboration between ministries (as well as actors, which is relevant to the following priority on multi-stakeholder processes) (Djenontin et al. 2018).

A clear gap relevant to REDAA is developing existing and new approaches to cross-sectoral and cross-government (local, provincial, national) planning and policy implementation related to land and ecosystem degradation and restoration (African Landscapes Dialogue 2020, AfDB and GGGI 2022, CBD 2018, Cordingley et al. 2015, UNECA 2015). This effort should be about improving synergies between sectors and levels of governance in policy and its implementation (CBD 2018, UNEP 2016). Experiences to date highlight the importance of engaging key development planning and financing bodies that have the mandate and power over resource (re)allocation and investment decisions (UNECA 2015, Westman et al. 2019) as well as linking possible reforms (in policy and implementation) to economic and national development planning (African Landscapes Dialogue 2020). Note that this kind of institutional change not only requires actors to identify constraints to progress (eg conflicting policies or lack of coordination in planning and implementation), but crucially also to identify and influence behaviour change among key actors, many of whom have vested interests in maintaining the status quo (Cordingley et al. 2015).

There are examples of progress from countries in SSA, including on integrating environment and natural resource sustainability into national development planning (eg Burkino Faso), cross-sector coordination for integrating pro-poor and environmental sustainability into national and sector planning cycles (eg Malawi, Mozambique and Rwanda), bridging plans and budgets (eg Rwanda) and integrating pro-poor environmental indicators into national monitoring systems (eg Tanzania) (see Westman et al. 2017 for detailed case studies). Learnings from these case studies include recommendations to: 1) introduce new approaches and tools to existing planning, budgeting and institutional coordination mechanisms; and 2) encourage political leadership and will to break down silos and 'wire' institutions together (ibid).

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[21] Ethiopia, Ghana, Côte d'Ivoire, Malawi, Rwanda and Uganda

Specific suggestions of activities that emerge from the literature include: facilitating Cabinet-level dialogue towards a paradigm shift in land policy away from 'degrade, abandon and migrate' to 'protect and restore'; establishing leadership and coordination platforms between government Ministries; creating inter-agency committees for identifying opportunities and barriers, undertaking practical implementation and monitoring and evaluation; providing policy support and frameworks for locally led landscape partnerships to meet national and global policy commitments; and focusing on building professionalism (such as transparency and accountability) within local governance administrations so they can better respond, regulate and manage rapidly growing pressures on land (African Landscapes Dialogue 2020, Knapman et al. 2017, Neely et al. 2014). In the REDAA review workshop, experts noted that many of the suggestions here focus on formal processes, but that additionally informal processes may be just as valuable, such as establishing peer-to-peer learning networks.

A further point highlighted is that many landscapes across SSA straddle international borders. As such, in some regions strengthening multi-functional landscape governance requires looking beyond a country's borders to understand where policy and landscape activities are positively or negatively affecting neighbouring countries (Ekins et al. 2019).

Note that more interdisciplinary, cross-border and multi-stakeholder partnership to co-produce research and improve research uptake, as suggested under priorities b and f, will also contribute to this priority to improve cross-sectoral and cross-government policymaking. Additionally, note Westernam et al's (2017) recommendation for introducing new approaches and tools to institutional planning and coordination processes, suggesting strong links between this priority and priority c.

**f) Advance approaches for multi-stakeholder dialogues that create a safe space for debate, critique and negotiation of specific outcomes, for tackling degradation and encouraging restoration among a variety of actors.**

Interlinked with previously proposed evidence and governance priorities (eg on multifunctional landscapes, interdisciplinary and cross-border partnerships and improving data availability and access) is the priority to establish or improve existing mechanisms for multi-stakeholder dialogue, negotiation and consensus building (African Landscapes Dialogue 2020, Abhilash 2021, Ajjugo et al. 2020, CBD 2018, Dewees et al. 2011, FAO 2021, Franks 2019, Mansourian and Berrahmoun 2021, Nsikani et al. 2022, Neely et al. 2014, Okello et al. 2021, UNEP 2019, von Maltitz 2020). Regional experience shows that best practice in relation to land degradation and sustainable land management draws on the expertise of different actors – from national policymakers to local knowledge-holders – to build on information needs and knowledge gaps. It shows this is invaluable to the visibility, accessibility, relevance and legitimacy of research-to-action outputs (Goldman and Pabari 2021, Stringer and Dougill 2013). One paper notes that such mechanisms would be useful to SSA countries as they can provide a space for critically assessing policy responses (including any negative impacts) and explicitly discussing synergies and trade-offs between policy objectives, as well as improving capacities (of those in the dialogue) to navigate complexity and collaborate, reflect and learn (Okello et al. 2021). Another report highlights that multi-stakeholder dialogues could unblock the flow of biodiversity data for decision making in SSA, for example, by improving coordination and collaboration between actors collecting and holding data (Stephenson et al. 2017).

To address this challenge, REDAA can support linking local level actor platforms of research, learning and experience with national frameworks and spaces for dialogue (African Landscapes Dialogue 2020, Ajjugo et al. 2020). For example, in Kenya, the Nature Conservancy and the Kenya Wildlife Conservancies Association are supporting communities and landowners from 12 landscape-based regional wildlife conservancies associations to participate in national policy review processes (Ajjugo et al. 2020). At regional level, REDAA can support developing a Pan-African platform that brings together landscape-level networks on different ecosystems and natural resource and land uses, to synchronise views, knowledge systems and institutions and share learning on successful landscape approaches (Neely et al. 2014).

However, such multi-stakeholder platforms must be sensitive and responsive to different types of knowledge and local context, and inclusive of under-represented voices such as southern-based researchers, as well as representatives of people marginalised due to their intersectional identities (related to, for example, their ethnicity, gender, indigeneity and/or race) (Goldman and Pabari 2021). As

shown in a review of the FLR efforts in SSA, a key obstacle for local actors – particularly community representatives – is that they often do not possess the requisite scientific expertise that dominates FLR, meaning they often miss the opportunity to express agency and their priorities. Multi-stakeholder collaboration that integrates local and scientific knowledge within restoration programmes is central to addressing this issue (Djenontin et al. 2018). Without this, as a REDAA scoping report has already highlighted using the example of restoration, initiatives can use inappropriate compensation measures to unsuccessfully mitigate trade-offs (eg see Box 1 in Enns 2022, which details the experience of pastoralists' loss of access to ancestral lands in Kenya, an unacceptable trade-off for pastoralists and in some cases invoking violence and conflict).

To better facilitate those multi-stakeholder platforms and dialogues, REDAA can also support advancing methodologies and approaches to effectively engage actors in multi-stakeholder negotiation to achieve specific outcomes for tackling degradation and encouraging restoration. Some approaches have been developed and applied to draw learning from – for example, negotiated territorial development approaches to address competition over land and water resources, which have been used in recovery post-conflict situations in Angola, DRC and Mozambique (FAO 2021b). Such methodologies and approaches can help create safe spaces for discussing contentious issues. An important criticism of existing dialogue forums in SSA is that while valuable for engaging multiple perspectives and expertise in policy, often they do not create space for debate on contentious issues (von Maltitz 2020). Multi-stakeholder dialogues need to encourage a culture of open discussion and negotiation on the trade-offs involved in policymaking relevant to tackling environmental degradation or encouraging restoration (eg between nature conservation and agricultural production). In addition, this needs to be between a full range of actors, but especially those who have a strong interest in the outcomes and little influence over decision making (Franks 2019). This was also emphasised by regional experts in the REDAA review workshop who noted that it's not just about opening and encouraging dialogue between actors, but it is focusing multi-stakeholder dialogue on issues where there is real ground for negotiation and consensus building.

Additionally, another REDAA scoping paper on research use by governments highlights that care must be taken in the promotion of multi-stakeholder dialogues, with particular attention to context-specific tensions that can result in these processes being a diversion rather than an incubation for useful action (Hou-Jones et al. 2022). A key action related to this is the careful consideration to actors included in dialogues and those who might be missing but should be involved. For example, in SSA any gains in building multi-stakeholder consensus can be quickly reversed by private investors and powerful local elites (eg traditional leaders) through less formalised processes of advocacy and lobbying (Milder et al. 2014, Gusenbauer and Franks 2019). Additionally, regional experts in the REDAA review workshop underlined that to be effective, multi-stakeholder processes need to be designed and implemented with complex party politics and cross-actor power dynamics in mind, otherwise their outcomes are vulnerable to derailment and could be inappropriate to the realities of the local context.

A note of caution for REDAA from a survey of leaders and managers of 87 integrated landscape initiatives (ILI) in 33 African countries is concern that ILI activities and coordination processes are often funded by external partners over a short time period. The reviewers of the survey note that while ILI activities and coordination mechanisms may be established or strengthened by short-term donor funding, careful attention is needed to embed activities into government policies and programmes, or other means of support that will sustain in the long term (Milder et al. 2014).

**g) Organise and mobilise diverse local voices that can share perspectives on key issues (such as securing tenure and resource rights) that prevent progress and genuine devolution of authority to the local level.**

Across SSA there is a rich history of decentralisation and devolution of authority and control over natural resources, such as forests (eg participatory forest management) and wildlife (eg community-based natural resource management) (Nelson 2011). However, there have been varying degrees of success in these endeavours. For example, across SSA forest decentralisation has mainly been applied to low-value forests and often a lack of clarity on rights and entitlements constrains forest-adjacent communities (Barrow et al. 2016). Moreover, international support — for example, REDD projects across SSA and the Great Green Wall project in the Sahel — is often criticised for failing to recognise

local decision making, negatively affecting IPs' and LCs' rights and wellbeing ( Benjaminsen et al. 2021).

Increasingly, there is renewed attention globally and regionally in SSA to challenge forms of external control that are labelled as 'fortress conservation' and embrace new governance types including IPs and LC leadership (IUCN et al. 2022). Moreover, there is growing recognition of the role IPs and LCs already play in fighting environmental degradation and safeguarding nature. For example, in Madagascar, a national network of 600 communities supports the customary governance of approximately 3Mha of forest (ICCA Consortium 2021).

In addition to capturing evidence and learning to scale locally led tools and approaches as suggested in priority d, REDAA can support actions that can promote IPs and LC leadership and represent genuine devolution of authority. Land restoration is more than just rehabilitating natural areas and preserving their functionality, it is about inclusive governance, secure tenure and environmental justice (UNCCD 2022). This, for example, could include research-to-action strategies that contribute to securing tenure and resource rights and contribute to preventing or reversing degradation and/or promoting restoration, such as by adopting co-learning processes with IPs and LCs to document and strengthen their traditional and local governance institutions and biodiversity protocols (Box on ICCA Consortium in IPBES 2018a). This could be embedded within a process that supports the recording of resource rights (including collective rights) and mechanisms for maintaining up-to-date records (Knapman et al. 2017).

