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How research influences government action for nature

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About the report

This scoping paper was written to inform and enhance the focus and research direction for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme. It was commissioned by the 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.

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Summary

Much research calls for urgent action to secure and foster nature's benefits for the planet, as well as for human livelihoods and wellbeing - at local, national and international levels. Too often this evidence is ignored, with bad decisions for nature prevailing in many parts of the world. Sometimes governments make decisions that have positive and negative impacts without much regard for evidence, while others carefully draw on research.

How can we ensure the right research is conducted, and its findings best used by governments to make more of the right decisions? To answer this question, it is first important to understand how governments make decisions and create polices, while making sense of the challenges and opportunities available for governments to make better use of research - in turn having a more positive impact on nature.

As well as being informed by research, government decisions are heavily influenced by other social, economic and political factors. Together with these various factors, research influences government decisions in non-linear and complex ways. Impact pathways are hard to track and evaluation of the effectiveness of various approaches used to improve research uptake is difficult.

But based on both specific experiences and a general understanding of how governments use research, many academic and non-academic publications commonly conclude on some basic principles about how to improve research use in governments. Those **basic principles** fall into five categories:

1. **Improve the demand for research:** governments tackle internal structural, procedural, cultural and capacity constraints to embed demand and regular uptake of research
2. **Improve the supply of research:** researchers improve both the scientific and perceived quality and legitimacy of research; improve the policy relevance of research findings; and make them more accessible and user-friendly
3. **Connect the supply and demand better:** governments and researchers work together to improve mutual understanding, cultivate trust, develop effective working norms and build collaborative partnerships
4. **Use multiple strategies and find allies:** researchers work across disciplines, sectors and institutions to pursue multiple strategies to improve research demand and supply and connect both (ie. the above three principles)
5. **Embrace trial and error and adapt to changing circumstances:** all those who want to improve research use in governments are patient and continuously learn from failures and success to be able to adapt to changes based on lessons learnt.

These principles can be hard to put into practice because of **practical constraints.** These include divergent values and incentives; while most government decisions about nature are likely to stand or fall on their ability to accommodate diverse perspectives, decision-making processes that can shed unfounded prior assumptions, be open to diverse options and listen to hidden voices and alternative knowledge, are rare. Entrenched powers and biases mean that much published advice on how to better improve research influence does not reflect the perspectives of those who are currently excluded or underrepresented in research and policy arenas. This includes women, black, Asian and minority ethnic groups, local communities and Indigenous Peoples. Balancing short-term demands and long-term needs is another major challenge. Policymakers may not always be able to specify what formats, styles and types of information they need, and their needs can change quickly depending on the political context and events that may demand 'quick fixes' and responses.

Environmental governance and 'wicked' societal challenges like environmental degradation are inherently complex, interconnected, require long-term investments, and have diverse impacts on stakeholders whose different values and interests make them approach and interpret research and evidence differently. In addition, those who use research to advocate for nature are often working against powerful players who have more influence on governments and may exploit the inherent uncertainties and complexity in research on environmental degradation.

None of these challenges are easy to tackle. However, acknowledging them is the first step towards identifying suitable strategies. This review of the literature, and 11 case studies from eight countries in Asia and Africa, highlight five **tactics** that might be deployed to try and overcome some of the challenges:

1. **Cultivating and supporting 'knowledge brokers'.** 'Knowledge brokers' are people who understand the challenges for both researchers and policymakers and can facilitate better research uptake based on that understanding. They are trusted by both government and researchers and so can bring key stakeholders together, facilitate constructive exchanges and build relationships and trust. Depending on context, knowledge brokers can be a process, an individual or a group of individuals, an organisation or a network. For example, in Indonesia's Papua province, a group of civil society actors facilitated a team of scientists across disciplines to work closely with reformers in the provincial government to adopt and implement a ground-breaking 100-year low-carbon sustainable development vision. And in Kenya, a government agency brought together evidence in accessible formats for the parliament to assist its deliberations on revising Kenya's Wildlife Conservation and Management Act.

2. **Facilitating multi-stakeholder processes.** Multi-stakeholder process can be used to steer research design; generate, review and validate research findings; disseminate research results; and support research uptake in governments. Such processes can bring together stakeholders with different values and interests, and different types of evidence to find options that are widely supported and therefore more likely to be adopted by the government. For example, multi-stakeholder processes facilitated by local researchers helped inform the design, methodology and the finalisation of the environmental and social impacts assessment of Hua Na Irrigation project (HNI) in Thailand. In Tanzania, multi-stakeholder Green Reference Group, consisting of representatives from government, agribusiness, donors, conservation and development NGOs, farmers' associations, apex organisations and financial organisations, collaboratively used research and evidence to shape the green growth vision for the Southern Agriculture Growth Corridor.

3. **Valuing different types of knowledge and enabling locally-led research**. When local knowledge is included in research, it can often point to actions that can address environmental degradation at scale because they are suited for local contexts and are more likely to be widely supported. For example, in Niger, local farmers were the researchers and innovators who restored 200 million trees over seven million hectares (ha) of farmland, using techniques based on traditional knowledge and trials on their own farms. In Uganda, government agencies have a strong and shared ownership over the Natural Capital Accounting system because it was developed based on national needs and under the joint leadership of both Ugandan policymakers and experts. Building research teams that include usually marginalised perspectives and voices (southern-based researchers, Indigenous Peoples' representatives, ethnic minorities, race and gender, and so on) can help devise research methodologies and processes that are sensitive and responsive to different types of knowledge and local context. They can also help the research team to engage a wider range of stakeholders and ensure wide support and uptake of research findings. In Thailand, elected local community representations were part of a trans-disciplinary local research team that combined local knowledge and scientific information to produce a widely supported environmental and social impact assessment for HNI. In stark contrast, the top-down technocratic 'scientific' forest management approach, developed with limited local inputs, was abandoned in Nepal despite millions of dollars spent to pilot and promote it.

4. **Galvanising active civic space and social movements.** An active civic space opens more windows for research to influence governments, as the public has greater scrutiny over what research and evidence is used by government. For example, in Indonesia, civil society actors have free access to timber supply chain information and help the state to carry out monitoring activities and generate evidence that informs the enforcement and improvement of the timber legality system. Where civic space is restricted, public campaigns and protests are often the only way to hold decision-makers to account and to demand evidence-based policy. The #StopEACOP campaign continues to fight and influence the construction of the East Africa oil pipeline and has pressured multinational banks and insurers into not supporting the project. The largest street

demonstration in Uganda in 2007 forced the government to abandon the proposed deal to turn a fourth of Mabira Forest Reserve into sugarcane plantations. An active civic space and those social movements improve opportunities for affected stakeholders to use the evidence they trust to inform the debate. The research process itself can be used to catalyse and support active civic space and social movements.

5. **Committing to long-term, patient and flexible investment in research.** All the above requires long-term patient investment of time and resources to cultivate trust, build relationships, capacity and evidence. When funders provide patient investments in this way, the rewards often far outweigh the costs. For example, the time and resources invested into engaging more than 3,000 stakeholders in shaping Pakistan's National Conservation Strategy (NCS) catalysed new partnerships and led to the creation of a national institution to improve research use in policymaking, setting the foundation for decades of environmental action to come. Funders also need to allow flexibility for governments, researchers, knowledge brokers and other civil society actors alike to identify best strategies to improve use of research based on dynamic political economy contexts.

This paper suggests the following **strategic considerations in shaping the Reversing Environmental Degradation in Africa and Asia** (**REDAA) programme**:

- Select proposals that can demonstrate a good understanding of barriers and opportunities for research to influence government decision making
- Ensure priority themes, calls for proposals and initiatives funded by REDAA are based on priorities identified by institutions in Sub-Saharan Africa, South Asia and Southeast Asia
- Support research that identifies context-specific approaches that get evidence into use by governments
- Include a focus on knowledge brokers and multi-stakeholder processes in REDAA regions and countries
- Ensure some research adopts diverse methodologies to incorporate different types of knowledge and local research leads
- Explore opportunities to link REDAA with other sources of support for long-term, patient financing of locally-led research activities
- Build in mechanisms to critically reflect on REDAA's experiences, capturing and sharing lessons, and
- Develop mutual support among grantees and consider how to best provide guidance on optimising the influence of research on government decision making.

The community of practice anticipated in the REDAA grantees can be expected to contribute a wealth of experience that could further enrich the findings in this study. For researchers who are currently struggling to improve research use, the study encourages them to step back and reflect on the underlying reasons why research is not better used by governments, identify the specifics of the challenges involved, and explore promising tactics. Research will be better used in government if researchers strive to be politically savvy, open-minded and collaborative, and can adapt to changing circumstances.