REDAA can also tackle policies that are barriers to systemic change and prevent progress towards devolution of control to address environmental degradation. For example, identifying reforms in policy and legal systems that could support IPs and LCs to secure tenure and resource rights to their lands and territories and strengthen their self-determined governance systems. There are examples of success across SSA that could offer valuable learnings such as Namibia and Kenya, which have advanced approaches to community conservancies (ICCA Consortium 2021). Rights and Resources Initiative (RRI) (2017) suggests that a key priority is to strengthen the communications and networking capacities of IPs, LCs and women's groups to help them to build support, share learning, and ultimately hold public, private and conservation actors accountable.

Interestingly, key findings from an IIED-led review of Community Based Natural Resource Management (CBNRM) across SSA in 2009[22] remain true and hold relevance to REDAA. That is, that efforts to build impetus for devolution to the local level should create a demand-driven, decentralised model of reform by building the capacity of local actors (including communities and civil society). This approach is favourable over intervening at a national level and relying on political will and support from centralised governments, which typically act against their own personal and institutional interests (Roe, Nelson and Sandbrook 2009). These reflections are mirrored in a review of community wildlife management, which notes that an enduring challenge is not simply to draw out more lessons and best practices for locally led tools and approaches (as suggested by priority d), but additionally to fundamentally challenge policy decisions and implementation through organised and mobilised local voices (Cooney et al. 2018 drawing on insights from Nelson 2010).

## 3.4 Cross-cutting themes

In addition to the seven research-to-action priorities, we identify five cross-cutting themes that REDAA should encourage all its potential grantees to consider in their proposals. These are thematic areas that a) intersect with land and ecosystem degradation and restoration and b) are pertinent to the proposed priorities a-g, as well as the general areas of REDAA investment; evidence, tools and governance systems and processes. This sub-section does not represent a systematic review of all the possible cross-cutting themes that could apply to REDAA in SSA, but rather draws attention to relevant themes that stood out during the rapid literature review (ie referred to across multiple sources) or were highlighted by regional experts in the REDAA review workshop. Our suggestion is that REDAA in SSA considers how proposals to the grant making facility integrate regional research-to-action priorities (such as those articulated in this review (a-g) and additional sub-regional reviews and consultations), as well as these cross-cutting thematic issues.

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[22] See Roe, D, Nelson, F, and Sandbrook, C (2009)

One issue not added as a cross-cutting theme, but that was raised in the REDAA review workshop with regional experts, is about war and conflict in the region. REDAA experts noted that this can be an important contributor to degradation in some sub-regions, as well as acting to accelerate the stressors and impacts of degradation and climate change. This thematic issue has not been included as a cross-cutting theme for two reasons: 1) wider global and regional analyses typically exercise caution when making these links as they are complex and not well understood. As a result, it is hard to draw wider regional conclusions (Peters et al. 2020); and 2) research-to-action priorities related to conflict, including humanitarian responses are likely beyond the scope of the REDAA grant making facility. However, sub-regional studies could shed further insights on this thematic issue for REDAA to consider.

**i) Biodiversity mainstreaming**

Nine studies or reports reviewed suggest that a priority for countries in SSA is progressing biodiversity mainstreaming into countries' development planning (African Landscapes Dialogue 2020, CBD 2018, IPBES 2018b, King 2020, OECD 2012, Nhamo 2013, Sintayehu et al. 2018, UNEP 2015, UNEP WCMC 2016). The Convention on Biological Diversity's (CBD) Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience states for example the need to:

"Develop national programmes for promoting integration of biodiversity and ecosystem services in other sectors (eg agriculture, energy, infrastructure development, tourism, livestock, fisheries, forestry, trade, etc.) with clear objectives and tools for the short term, medium term and long term…" (CBD 2018).

Otherwise, when referring to biodiversity, mainstreaming typically refers to the need for mainstreaming national capital accounting into national budgets. For example, the Southern African Institute of International Affairs (SAIIA) identifies an 'urgent' need for national full-cost accounting of natural capital and ecological infrastructures, especially from a perspective of accounting for the contributions of biodiversity and ecosystem services to human wellbeing, climate mitigation and adaptation. In this way, SAIIA suggests that development policies would then begin to recognise the value of investing in nature-based solutions to tackle ecosystem degradation and promote "life-supporting biodiversity and ecosystem services" (King 2020).

The clear reason why this features so prominently is that policies and their implementation in sectors beyond those directly linked to the environment — such as infrastructure development, energy and trade — are key drivers of activities that cause land degradation, and also could be key allies in reversing degradation and promoting restoration.

It's not clear from the literature whether this priority is an issue related to limited access, availability or use of evidence, a lack of appropriate tools, or a product of governance challenges (such as those described in the previous sub-section – eg a lack of coordination and collaboration across sectors). We suggest that biodiversity mainstreaming is a cross-cutting theme because it is likely elements of each of these areas inhibit progress, and indeed, all the priorities identified above will support mainstreaming biodiversity. Experiences from natural capital accounting in Uganda suggest progress requires attention to all three themes, with priorities emerging from their experience including the need for: generating better data and filling data gaps (including big data); developing tools to enable policy analysis and modelling using their natural capital accounts; and developing organisational roles and collaboration to interpret, communicate and use natural capital accounts (World Bank 2020).

Crucially, experience from the Poverty-Environment Initiative highlights that mainstreaming is not a linear process, but is a dynamic process defined by continuous feedback loops (particularly related to political economy factors) (Westman et al. 2019). This adds time and complexity to project implementation and requires adaptive management (ibid), emphasising the need for flexible and patient grant making.

**ii) Climate change**

Climate change was discussed as an additional cross-cutting theme in a REDAA workshop with regional experts as demanding action across evidence, tools and governance systems and processes. This was particularly in relation to building understanding and action to tackle the ways in which complex drivers, stressors and impacts of climate change and degradation interact to accelerate and magnify risks to people's wellbeing.

Key risks of loss and damage due to climate change in SSA are likewise important risks associated with land and ecosystem degradation in the region – see table 11 (adapted from table 9.1 in Trisos et al. 2022). Climate change will act to aggravate degradation risks and undermine restoration efforts[23]. For example, it will accelerate habitat losses of climatically suitable space in areas of high importance for biodiversity conservation in SSA, including those hotspots highlighted in section 2 of this report (see figure 12). Climate-related drivers and stressors will interact with non-climate related drivers and stressors, such as those associated with degradation amplifying impacts on people's wellbeing. Increased migration (especially to peri-urban and urban areas), for instance, will expose people to poverty, informality and social and economic exclusion (Niang et al. 2014, Trisos et al. 2022).

As well as similarities in risk and potential for risk amplification, factors contributing to the progression of vulnerability to climate change in Africa are associated with degradation, such as changing patterns of resources access and ownership, colonial legacies and post-colonial development pathways, and challenges related to governance quality (see box 9.1.1 for further detail in Trisos et al. 2022). Efforts to address degradation and encourage restoration, such as through the sustainable use of biodiversity, land and watershed restoration and well-planned reforestation, which tackle such key underlying challenges, could have key benefits for people's and ecosystems' resilience to climate change in the region (Niang et al. 2014, Trisos et al. 2022).

Table 11. Key risks of loss and damage associated with climate change, and likewise associated with degradation by sector across Africa. Table adapted from table 9.1 in Trisos et al. 2022.

| Sector | Key risks associated with climate change and similarly associated with degradation |
|---|---|
| Ecosystems | Local, regional and global extinction<br>Reduced ecosystem goods and services<br>Declining natural coastal protection and habitats<br>Altered ecosystem structure and declining ecosystem functioning<br>Biodiversity loss |
| Food systems | Reduced crop productivity and revenues<br>Increased livestock mortality and price shocks<br>Decreased fodder and pasture availability |
| Human settlements and infrastructure | Migration |
| Health | Reduced nutrition |
| Economy, poverty and livelihoods | Loss of livelihoods, jobs and income<br>Reduced productive land<br>Reduced economic growth and increased inequality<br>Reduced labour productivity and earning potential<br>Increased urban in-migration |
| Heritage | Loss of traditional cultures and ways of life<br>Loss of language and knowledge systems<br>Damage to heritage sites |

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[23] Degradation is also an important driver of climate change, but our focus here is on how degradation and climate change drivers and stressors pose similar risks to people and ecosystems, and could interact to amplify risks to people and ecosystems. SSA is highly vulnerable to climate change, yet the region makes a very limited contribution to human-induced global climate change.
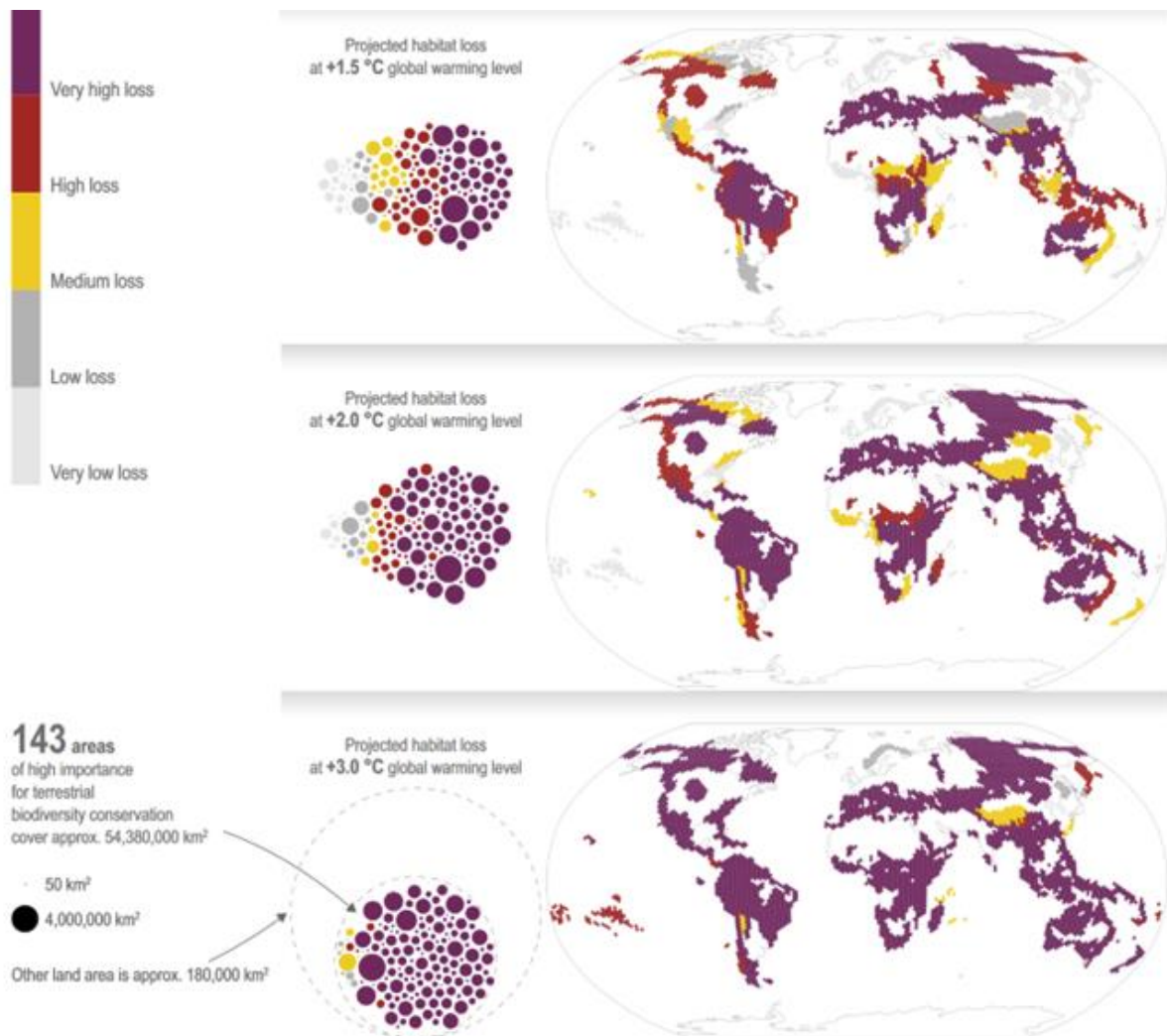
Figure 14. Present and projected habitat losses of climatically suitable area in terrestrial biodiversity hotspots. Projected loss for global warming levels of 1.5°C, 2°C and 3°C. Maps (right-hand column) show the regional distribution of losses in five categories of loss (very low loss 0–20%, low loss 20–40%, medium loss 40–60%, high loss 60–80%, very high loss 80–100%). The clusters of circles (middle column) show losses in the five categories of loss in each of the 143 hotspot areas of high importance for terrestrial biodiversity conservation, with circles scaled by area size. Source: Pörtner and Alegría 2022.

A review of priorities for climate change and development in Africa by African scientists and policy stakeholders supports the literature (related to degradation) cited in this review that a key priority for the region is generating Africa-specific evidence and tools through providing opportunities for African researchers, for example, in international teams and transdisciplinary collaborations. Cited institutional collaboration needs include: jointly identifying key challenges, knowledge gaps and user-driven research priorities; facilitating the development of multidisciplinary and multi-stakeholder research and outreach teams or partnerships; and promoting innovative communication and user platforms and tools for translating research into application (The African Academy of Sciences et al. 2021). The IPCC's sixth annual report for Africa echoes this, suggesting that to address gaps in evidence efforts should focus on increasing research leadership and direct control over resources by African partners, and respond to African researchers' and users' priorities related to research questions and skills gaps. The report additionally highlights governance priorities that mirror those proposed in this report, including encouraging multi-stakeholder partnerships, promoting locally led approaches and supporting all-of-government/cross-sectoral coordination (Trisos et al. 2022).

**iii) Urban-rural linkages**

This cross-cutting theme similarly emerged from discussions with regional experts during a REDAA workshop. Urban-rural linkages describe "the reciprocal and repetitive flow of people, goods and financial and environmental services… between specific rural, peri-urban and urban locations" (UN Habitat 2019). The emphasis of this theme is on flows across the rural-urban continuum, especially of ecosystem services and their benefits to food, energy, water, health and social services (Forster et al. 2021). The drive behind this evolving theme is to explicitly recognise that linkages do not necessarily support ecosystems and land, but rather often contribute to their degradation (ibid).

For example, urban demand for charcoal in the DRC drives forest degradation and destruction (Chapman et al. 2022). In Kinshasa demand for charcoal affects forests up to 300km away from the city (Mayaux et al. 2013 in ibid) and a new road project announced in 2021 between Uganda and DRC is expected to double trade between the two countries, and have important impacts on natural resource pressures (ibid). Cities in some regions of SSA are also growing, with expanding footprints putting biodiverse areas at risk – for example the Guinea Forests of West Africa (Seto et al. 2012 and Vliet et al. 2017 - see previous sub-section 2.1.1).

However, in some cases rural-urban linkages and their implications for ecosystem and land degradation are not well understood (especially when trying to draw insights across SSA). For example, the impacts of multidirectional patterns of migration (often circular migration in some areas of SSA) between rural and urban areas on degradation and restoration, such as from the migration of young people or the contribution of remittances to rural economies (see Mercandalli et al. 2019 for a discussion of rural migration in SSA).

UN Habitat (2019) suggests ten guiding principles and a framework for action generally focused on research-to-action that could build an enabling environment for more inclusive and functional urban-rural linkages. Many of the principles and strategies for action relate to evidence, tools and especially governance systems and processes. Interestingly they corroborate the priorities we identify in this review, such as locally grounded interventions, integrated governance, balanced partnership, participatory engagement and data driven and evidence-based action. A clear emphasis of the principles and framework is including relevant actors (including at risk communities) across the rural-urban continuum, emphasising to REDAA that priorities a-g should not necessarily be constrained by location, but where possible also consider their research-to-action strategy(ies) and possible impacts along this continuum.

**iv) Tenure and resource rights (in)security**

We touch upon tenure security and resource rights (such as collective rights to natural resources) as an example in priority g on organising and mobilising diverse local voices. However, attention to tenure and resource rights (in)security also emerges from the literature as a cross-cutting theme that requires attention not just related to governance systems and processes, but also to evidence gaps and use, as well as developing policy relevant decision-support tools. As we note in priority c, decision-support tools such as spatial analysis, could map data and information on tenure security to identify areas where investment in restoration (for example) could have desirable outcomes.

Challenges that lead to degradation or impede restoration related to tenure and resource rights include overlapping legal frameworks, legal pluralism, large scale acquisitions, weak institutional frameworks, gender inequality, tenure insecurity, land and natural resource conflicts, lack of participation, evictions, weak conflict resolution mechanism and corruption (Chigbu, Mabakeng and Chilombo 2021). These challenges play out differently across countries of SSA (ibid).

Yet, systems of clear and secure tenure and resource rights underpin FLR and SLM success (Djenontin et al. 2018, UNCCD 2022). An issue strongly emerging from the literature for REDAA is supporting research-to-action strategies that work with both state and customary governance arrangements (Barrow et al. 2016, Dewees et al. 2011, Djenontin et al. 2018, Knapman et al. 2017, Neely et al. 2014, NEP 2016, FAO 2020, Nkonya et al. 2016). This is especially a priority as customary systems are evolving rapidly (Knapman et al. 2017) and as land prices increase, land held under customary tenure becomes particularly vulnerable to expropriation (Nkonya et al. 2016). As such, attention should be on

finding innovative ways and reforms that enhance rights and their regulation without undermining the prevailing customary arrangements (Djenontin et al. 2018).

United Nations Convention to Combat Desertification (UNCCD) (Chigbu, Mabakeng and Chilombo 2021) suggests research-to-action strategies for REDAA attention that are relevant to operationalising priorities a-g. These include:

- Evidence – monitoring impacts of tenure and/or resource rights (in)security on the economy, society and ecology
- Tools – diagnosing the impacts of current arrangements related to tenure and/or resource rights (in)security on land degradation and restoration
- Governance – creating a vision for tenure and/or resource rights security and implementing strategies that change tenure, and/or resource rights arrangements that encourage restoration.

Additional suggestions emerging from the literature include learning about best practice on tenure and resource rights arrangements, and processes to advise on appropriate legislative and administrative reforms (evidence) (UNEP 2016). And, advancing experience on building accountability mechanisms, such as dispute resolution approaches that respond to land and natural resource conflict and provide restitution for damages (governance) (African Landscapes Dialogue 2020, Knapman et al. 2017).

### v) Intersectional inequities and power imbalances

A key underlying theme found in this literature review is recognising and challenging power imbalances and inequity across societies in SSA. REDAA-supported responses to improve evidence, tools and governance systems and processes will all need to have a clear understanding of power, equity and inequity in their design and implementation, including recognising power imbalances between actors within landscapes (FAO 2021b, Neely et al. 2014). Different groups of land and natural resource users, for example, have different needs, interests and challenges. And particular attention is required to keep sight of and protect the rights of, poorly represented and traditionally weaker actors such as women, young people, Indigenous Peoples, under-served ethnicities, as well as specific resource users (eg pastoralists) (Cordingley et al. 2015).

A REDAA scoping paper by Elmhirst (2022) on intersectional inequalities emphasises the importance of addressing social inequities in changing environments in REDAA's research-to-action strategies, and is relevant to the seven proposed priorities a-g. The scoping paper identifies many examples in the literature (including those from SSA) where the failure of initiatives to recognise intersectional inequalities when seeking to address issues of degradation or contribute to restoration, results in negative impacts on people's wellbeing (Elmhirst 2022). Our literature review similarly observed limited attention to intersectionality in the design and analysis of research evidence, as well as the discussion of potential actions or recommendations to tackle degradation and encourage restoration. This underlines that Elmhirst's recommendation for REDAA research-to-action activities to embrace an intersectional approach and support the wider application of existing intersectional research tools is very relevant to REDAA in SSA.

An additional REDAA paper by Scoones (2022) on understanding the root causes of environmental degradation highlights the power dynamics underpinning the framing of degradation and restoration narratives and emphasises that these are deeply cultural and political (ie not just based on scientific fact). An example of this in SSA is pervasive degradation myths of cracked soil depicting desertification in the West African Sahel and fence-line contrasts illustrating soil degradation of communal rangelands in South Africa (Benjaminsen 2021). Scoones recommends that research design and policy practice supported by REDAA needs to be clear about power and inequities when creating a narrative(s) about degradation and restoration. For example, what is the problem(s), what are the assumptions embedded in narratives about the problem(s), and who gets to say what the problem(s) is? All this matters for the types of research-to-action evidence, tools and governance solutions proposed related to priorities a-g (as well as those priorities that emerge from sub-regional reviews). In the case of the myths of degradation in the West African Sahel and the rangelands of South Africa, the technical and global North framing made indigenous pastoralism a problem, and led to interventions that dispossessed them from grazing lands (Benjaminsen 2021).