1. Introduction

1.1 Background and objectives

Action is urgently needed to secure and foster nature's benefits for the planet and for human livelihoods and wellbeing at local, national and international levels. In many contexts and in many regions, bad decisions for nature prevail and good decisions are ignored, overridden or un-implemented. Governments take some of the decisions that have impact for good or bad and take some of them with no discernible regard for evidence. But some decisions by government — crucial for nature — carefully

draw on research. How can we ensure the right research is conducted, and its findings best used by governments to make more of the right decisions? The answer to this admittedly huge question is not obviously available.

Restoration, better management and preservation of natural ecosystems will be crucial to improving economic performance and the wellbeing of local communities (particularly the poorest and most vulnerable groups) by increasing availability and access to ecosystem services, which are an essential component of their livelihood strategies. It will also improve the climate resilience and adaptation capacity of low-income countries in the target regions and contribute to achieving the global emission reduction targets set under the UNFCC Paris Agreement.

This scoping study focuses on the role and effectiveness of research in influencing government decisions. It aims to identify if and how research influences government decisions in addressing environmental degradation, restoration and sustainable natural resources management, and how such influence could be optimised. The findings of this study are intended to inform REDAA strategy by articulating more clearly what 'research-to-action' means for REDAA: i.e., identifying areas for REDAA to focus on to improve research uptake in governments to address environmental degradation. In identifying challenges and common approaches to improve research demand and uptake in governments, the study also offers several lessons that can inform guidance for researchers, including future grantees of REDAA.

1.2 Methodology

The primary research question of this scoping paper is: how to improve research use in governments, so that research can better influence governments' decisions for or against nature? To answer this question, the scoping paper seeks to understand how research processes and outputs interact or not with governments' decision making processes, and the wider politics involved in shaping those interactions.

The research was carried out between April and July 2022. Two main research methods were used:

1. Desk research: key-word searches were used to identify academic papers, grey literature, news articles and opinion pieces relevant to the research question. To ensure the paper can generate practical guidance for REDAA grantees and inform REDAA strategy, the literature review focused on literature that has identified or pointed to approaches and practical recommendations that improve research use in governments generally, and to address environmental degradation in REDAA regions.

2. Interviewing key informants using a snowballing approach: to fill information gaps in desk research, we interviewed ten informants, nine informants from REDAA regions and the tenth having worked and lived in the region for more than a decade

Through this desk research and interviews, we identified 11 case studies (see Annex I) where: 1) research seems to have played a role in shaping government decisions that have impacts on nature – with negative, positive or mixed results; and 2) published information was available or there was an opportunity to identify and engage key informants with deep knowledge of those cases within the limited time available. We focused on government decisions at national and sub-national levels in the REDAA regions: six case studies are from Africa (Kenya, Uganda and Tanzania) and five case studies are from Asia (Indonesia, Pakistan, Nepal and Thailand). Six case studies examined how research influenced government decisions that had largely positive impacts on nature, while four focused on decisions that had largely negative impacts and one on decisions with mixed and contested impacts. We drew common lessons from both what appeared to have worked, as well as observed barriers to improve research use in governments for better environmental outcomes.

1.3 Limitations

All 11 case studies were developed based on limited available literature with eight further informed by key informant interviews and email communications. Due to limited time and resources available and the inherent complexities surrounding government decisions, the case studies do not capture the full

political economy contexts around them. But they still offer useful glimpses into how to improve research use in governments for better environmental outcomes.

In addition, the literature review and case studies only focus on how research can be better used to inform government decisions (eg. building a dam, revising a policy). We did not look at a broader and related topic of how research can be used to lead to better environmental outcomes (which requires not just better government decisions). Therefore, we did not examine how research can be better used by other stakeholders, including private sector and practitioners. Nor did we make assessment on what types of government decisions are more important for the research to target to ensure meaningful changes on the ground. For example, in a case study where research seemed to have influenced policy revision, we did not further assess whether such policy changes led to better environmental outcomes in practice.