Similar experience can be seen in existing initiatives across the region that seek to tackle degradation and/or encourage restoration. The Great Green Wall initiative in the Sahel, for example, is criticised for its technical framing to define problems, solutions and measures for success (such as the number of trees planted, hectares restored, or people trained) (Turner et al. 2021). Some argue that this is to the detriment of understanding differential vulnerabilities to degradation within local communities, and contributes to exacerbating existing inequities between powerful elites, pastoralists and women (Ibid). Looking at AR100 experience in Africa, a focus on tree planting — a technical solution that itself has a rich history in colonialism — is criticised for putting grasslands and savannas at heightened risk of degradation and giving little regard to local social and ecological contexts (see box 9.3 in Trisos et al. 2022 and Vetter 2020).

Proposed research-to-action strategies relevant to REDAA and supportive of priorities a-g, include: engaging with the complexities of local realities (social and ecological); encouraging dialogue between actors about the problem; promoting effective participation of local communities in design and implementation; facilitating processes for collaboration across disciplines; moving beyond a singular focus on technical success and instead treating potential sites as political and shaped by a wide range of local interests; and applying diverse methods to open up the framing of the problem, as well as the potential solutions (Scoones 2022, Turner et al. 2021).

The REDAA team should also note that this learning throws caution to the interpretation and use of section 2 of this report. This part of the review identifies areas at risk of degradation and/or with potential for restoration drawing on global and/or regional (SSA) datasets that are largely based on biophysical data and information. This overlooks national, sub-regional and local data and information, as well as political, social and economic realities. It also reemphasises the suggestion elaborated in section 3 that to support spatial mapping of degradation (including risk) and restoration potential, more attention is needed to capture regional, national and local input with attention to socio-political factors (see priorities a and c). Others have also highlighted problems with such global and regional level identification of land with restoration potential citing issues such as: 1) mapped land is assumed to be degraded and/or underutilised, when it is a place for people and their histories; 2) mapped land is contested with a range of often overlapping claims; and 3) mapped land is often home to people with insecure rights (Basnett et al. 2017).

Looking at the literature related to SSA on degradation and restoration, there is some attention to specific aspects of people's identities and social categories that can create vulnerabilities – namely gender and age (specifically young people). Women and girls are recognised as disproportionately and differentially impacted by degradation due to their interactions with natural resources through gendered livelihood roles (eg food collection and production). They are similarly recognised as overlooked in land restoration projects that typically focus on men due to their privileged claim to rights and access to information – all of which is underpinned by traditional, patriarchal social and cultural norms that are prominent in traditional rural settings across SSA (Namubiru-Mwaura 2021, Aguilar 2022, Lewis 2022).

Proposed research-to-action strategies that are relevant to priorities a-g include:

- improvements to gender analyses using disaggregated data (relevant to priority a);

- equalising access to use and control over resources and benefits from restoration (relevant to priorities d and g);

- strengthening women's rights, leadership and participation (relevant to priority g);

- gender responsive Free and Prior Informed Consent (FPIC), compensation and grievance mechanisms (relevant to priorities d and g);

- improving women's access to flexible finance and value chains (relevant to priority d);

- supporting inclusive institutions and partnerships/alliances (relevant to priorities b and f); and,

- developing and/or strengthening gender responsive policies, regulations and interventions (relevant to priority g) (Namubiru-Mwaura 2021, Aguilar 2022).

More broadly, to address gender equity, REDAA's attention should not be confined merely to benefit sharing but should extend from decision making in the development/design of research-to-action strategies and the implementation, monitoring and evaluation of success (Lewis 2022).

Growing attention to youth engagement in tackling degradation and leading restoration efforts is in part a response to the acknowledgment that there is a large proportion of the population under 35 years old across SSA, but there are barriers to their leadership (such as financial exclusion and a lack of rights – particularly secure tenure) (Kemeh and Kabalan 2021, Regreening Africa 2022). There are few proposed research-to-action strategies in the regional literature for REDAA to consider, though case study examples suggest the value of building capacities, partnerships and youth-led initiatives and networks (relevant to priorities b, f and g) (Africa Climate News 2021, Kemeh and Kabalan 2021, Regreening Africa 2022). Interesting examples from the region include: tackling unemployment and land degradation together in partnership with young people (eg Malawi); mentoring and inspiring youth focused NGOs on nature-based solutions (eg Uganda); and rewarding young people committed to conservation and restoration with access to public land (eg Ethiopia) (Kemeh and Kabalan 2021).

# 4. Regional initiatives to address environmental degradation

Table 12 summarises nine ongoing initiatives that seek to address environmental degradation and promote restoration across SSA, describing their objectives and priorities. The initiatives included in the table are implemented across multiple countries or are pan-African. The table does not include global or one-country initiatives, the latter of which will be covered by sub-regional studies and consultations. In total, four initiatives focus on forests, one on drylands and areas prone for desertification risks, and four on a mixture of ecosystems and landscapes.

In column four of the table, we map the proposed REDAA SSA research-to-action priorities from section 3 against the nine initiatives, noting where an initiative appears to be working on one of the seven priorities. Five of the initiatives are seeking to strengthen multi-stakeholder dialogue — such as with the private sector — and show **some** similarity with priority f in section 3 of this report. There's also limited crossover with priority d on locally led approaches and tools through encouraging uptake of FMNR, which is the focus of two projects, and priority b on interdisciplinary and cross-border research, which again is mentioned in two projects. Additionally, three initiatives appear to have some crossover with priority e, specifically on cross-sectoral collaboration.

As far as we can see from these brief descriptions, priorities a on addressing data and information gaps, c on decision-support tools and g on organising and mobilising local voices, do not appear to be well covered by these nine initiatives. There is also little clarity over how the listed initiatives are tackling the five suggested cross-cutting themes of i) biodiversity mainstreaming ii) climate change, iii) urban-rural linkages, iv) tenure and rights (in)security, and v) tackling intersectional inequalities and power imbalances – though one initiative (Restore Africa) mentions improving benefits from restoration for women. We could not assess how well the Great Green Wall Initiative and Forests4Future initiative aligned with proposed REDAA SSA priorities, as the priorities for these initiatives are not explained in sufficient detail on their websites or easily accessible public documents.

As REDAA develops its regional strategy for SSA, it would be useful to consider how to fill the gaps of existing initiatives in terms of the priorities identified in section 3, and where there are opportunities to build on existing initiatives activities and networks.

Table 12: Overview of complementary initiatives within SSA.

| Name of initiative | Objectives | Priorities | Links to priorities identified within section 3 of this review | Region(s) / Countries |
|---|---|---|---|---|
| African Forest Landscape Restoration Initiative (AFR100) | Restore 100 million hectares of land in Africa by 2030. | - strengthen the core capacities of local farmer organisations, improve incomes and improve the institutional and technical capacities for landscape-level restoration<br>- build private sector engagement and cross-sectoral collaboration<br>- monitor and exchange on FLR progress and best practices<br>- craft subnational development strategies and raise awareness to scale up restoration. | Priority e – cross-sectoral collaboration<br>Priority f – multi-stakeholder dialogue | Pan-African |
| African Landcare Network (ALN) | Encourage the adoption of the African Landscape Convention by connecting a network of organisations, individuals and professionals working on landscape programmes, projects and issues in Africa. | - build a supportive African network that draws together LandCare initiatives to learn from each other through general information exchange, exchange visits, mentoring, conferences and training workshops<br>- integrate LandCare into Africa-wide and sub-regional programmes<br>- promote knowledge generation through research of technical, institutional and policy innovations that enable further growth of LandCare practices<br>- facilitate 'knowledge to action' processes through knowledge and skills transfer and effective dissemination of research and development innovations<br>- provide support for building the capacity of country LandCare teams and stakeholders for effective implementation of LandCare activities and projects<br>- collect and develop a database of LandCare success stories and best practices | Priorities b – interdisciplinary and cross-border research<br>Priority f – multi-stakeholder dialogue | Pan-African |

| | | - build partnerships, links, and mobilise financial resources to facilitate strategic investments in LandCare<br>- create buy-in among government structures for inclusion of LandCare in NRM policy. | | |
|---|---|---|---|---|
| TerrAfrica | Improve coordination efforts to up-scale the financing and mainstreaming of effective and efficient country-driven Sustainable Land and Water Management (SLWM) | - facilitate actions that strengthen national, sub-regional and regional cooperation<br>- identify barriers and bottlenecks to increase investment and impact in SLWM<br>- harmonise policies<br>- develop, mobilise, channel and harmonise SLWM investments at local and national level. | Priority e – cross-sectoral collaboration | Pan-African |
| Great Green Wall Initiative | Restore 100 million hectares of currently degraded land; sequester 250 million tons of carbon; create 10 million green jobs and provide access for 10 million smallholder farmers to climate resilient agricultural technologies by 2030. | - grow an 8,000km-long line of trees and plants across the Sahel<br>- reverse land degradation<br>- boost food security<br>- support local communities to adapt to climate change<br>- provide economic opportunities for local communities. | Not clear | North Africa, the Sahel and the Horn of Africa |
| Alliance for Restoration of Forest Landscapes and Ecosystems on Africa Large-scale Forest Landscape Restoration (AREECA) | Increase the socioeconomic, ecological and climate-related benefits of appropriately planned large-scale restoration for communities across Africa. | - strengthen the core capacities of local farmer organisations to enable work on the ground to be more efficient and impact-oriented<br>- improve household incomes<br>- improve the institutional and technical capacities for landscape-level restoration<br>- build private sector engagement and cross-sectoral collaboration, monitoring and exchanging on FLR progress and best practices. | Priority e – cross-sectoral collaboration<br>Priority f – multi-stakeholder dialogue | Cameroon, Kenya, Malawi and Rwanda |

| | | | | |
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| Central African Forest Initiative (CAFI) | Recognise and preserve the value of the forests in the region to mitigate climate change, reduce poverty and contribute to sustainable development | - accompany the development and implement National Investment Frameworks (NIFs)<br>- provide funding based on the NIFs<br>- encourage donor coordination and alignment of bilateral assistance to partner countries based on NIFs<br>- promote inclusive participation of stakeholders. | Does not cross over with priorities in section 3, but does show similarity to long listed priority 6 in Annex B. | CAR, DRC, Cameroon, the Republic of Congo, the Republic of Equatorial Guinea, Gabon |
| Forests4Future | Restoring the ecological and productive functions of degraded forest landscapes and enhancing good governance in the forest sector | - foster FLR in Ethiopia, Madagascar, Togo, Benin, Cameroon and Côte d'Ivoire<br>- improve forest governance<br>- support legal timber trade and the EU's forest law enforcement, governance and trade (FLEGT) process in Côte d'Ivoire, Cameroon, Laos and Viet Nam. | Not clear. | Benin, Cameroon, Côte d'Ivoire, Ethiopia, Madagascar, Togo |
| Habitat Restoration Initiative of Eastern Africa (HARI) | Enhance biodiversity conservation through the restoration of degraded habitats and through species re-introductions in the Eastern Africa region | - build networks with NGOs, government, local communities, institutions and individuals interested in habitat restoration<br>- promote networking, collaborative partnership, awareness raising, information dissemination and capacity building on habitat restoration<br>- conduct and promote restoration projects through research, planning and implementation<br>- establish an information centre on restoration<br>- restore degraded habitats, especially in water catchments centres of endemism, biodiversity hot spots, sites with rare or threatened species, abandoned quarries, mines and construction sites in Eastern Africa. | Priority a – data access and availability<br>Priorities b – interdisciplinary and cross-border research<br>Priority f – multi-stakeholder dialogue | Kenya, Tanzania, Uganda (Lake Albert Lake Edward, Lake Kivu, Lake Tanganyika, Lake Turkana, Lake Victoria) |

| Regreening Africa | Reverse land degradation among 500,000 households and across one million hectares in eight countries in sub-Saharan Africa. | - scale-up evergreen agriculture, using locally appropriate techniques including FMNR, tree planting and other forms of agroforestry<br>- collect and apply evidence in multi-stakeholder engagement and policy processes<br>- equip countries with the surveillance and analytical tools for land degradation that support strategic decision making and monitoring. | Priority c – decision-support tools<br>Priority d – locally led tools and approaches<br>Priority f – multi-stakeholder dialogue | Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, Somalia |
|---|---|---|---|---|
| Restore Africa | Restore 1.9 million hectares of land and directly support 1.5 million smallholder farming families, across six African countries | - provide technical assistance and capacity-building<br>- accelerate and scale up the adoption of Farmer Managed Natural Regeneration (FMNR)<br>- improve livelihoods through growth in crop yields, diversification of income, inclusive employment opportunities, particularly for women and carbon revenue sharing<br>- better routes to market to facilitate the sale of products through market linkage/networks. | Priority d – locally led tools and approaches | Tanzania, Uganda, Malawi, Zambia, Kenya and Ethiopia |

# 5. Summary of emerging potential priorities for REDAA in SSA

The IIED team focused this rapid literature review on identifying potential regional priorities that could meet the eight criteria for REDAA investment (see sub-section 1.2 for a more detailed reminder of these criteria). In total, we elaborate on seven potential priorities for REDAA in SSA — two relate to evidence, two to tools and three to governance — and we longlist a further seven priorities in Annex B that are identified by only one source in the literature, with limited further contextual detail. Table 13 summarises these potential regional priorities alongside the 11 SSA hotspots from section 2. A reminder that we use the term 'hotspots' to refer to places where landscape, biodiversity or ecosystem degradation are occurring, show potential for restoration, or are areas that provide significant contributions to people through ecosystems goods and services.

Table 13: A summary of the 11 hotspots and seven potential research-to-action priorities for REDAA in SSA as identified in this rapid literature review.

| List of hotspots |
| --- |
| 1. Guinean Forests of West Africa |
| 2. Eastern Afromontane |
| 3. Madagascar and the Indian Ocean Islands |
| 4. Congo Basin |
| 5. Coastal Forests of Eastern Africa |
| 6. Maputaland-Pondoland-Alany |
| 7. Horn of Africa |
| 8. Cape Floristic Region |
| 9. Sahel region |
| 10. Succulent Karoo |
| 11. Southwest Africa |

| List of potential research-to-action priorities for REDAA in SSA |
| --- |
| a) Strengthen national and/or regional information systems and/or support locally led evidence generation (eg through citizen science) to respond to data and information gaps that affect our understanding of degradation status and restoration potential, and abilities to make informed decision making locally and nationally. |
| b) Support interdisciplinary and cross-border collaboration to strengthen understanding of nature's contributions to people and effective approaches to reverse degradation. |
| c) Develop relevant decision-support tools such as scenarios and spatial analyses, which incorporate regional biophysical, social, political and economic data and information, and couple them with participatory approaches to improve their use and relevance. |
| d) Prioritise scaling locally led tools and approaches (especially those that build on indigenous and local knowledge) that have the potential for achieving positive outcomes for people and nature, working with IPs and LCs as key partners in this process. |
| e) Develop existing and new approaches to cross-sectoral and cross-government decision making and implementation that identify the potential for synergy and challenge vested interests. |
| f) Advance approaches for multi-stakeholder dialogues that create a safe space for debate, critique, and negotiation of specific outcomes for tackling degradation and encouraging restoration among a variety of actors. |

g) Organise and mobilise diverse local voices that can share perspectives on key issues (such as securing rights) that prevent progress and genuine devolution of authority to the local level.

Tables 14 a and b presented below map the seven potential research-to-action priorities (a-g) against the eight REDAA criteria to identify where the priorities meet the criteria, and where they may fall short. The mapping presented in tables 14 a and b also uses colour coding: dark green shading indicates where criteria can be fulfilled through REDAA grant making support for the priority; and light green shading indicates where criteria may not be well met and so careful attention is needed to address this during REDAA grant making in the SSA region. Overall, there are not many criteria that we assess as not well met – ie are coloured light green. However, we do consistently assess two criteria as not well met. They are whether the priority is scale-appropriate and timeframe-fitting.

On scale, we observe that all seven potential REDAA research-to-action priorities are ambitious and will likely require a grant of between GBP200,000 and GBP1.5 million over four years, rather than a grant of between about GBP50,000 and GBP100,000 over six to 24 months. On timeframe, we assess that typically priorities will need to build on existing initiatives and efforts to make progress within a four year timeline. This may not be possible in some sub-regions and countries where there has been limited attention/support from international, regional and national initiatives, and this will additionally affect whether grant making on these priorities can fulfil the other REDAA criteria. Furthermore, on timeframe, it is important to emphasise that to meet other related REDAA criteria — such as locally led, intersectional, cross-disciplinary and multi-stakeholder — grant making should embrace flexibility, be patient and give prominence to the goals of local resource managers (Holland 2022, Roe, Nelson and Sandbrook 2009). Moreover, REDAA-supported projects may need to build in time for dialogue between actors about the problem and how it is framed, or for building the capacity of cross-disciplinary, cross-border and/or multi-stakeholder projects to perform (eg through Transformation Labs and/or 'forming, storming, norming and performing a project process', see Scoones 2022). This was also noted in the REDAA review workshop, where regional experts highlighted that attention should be given during grant making to ensure projects have an 'incubation' period for behavioural and resource mobilisation.

Note that often in this rapid literature review we find limited detail on the rationale behind a priority. This means that when applying the eight REDAA criteria in our analysis for tables 14 a and b, we use a combination of written evidence, as well as our deduction and assessment. Subsequent sub-regional studies will draw on experts' perspectives in the region, which will serve to strengthen and further refine these priorities and the rationales behind their selection.

Table 14a: The potential research-to-action priorities (a-d) for SSA mapped against the eight REDAA criteria for investment. Dark green cells indicate where a criteria can be well met by REDAA support for the priority. Light green cells indicate where a criteria may not be well met by REDAA support for the priority, and so careful attention is needed to address this in REDAA planning for grant making in the SSA region.

| REDAA Criteria | | Priorities | | | |
| --- | --- | --- | --- | --- | --- |
| | | a) Data and information gaps… | b) Interdisciplinary and cross-border research… | c) Decision-support tools- such as scenarios… | d) Locally led tools and approaches… |
| Impacts | 1. Site-specific impact | (i) REDAA support for strengthened national and regional information systems on land and ecosystem restoration is unlikely to have site-specific impacts.<br><br>(ii) REDAA support for improving locally led evidence generation (eg through citizen science) could lead to site specific impacts, for example by promoting more informed local governance systems (Christensen et al. 2021). | It's likely that it would be of most interest and value to the region if REDAA supports research-to-action activities that seek to address evidence gaps — on nature's contributions to people and the effectiveness of landscape governance approaches — by supporting interdisciplinary and cross-border research that looks at cross-cutting and site-specific (ie specific to local context) impacts at multiple sites in the region (rather than focusing on one site). | REDAA could support grantees to use spatial tools (that integrate local knowledge) to identify key areas where site-specific impacts — for people and nature — are achievable from reversing degradation and promoting restoration initiatives. | Locally led tools and approaches — such as the cited example of FMNR — can have significant site-specific impacts. REDAA's focus for this priority, however, should be on co-learning and scaling up for cross-cutting impacts across places and ecosystems as a priority. |
| | 2. Cross-cutting impact | (i) REDAA support for strengthened national and regional information systems on land and ecosystem restoration could have cross-cutting impacts by, for example, developing frameworks for assessing and mapping degradation | | REDAA could support the emergence of relevant regional scenarios that provide a useful tool for identifying how global, regional and/or national processes (biophysical, economic, social and/or political) interact and help decision makers to identify | To ensure cross-cutting impacts, the focus for REDAA should be on unpacking locally led tools and approaches and what they look like in different contexts, interrogating how such initiatives might be adapted to other contexts, and exploring the possible |