2. How do governments use research?

2.1 General influences and mechanisms

Our history and recent experience suggest that the role of research in government decision making is a chapter in the story of the use of power. It took more than 200 years for some governments to abolish slavery, despite both moral repugnance and dry economic evidence that it was a bad idea in the long run. More governments for decades declined to take any action to reduce deaths from smoking despite evidence suggesting they should. Other sources of power over decisions were at play here. More recently during the COVID-19 pandemic, citizens across the world got used to their governments telling them that they were 'acting on the science', making decisions drawing very strongly on findings from research. And at least some of these citizens could see this was truly the case, for at least some of the decisions. These examples perhaps serve to illustrate the nature of the issues.

Government decisions and policies are not only informed by research, but are also heavily influenced by ideology, public mood, socioeconomic conditions and disruptive events (Cairney and Kwiatkowski, 2017; Mayne et al., 2018). Research does not always offer clear cut options to inform decisions. All research has its inherent limitations and uncertainties and is also influenced by researchers' experience, ideologies and preferred methodologies. Therefore, different pieces of research on the same topic may point to different problems and solutions. Functioning within complex social and political systems, even when governments are genuinely seeking out research to influence their policy, it is impossible to process all information comprehensively, especially when the evidence and options are not clear-cut. In practice, their choice of what research to consult and how to respond to it will be heavily influenced by their own experience, expertise, networks, relationships and interactions with peers and external stakeholders – as well as what they are used to doing, and/or what may be most politically expediate (Andrews, 2017; Cairney and Kwiatkowski, 2017; Garrett and Islam, 1998; Mayne et al., 2018; Oliver et al., 2014).

While influenced by these other factors, governments may or may not use research to inform policy formulation or implementation for example, to define and understand issues that need policy interventions, to develop and assess policy options, or to monitor and adapt policies.

Governments may use research through both formal and informal mechanisms. But how well those mechanisms function (if at all) and which mechanism(s) are the most commonly deployed will vary enormously depending on country contexts and what decisions are being made. For example, highly technical decisions, such as the control of a pandemic, are more strongly influenced by research and formal mechanisms, while public opinion and informal mechanisms may play stronger roles in policy decisions on complex societal issues like migration (Parkhurst, 2017).

Government staff often use published research and consult or network with experts informally (through workshops, public consultations and calls for evidence) to inform their work.

There are also informal and indirect mechanisms where research can influence government decision making. For example, research can be used by media and lobby groups to target and influence

governments and public debate. It may also influence public opinions and debates that could shape government decisions.

Most governments, in both developed and developing countries, have three main types of formal mechanisms to enable uptake of research in governments:

- **Research institutes, government offices for science, and research programmes established and funded by the government and civil servants with explicit objectives to conduct research and support government decision making.** These research institutes, programmes, government offices and civil servants can carry out research, commission research in alignment with key government interests and may also have the mandate to foster research collaborations and spur innovation between government and other research organisations. Examples include government-funded research councils; the national office of statistics; or national science or research agencies or institutes; or research teams within government departments.
- **Expert consultation, chief government scientific advisors and scientific advisory boards.** Governments periodically conduct formal public stakeholder consultations that include researchers in formulating a policy (government convenes public consultations in developing Nationally Determined Contributions for UNFCCC in Uganda). Governments appoint scientists to provide advice to governments and facilitate uptake of science in government's decision making (most UK government departments have a chief scientific adviser) Governments commission research to evaluate policy implementation (the EU commissioned an independent evaluation of its Forest Law Enforcement, Governance and Trade Action Plan) and they formally request experts' insights or form scientific advisory councils (UK government forms Scientific Advisory Groups for Emergencies such as in dealing with COVID-19).
- **Parliamentary commissions on environment and government audit office environment inquiries.** These may be permanent or time-bound but have, as a priority, calls for up-to-date evidence on critical policy issues concerning environmental status, policy and/or expenditure and kits' effectiveness. Many developing countries have been adopting public expenditure reviews on environment and climate which, as they become increasingly sophisticated, call for research on topics including comparative or differential impacts of diverse fiscal, revenue or investment policies on the environment (IIED, 2016).

Many of these informal and formal mechanisms may function concurrently to shape government decisions.

There are also research processes connected to inter-governmental bodies concerning the environment, to which governments may submit research and from which they may draw evidence. For example, the UN Convention on Biological Diversity has an open-ended intergovernmental scientific advisory body known as the Subsidiary Body on Scientific, Technical and Technological Advice to provide the Conference of the Parties (COP) with timely technical inputs. The Intergovernmental Panel on Climate Change is the United Nations body for assessing the science related to climate change. It prepares comprehensive assessment reports about the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for reducing the rate of climate change. Similarly, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services assesses the science related to nature. It has conducted regional and global assessments on the state of the world's ecosystems and conducts thematic assessments on issues of high priority such as sustainable use of species, pollinators and drivers of biodiversity loss.