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| | | (including risk) and restoration potential that identify and prioritise places for supporting action on reversing degradation and/or promoting restoration. (ii) REDAA support for improving locally led evidence generation is likely to achieve cross-cutting impacts. Relevant experience from participatory monitoring of land degradation in Africa's drylands shows that participatory monitoring through community leaders helps to ensure congruence between national policy responses and local land users' concerns. It also provides a network for outreach and dissemination of sustainable land management initiatives (Stringer and Dougill 2013). | | and prioritise areas of significant cross-cutting impacts within and across countries in the region. | costs and benefits of application elsewhere in the region (CBD 2018, Chomba et al. 2020, Djenontin et al. 2018). |

| Participatory action | 3. Locally led | (i) REDAA support for strengthened national and regional information systems should include the integration of data and information generated by any relevant community-led assessments. This will help to ensure locally led efforts are captured within information systems. However, an overall effort to improve national and/or regional information systems are unlikely to be locally led – though they certainly should be led by expertise in the region and countries targeted. | The two evidence gaps identified in this review — on nature's contributions to people and the effectiveness of landscape governance approaches — cannot be thoroughly understood without collaboration with, and leadership from, local partners to understand local contexts, realities and complexities. To address this priority, REDDA should ensure they support collaborative partnerships that are inclusive of local actors. | As evidenced by IPBES 2018b, there's been limited attention to date in scenario work to using participatory approaches, and as a result, little integration of indigenous or traditional knowledge into scenarios. This is a key gap REDAA can address going forward. However, it'll likely be a challenge to integrate technical approaches to scenario modelling with locally led scenario building, and REDAA will need to pay attention to grantee's suggested ways of working to ensure methods and approaches truly represent collaboration and participation with relevant local level actors. | Across SSA, there are a plethora of grassroots movements that respond to land degradation and it would be valuable for REDAA to improve understanding — through collaboration with IPs and LCs — of the evidence and learnings from piloting models of IP and LC engagement and leadership. This includes how these locally led initiatives were developed and sustained, (Gnacadja and Wiese 2016), as well as why some locally led tools and approaches have not worked and why (Holland 2022). |
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| | | (ii) Careful attention is needed to ensure REDAA supports efforts to locally led evidence generation that adopt inclusive processes for community leadership and engagement, knowledge exchange and co-production/learning. One option is through investing in strengthening community resource centres for locally led landscape monitoring and research (African Landscapes Dialogue 2020). | | | |
| **Participatory processes** | **4. Intersectional** | (i) REDAA should focus on integrating economic, social and political data and information with biophysical data to build more informed national and regional information systems on land and ecosystem restoration (CBD 2018). As highlighted in the discussion on the cross-cutting theme of intersectionality (see subsection 3.4) existing efforts on global identification of hotspots of degradation land restoration potential | REDDA needs to carefully consider how to integrate approaches suggested by Scoones (2022) to facilitate processes for collaboration across disciplines and across territorial borders between actors in SSA. This is a key gap in SSA, as evidenced in low citations to research outputs from the region. It's also evidenced in existing programmes that prioritise technical approaches over understanding how to build transformative change by engaging with the | As evidenced by IPBES 2018b, regional scenario work has focused on forecasting species range shifts, extinction risks and habitat loss. REDAA should address the limited attention in the region to the direct links between biodiversity function, ecosystem services and human wellbeing. This should include aspects of wellbeing that are often overlooked such as equity, security and freedom of choice. | The involvement of IPs and LCs is often cited as a key factor for restoration activities to improve their effectiveness and to deliver positive outcomes for people and nature. There is conflicting literature on the benefits to IPs and LCs from successful restoration initiatives, with some evidence from SSA identifying negative impacts (see Reyes-Garcia et al. 2019). REDAA needs to pay close attention here to ensure that those locally led tools and approaches supported through grant making genuinely represent |

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| | | largely overlook this data and information, limiting their relevance.<br>(ii) Locally led evidence generation is well placed to capture data and information on intersectional inequalities from a diversity of perspectives. REDAA could request any efforts to locally led evidence generation use an intersectional approach that captures relevant data and information on disadvantage, oppression and/or systems of injustice. | complexities of local realities. | | important gains for people, especially marginalised people facing intersecting vulnerabilities. |
| Multi-sectoral | 5. Cross-disciplinary and multi-stakeholder | (i) As noted above, a key need for improving regional and national information systems is integrating economic, social and political data and information with biophysical data. As such, any REDAA-supported efforts to address this issue should be cross-disciplinary and involve a diversity of actors, including local level actors with relevant data and information.<br>(ii) REDAA-supported approaches to locally led | Key disciplines that REDAA should encourage to work together include agroforestry, anthropology, business management, ecology, economics, engineering, forestry, indigenous and biocultural studies, geography, geology, governance, law, microbiology, modelling, plant science, remote sensing, sociology and zoology (Abhilash 2021). | Decision-support tools such as scenarios and spatial mapping often focus on biophysical data. REDDA should encourage cross-disciplinary and multi-stakeholder collaboration to address this by, for example, widening the drivers considered in scenarios, especially to those relevant to SSA such as tenure, migration and urbanisation. | This priority demands close collaboration and co-learning with local actors such as local government and IP and LC led bodies. REDAA should support research-to-action efforts that strive for genuine partnerships with, or build from the leadership of, local level actors. |

| | | evidence generation should integrate indigenous and traditional local knowledge with 'scientific' information. This will require cross-disciplinary and multi-stakeholder collaboration. However, careful attention is needed to ensure indigenous and traditional knowledge is not displaced by 'western science' or rendered useless by being detached from the local context (IPBES 2018b). | | | |
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| **Value for money** | **6. Scale-appropriate**<br><br>**7. Timeframe-fitting** | (i) Within a four-year timeframe and over a regional and/or national scheme, it's realistic that efforts to improve data and information systems build on existing initiatives, rather than begin from scratch.<br>(ii) It's likely ambitious to try and achieve a completely new programme of locally led evidence generation over multiple sites and scales in four years. A grantee should be able to demonstrate existing expertise and networks in | A REDAA-supported initiative will likely need to build on existing collaborations and initiatives, during a larger, four-year grant. And the ambition to include a diversity of countries and disciplines will be limited by the resources available from REDAA. It will also need to build in time for research-to-action approaches that involve dialogue between actors about the problem, and build the capacity of a cross-disciplinary and cross-border project to | Given the gaps in spatial mapping and scenario-based decision-support tools in the region, this priority can likely only be addressed in a larger four-year grant. | This priority will likely require a larger grant of up to four years to ensure research-to-action processes are truly collaborative for IP and LC partners. Key to this priority is patient, predictable and flexible funding that provides adequate time for an 'establishment phase' (Holland 2022). |

| | | the region and/or build on existing structures and initiatives. | perform (eg through Transformation Labs and 'forming, storming, norming and performing a project process' (Scoones 2022). | | |
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| **8. Value for money** | | (i) Regional and national information systems are limited, and in their absence, it is hard to identify priority areas (including for REDAA grant making) in SSA for investment in reversing land degradation and promoting restoration. Existing global (and some regional) approaches offer limited insights, as evidenced by section 2 and discussed further in section 3.4 on intersectional inequalities and power imbalances. (ii) There is some evidence from the region that locally led evidence generation approaches (such as citizen science) are more cost-effective than 'professional' monitoring systems (Evans et al. 2018). | REDAA could address regional limitations in resources and expertise through interdisciplinary and cross-border collaborations, for example, by providing opportunities for exchange and training. | While strengthening existing approaches and developing new accepted decision-support tools is a priority, REDAA needs to be wary that current approaches are often costly and complex, preventing their wider uptake (AfDB and WWF 2015). | By focusing on locally led tools and actions across the region, REDAA is likely to identify the most appropriate solutions/initiatives that genuinely reflect and react to local contexts, realities and complexities. |

Table 14b: The potential research-to-action priorities (e-g) for SSA mapped against the eight REDAA criteria for investment. Dark green cells indicate where a criteria can be well met by REDAA support for the priority. Light green cells indicate where a criteria may not be well met by REDAA support for the priority, and so careful attention is needed to address this in REDAA planning for grant making in the SSA region.

| REDAA Criteria | | Priorities | | |
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| | | e) Cross-sectoral and cross-government decision making and implementation | f) Multi-stakeholder dialogues | g) Organise and mobilise diverse local voices |
| Impacts | 1. Site-specific impact | This priority is unlikely to result in site-specific impacts that are detectable or traceable within the timeline of a REDAA grant. Change is much more process related, for example, it's about improving communication, collaboration, transparency and accountability across scales of governance, rather than at a specific site. | Similar to priority e, this priority is unlikely to result in specific site impacts within the timeline of a REDAA grant. Although, if a dialogue is place-based it may contribute to site-specific impacts through, for example, multi-stakeholder negotiation of issues that are causing grievance and/or conflict. Another example is by improving equity in the process of benefit distribution arising from efforts to address land degradation or promote restoration. | Local level impacts could be significant where REDAA grant making tackles persistent issues that prevent progress on devolution of authority to the local level and undermine efforts to tackle land degradation and/or promote restoration. This includes, for example, clarity over access to, and security of rights related to natural resources. REDAA grant making could also have cross-cutting impacts where supported projects seek to tackle systemic barriers to change. For example, by finding similarities between state and customary governance arrangements (Barrow et al. 2016, Dewees et al. 2011, Djenontin et al. 2018, Knapman et al. 2017, Neely et al. 2014, NEP 2016, FAO, 2020, Nkonya et al. 2016). Evidence shows that clear and secure rights underpin FLR and SLM success and REDAA attention should be on finding innovative ways and reforms that enhance rights and their regulation without undermining the prevailing customary arrangements (Djenontin et al. 2018). |
| | 2. Cross-cutting impact | For a REDAA grant, addressing this priority could have cross-cutting impacts on governance systems and processes related to, for example, coordination and collaboration across sectors, actors and governance scales. If successfully addressed, this priority could have onward impacts (but not necessarily detectable within REDAA grant timelines) by improving the likely success of land degradation and/or restoration initiatives. A systematic review of the factors shaping | For REDAA, a key cross-cutting impact of multi-stakeholder dialogues could include more informed decision making and implementation that, for example, explicitly negotiates and addresses trade-offs in differing development objectives (Okello et al. 2021), and responds to biodiversity information and data (Stephenson et al. 2017). Those engaged in the dialogues can also benefit, for example, from improving capacities to navigate | |

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| | | outcomes for FLR across SSA highlights evidence that the governance context is key to FLR success, with challenges cited as non-integration of policies and programmes across scales and an absence of communication and collaboration between ministries and between different actors (Djenontin et al. 2018). | complexity and collaborate, reflect and learn (Okello et al. 2021). | |
| **Participatory action** | **3. Locally led** | This priority refers to connectivity across sectors, actors and scales of governance, so including not merely national, but also provincial and local level decision-making bodies. However, it will be important for REDAA grant making to ensure that local level actors are empowered as part of any process to address this priority, so that their voices and perspectives are listened to and respected, and there are opportunities for local level actors to challenge governance processes that are top-down and non-responsive to local contexts, realities and complexities. | As shown in a review of FLR efforts in SSA, a key obstacle for local actors — particularly community representatives — is that they often do not possess the requisite scientific expertise that dominates FLR, meaning they often miss the opportunity to express agency and their priorities (Djenontin et al. 2018). REDAA-supported multi-stakeholder dialogue(s) will need to demonstrate how multi-stakeholder dialogue(s) will raise the profile of local level actors (especially those under-represented) and respond to their voices and ideas. | Key learnings for REDAA grant making from previous IIED supported regional reviews (eg Roe, Nelson and Sandbrook 2009 and Cooney et al. 2018 drawing insights from Nelson 2010) include that efforts to address devolution to the local level should create a demand-driven, decentralised model of reform by building the capacities of, and opportunities for, local actors. As such, REDAA should focus not simply on drawing out lessons and best practices for locally led tools and approaches (as suggested by priority d), but additionally grant making should fundamentally challenge national policy decisions and implementation by helping to organise and mobilise local voices. |

| Participatory processes | 4. Intersectional | The extent to which this priority meets this criteria is not clear. This will depend on the thematic issues prioritised as part of a REDAA-supported process to improve cross-government and cross-sector decision making and implementation related to tackling land degradation and promoting restoration. REDAA will need to pay attention to the extent to which grantees propose a process that recognises diverse priorities and sets out to challenge power imbalances and inequities in the current status quo. | Multi-stakeholder platforms supported by REDAA must be sensitive and responsive to different types of knowledge and local context, and inclusive of under-represented voices such as southern-based researchers as well as representatives of people marginalised due to their intersectional identities (related to, for example, their ethnicity, gender, indigeneity and/or race) (Goldman and Pabari 2021). | REDAA grant making should contribute to efforts that organise and mobilise a diversity of local voices, including those from within communities that are typically not heard (eg certain ethnicities, gender, resource users, ages and so on) in decision making and implementation related to tackling degradation and/or promoting restoration. |
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| Multi-sectoral | 5. Cross-disciplinary and multi-stakeholder | Experiences to date highlight to REDAA the importance of engaging not just the usual suspects within government that have remits directly related to nature and people, but also key development planning and financing bodies that have the mandate and power over resource (re)allocation and investment decisions (UNECA 2015). | REDAA needs to pay attention to the multi-stakeholder dialogues it supports and specifically the proposed actors involved, as well as those who should be involved but might be missing. In SSA any gains in building multi-stakeholder consensus can be quickly reversed by parties not represented, such as private investors and powerful local elites (eg traditional leaders) through less formalised processes of advocacy and lobbying (Milder et al. 2014, Gusenbauer and Franks 2019). | REDAA should support efforts to organise and mobilise local voices that draw from a range of regional and/or national expertise including, for example, from community mobilisers, policy action organisations and natural resource specialists. Additionally, REDAA-supported grant making should also favour approaches that target multiple local actors (stakeholders and rightsholders) to increase pressure for systemic change. |

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| **Value for money** | **6. Scale-appropriate**<br><br>**7. Timeframe-fitting** | An FAO review of FLR practice in Africa noted there are few examples of government institutions collaborating across sectors and integrating diverse priorities, and that more systemic change is needed (Mansourian and Berrahmoun 2021). It's likely to be difficult to achieve this within the four-year timeline of a REDAA grant, but REDAA could prioritise research-to-action activities related to this priority that grantees clearly justify as catalytic and with the potential to be sustained. | Within a four-year grant timeline it likely makes sense for REDAA to build on existing (including currently dormant) multi-stakeholder initiatives and partnerships. This will allow for more attention to expanding or improving the representation of overlooked actors (eg private sector) and/or marginalised actors (community members, resource users, people from within communities – eg certain ethnicities, genders, ages and so on). It would also provide time to allow for improving approaches used within dialogues, such as preparing actors and providing space for them to negotiate contentious issues. Although for some SSA countries there may not be existing networks to build from and this will affect the ambition of multi-stakeholder dialogue(s). Regardless, a key focus of REDAA-supported dialogues should be to create spaces for debate, critique and negotiation. | In similarity to priority f, it likely makes sense for REDAA within a four- year grant making timeline to build on existing initiatives/bodies that aim to organise and mobilise local voices on issues that affect them related to degradation and restoration. In this way grant making would focus on improving existing networks by, for example, diversifying the voices represented and/or connecting networks over different scales. This is likely favourable over creating and connecting new networks at scale, which could be a tall order to achieve within four years. However, this may be necessary in some SSA countries that have not made as much progress on devolution, and/or have significantly undermined local level actors through processes of recentralising authority. |
| | **8. Value for money** | By tackling this priority, REDAA is addressing a key governance issue that is undermining regional success at tackling land degradation and promoting restoration. A review of six country level reports using the decision-support tool — the Restoration Opportunities Assessment Methodology (ROAM) — reveals that a common emerging challenge is a lack of connectivity | A note of caution for REDAA from a survey of leaders and managers of 87 integrated landscape initiatives (ILI) in 33 African countries is concern that ILI activities and coordination processes are often funded by external partners over a short time period. The reviewers of the survey note that while ILI activities and coordination mechanisms may be established or | This priority appears to have received limited attention from existing initiatives in the region (see section 4), and as such represents an important gap. By contributing to organising and mobilising local voices (including local actors' skills and opportunities to challenge policy decisions and their implementation), REDAA is likely to respond to, and catalyse, local level demands for change that could be sustained beyond the grant |

| | | between sectors, actors and different scales of governance (McLain et al. 2021). | strengthened by short-term donor funding, careful attention is needed to embed activities into government policies and programmes, or other means of support that will sustain in the long term (Milder et al. 2014). | making period. This approach is also favourable over intervening at a national level and relying on political will and support from centralised governments, which typically act against their own personal and institutional interests (Roe, Nelson and Sandbrook 2009). |

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# 7. Annexes

## Annex A. Additional maps identifying biodiversity, degradation and restoration potential hotspots across SSA
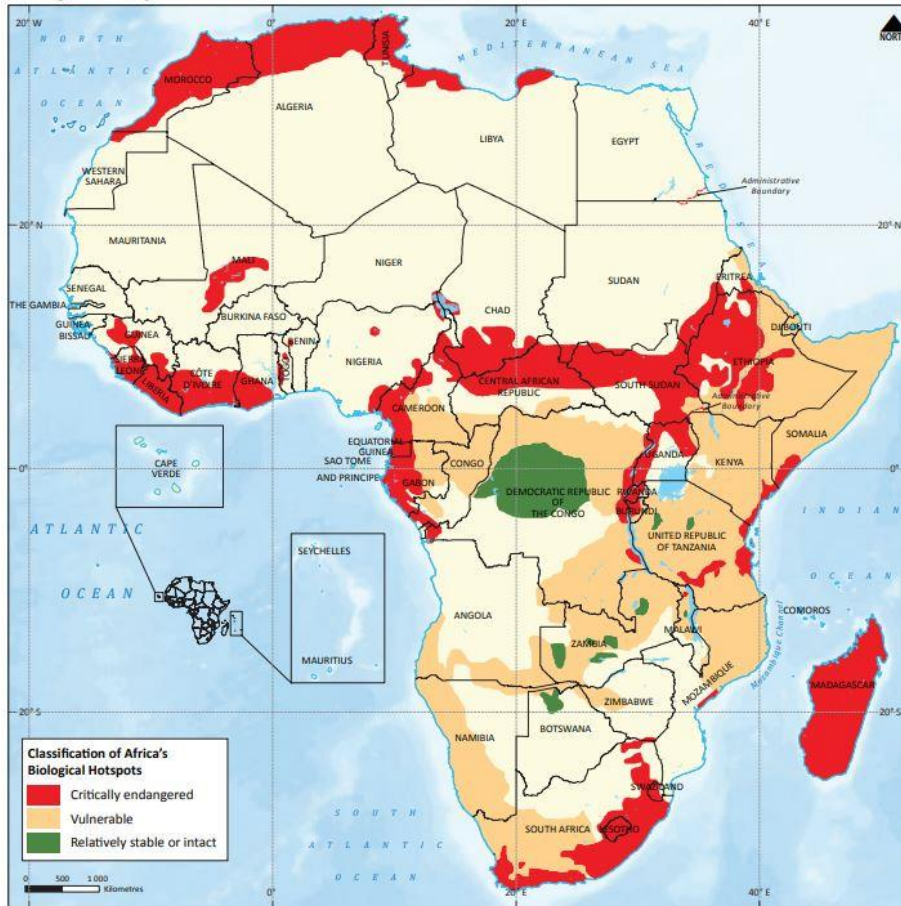


Figure 15: Classification of Africa's relatively stable, vulnerable and critically endangered biological hotspots. This analysis does not provide information on the methodology or definitions used to identify and classify these locations. Source: UNEP 2013.
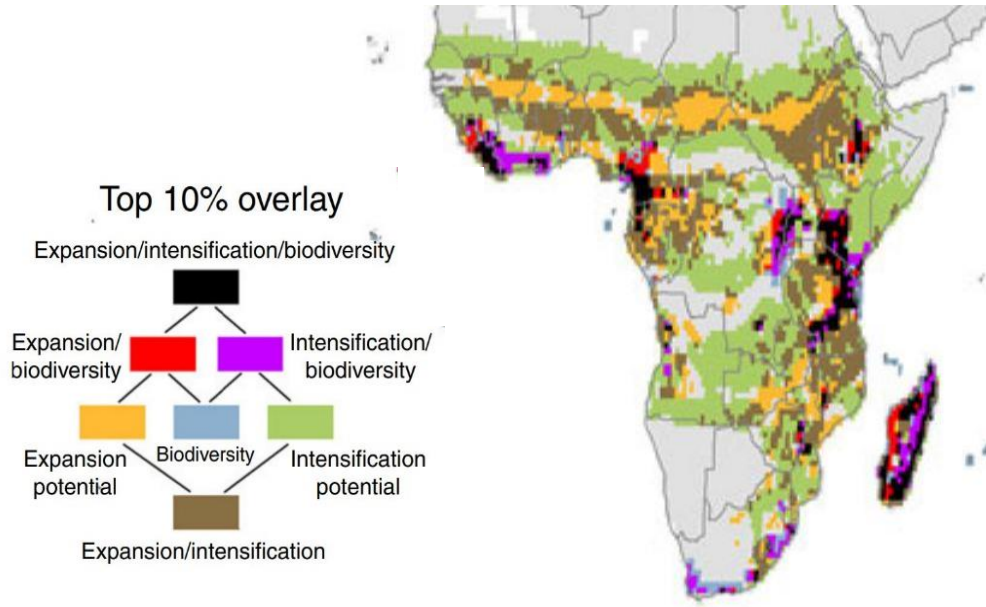
Figure 16: Predicted impact of cropland intensification and cropland expansion on biodiversity by 2030. Quantile overlay of expansion potential, intensification potential and endemism richness. Black areas pinpoint places where high biodiversity is particularly threatened by both cropland intensification and expansion simultaneously. Source: Zabel et al. 2019.
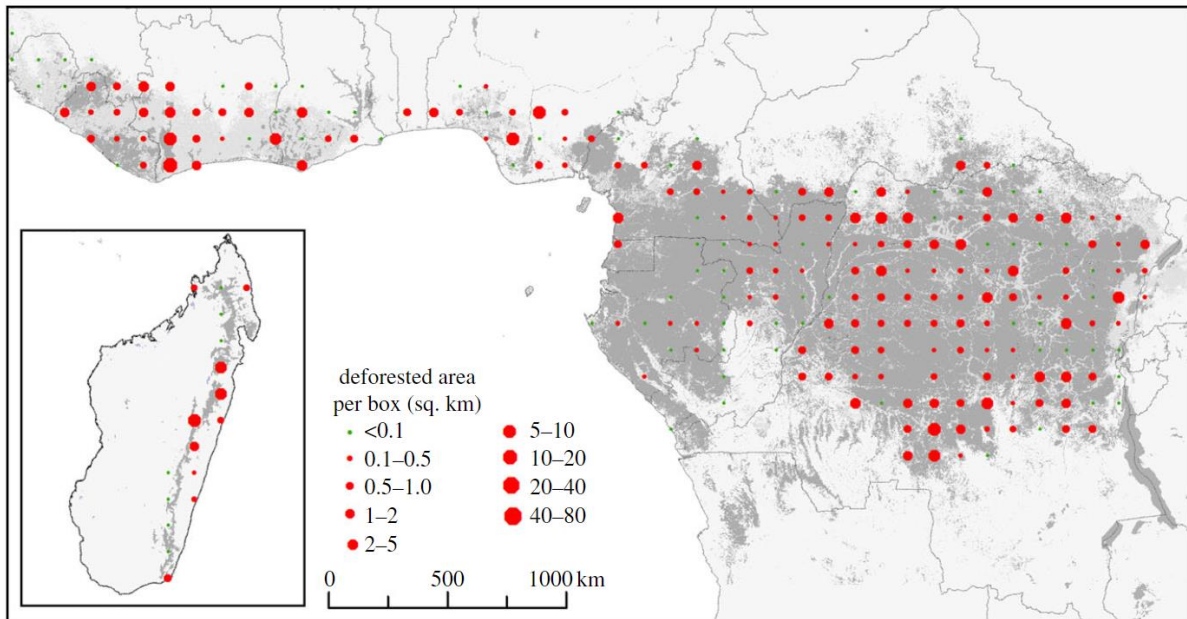


Figure 17: Net deforestation between 1990 and 2000. The circle size is proportional to the surface affected by deforestation in each sample of 100km. Source: Mayaux et al. 2013

## Annex B. Longlist of research-to-action priorities relevant to SSA

An additional seven priorities identified by only one source in the reviewed literature, with limited further contextual detail.

1.  Establish national investment safeguards, frameworks and protocols to ensure that investment in SSA countries is ecologically conscious (AfDB and WWF 2015).
2.  Create a national reporting system and relevant targets so a country can report on its progress towards achieving restoration objectives with stakeholders nationally, regionally and internationally. Such a system should not just facilitate progress tracking and transparency, but also draw out lesson learning (Gnacadja and Wiese 2016).
3.  Employ digital technologies for capturing relevant data (eg smartphone apps). Though challenges in SSA include a lack of local/community user involvement in the design of mobile applications, the use of foreign languages, inadequate consideration for cultural context, and limited public digital infrastructure (Ordway et al. 2017).
4.  Develop tools for addressing property right and land use planning challenges, especially for complex land use mosaics where actors can have legitimate but overlapping rights to land and ecosystem services (African Landscapes Dialogue 2020).
5.  Promote the development of tools and guidelines for green growth and sustainable development planning that implement ecosystem goods and services management approaches. There are plenty of best practice and experiences from the implementation of ecosystem-based approaches across a range of ecosystems and geographical regions in SSA that could be shared through this effort (United Nations Economic Commission for Africa 2015).
6.  Strengthen financial analysis and planning by landscape initiatives including analysing investment needs and opportunities, evaluating and mobilising diverse sources of finance, and tracking the impact of investments to build evidence of the added value of integrated landscape approaches (African Landscapes Dialogue 2020).
7.  Capture experience and learning from new partnership models that reconfigure the relationship between state, business and civil society — through public-private partnerships for example — to foster collective action for safeguarding Africa's ecological future (AfDB and WWF 2015).

# Annex C. Sub-Saharan Africa Consultation Workshop

As highlighted in section 1, this report concentrates on analysis at a regional level and complements ongoing scoping efforts in the four sub-regions of SSA (West, Central, Eastern and Southern Africa) by the United Nations University Institute for Natural Resources in Africa (UNU-INRA) and ICLEI – Local Governments for Sustainability. To help refine the proposed list of regional level priorities identified within this report, a review and consultation workshop was held in March 2023 with representatives from these organisations. Table 15 details the discussion questions used to guide this consultation and the feedback provided by participants.

Five additional research-to-action priorities for SSA were identified during this workshop, these priorities included:

1. Improving the use of tools – such as decision-support tools – in a context of mixed institutional capacities

2. Improving tools, evidence and governance to increase understanding of, and help address interactions between conflict and environmental degradation

3. Improving tools, evidence and governance to increase understanding of, and help address rural-urban links and potential hotspots around expanding urban areas

4. Improving tools, evidence and governance to understand and address interactions between climate change and environmental degradation

5. Improving tools, evidence and governance to better understand interlinked complex drivers of environmental degradation

Of the existing priorities (priorities a-g identified within this report), those with a strong emphasis on locally led elements (priorities a, d and g) stood out as key priorities to develop further. Participants also highlighted how priorities can reinforce/inhibit the success of one another. For example, for approaches to be truly locally led (priority d), authentic safe spaces need to exist first (priority f) where local people can contribute to, debate and critique ideas.

Table 15. Discussion questions and participant feedback from a REDAA review and consultation workshop

| Discussion question | Participant feedback |
|---|---|
| 1. Which of the priorities identified within the SSA scoping paper should be removed from the current list? | No priorities were identified by participants. |
| 2. Are there any priorities missing from those identified within the SSA scoping paper? | To compliment priorities C and D (which focus on developing relevant decision-support tools), an additional priority could be developed that focuses on improving the use of decision-support tools through investing in and supporting institutional capacities. While the greatest need for support is within rural communities, government departments would also benefit from additional assistance to increase uptake of evidence from decision-support tools, as some institutions lack the experience and/or access to tools to advance their understanding of related issues. |
| | Rural-urban linkages stood out as a priority that should be emphasised as they are one of the key criteria driving environmental degradation across SSA. As urban expansion is a contemporary process, an opportunity is presented to address environmental degradation issues before further expansion |

| | |
|---|---|
| | commences. Other issues include urban demand for natural resources in rural areas, and the implications of migration to urban areas for degradation and restoration. |
| | While it is challenging to understand the interlinkages between complex drivers and how this affects degradation, an additional priority with such a focus could provide significant value for money due to the attention given to multiple factors. A priority focused on complex drivers could also have broader impact by boosting policymakers' understanding of how such drivers interact. Improved understanding of complex drivers is key to building regional understanding of degradation and associated issues. |
| | An additional priority could be developed which focuses on understanding the linkages between climate change and environmental degradation, and the ways in which these interactions may accelerate and magnify risks to people's wellbeing. |
| | Improving understanding of interactions between war, conflict and environmental degradation was flagged by participants as a key issue across SSA and could be an additional priority. |
| 3. How can the priorities identified within the SSA scoping paper, and the rationales behind why they meet the criteria, be better articulated, and refined? | Priority a – National and regional information systems were highlighted as one of the biggest gaps across SSA. Improved data is required to inform decision making and improved information systems can aid decisionmakers' understanding of the data. It is important to note however, that this knowledge gap may not be similarly experienced across SSA. Another strength of this priority is that many environmental issues across SSA are transboundary in nature - cross-board/transboundary work is therefore key to advancing understanding of degradation. Developing national/regional information systems could help support transboundary initiatives. Participants also noted that locally led evidence generation was particularly important given the short timeframes within the REDAA programme, and for the longevity and success of initiatives. |
| | Priority b – To facilitate effective cross-border collaboration, this priority would require time to be built in for dialogue, negotiation and building political commitment where it involves governments. |
| | Priority c – Lack of decision-support tools was identified as a significant gap and improvement within this area also has the potential to be catalytic in the longer term. The importance of participatory approaches were emphasised to enhance buy in and longevity. |
| | Priority d – The local component needs to be engaged fully if better solutions are to be developed. Initiatives also need to resonate with local people to obtain buy in, and local ownership/leadership is essential for longevity of initiatives. Improving longevity through local involvement can also improve value for money. |
| | Priority e – Cross-sectoral approaches are key to addressing issues across SSA, as existing intersecting/overlapping mandates that don't work collaboratively often create confusion and competition between institutions. One participant flagged that government |

|  | mechanisms may be better focused on informal rather than formal ones (eg peer-to-peer learning). |
|  | Priority f – To be effective, complex party politics and local and cross-government power dynamics need to be accounted for. These dynamics are often overlooked or not fully accounted for when designing multi-stakeholder dialogues. Within this priority, care should also be taken to ensure that dialogues are necessary and focus on genuine need, as opposed to dialogue for dialogues' sake. |
|  | Priority g – Local voices still require a stronger emphasis within development work and are not accounted for enough within decision making. |
| 4. Any other comments | To further develop hotspot analysis additional themes could be incorporated (or more explicitly highlighted), including examining rural-urban linkages, climate change impacts and adaptation, conflict, migration, wetland degradation, small-scale agriculture and infrastructure development. |
|  | Attention in grant making is needed to ensure an incubation period that allows for behavioural and resource mobilisation given the short grant making timeframes. |