2.2 Challenges in using research to tackle environmental degradation

Because government decisions are not informed by research alone, and there may be complex and perhaps messy formal and informal mechanisms at play, it can be especially challenging to use research to influence government decisions on complex societal challenges such as environmental degradation. Specific challenges include (Benson et al., 2014; Head and Alford, 2015; Stern P C, 2005):

1. **Multi-dimensional, multi-scale and cross-sectoral drivers.** Drivers of environmental degradation occur at different scales and across multiple sectors. For example, policies on timber, mineral and agriculture trade in consumer nations can have major impacts in producer countries' environments. Those drivers can be economic (rapid growth of extractive sectors as global demands for natural

resources grow), social (migration) and environmental (climate change) and are interlinked. Government decisions and policies to address environmental degradation can in turn impact other sectors, necessitating the managing of trade-offs among different outcomes and stakeholders. For example, people value forests in different ways (for livelihood, economic security, cultural and social identity and quality of life) and therefore may desire very different forest restoration outcomes (Mayers and Bass, 1999). It is difficult for scientific methods to capture the interlinkages and complexity of all those drivers and to identify how different policy options can affect all possible outcomes and all relevant stakeholders in both the short and long term. In practice, judgements must be made on what are the most important drivers, stakeholders and outcomes to focus on. Different people will have different views on what are the most important, how to construct and premise 'quality' research and what are the best policy options. Different researchers also have different assumptions about what drives environmental degradation and their research may therefore be biased to certain options for addressing environmental degradation (Scoones, 2022).

2. **High uncertainty, yet highly value-laden issues**. Given nature and society interact in complex ways that are beyond any reductionist problem solving approach, there are often high uncertainties in research. For example, while state-of-the-art modelling approaches that combine quantitative and qualitative data can show the possible impacts of different policy options, there is often a high level of uncertainty associated with those predictions. The inherent uncertainties leave much room for people with different values and interests to interpret available information in different ways and be selective in what they choose to use and believe. For example, there is a wide range of estimates of the potential for nature-based solutions to mitigate climate change. Conservationists may choose to use the high-end of the estimates and add up all possible contributions from all different land uses while, in practice, those land uses can compete for the same limited land resources. On the other hand, those who are not interested in nature may dismiss any estimate at all, unconvinced by the uncertainties and different methodologies used to reach those estimates. Similar issues also plague estimates around nature's contributions to the economy and how to cost the unquantifiable social, cultural and environmental values of the services provided by nature.

3. **Low-power nature allies against high-power players.** Those who are advocates for nature often lack financial and political power. For example, environment ministries are usually less powerful than ministries of finance and/or planning; and the companies whose supply chain practices are driving environmental degradation are more organised and well-resourced financially than local communities and organisations, who are the ones often living and dealing with nature very directly in daily life. They are trying to protect and sustainably use natural resources, and are often far away from the capital cities or corridors of power. Meanwhile the more powerful stakeholders' values and interests can directly influence how governments use research and what types of research they choose to use or ignore.

4. **Long time-horizons for actions affecting nature.** Actions required to address environmental degradation often require long-term commitments and implementation with many benefits only being realised over years or decades (and, as discussed, with highly uncertain benefits). Even if research demonstrates the long-term benefits of addressing environmental degradation, the actions proposed may not help governments to address short-term imperatives that demonstrate clear benefits to voters within their tenure of office.

Together, these challenges pose an intractable barrier for research to break through. Yet many types of government decisions affecting nature clearly appear to be breakthroughs for evidence. The conditions under which such breakthroughs are possible is the focus of the next section.

3. How to optimise research's influence on governments: some principles and challenges

3.1 Basic principles

Research may influence government decision making in formal and informal, direct and indirect ways**.** The impact pathways are usually complex and non-linear and may not be completed in a short time frame. For example, it has taken decades of climate change research to accumulate a big enough and convincing enough body of evidence to tip the balance in public debate and political discourse. But it is usually difficult to track exactly how individual pieces of research influence policymaking, and to evaluate and compare the effectiveness of different research approaches (Breckon and Dodson, 2016; Cairney and Kwiatkowski, 2017; Garrett and Islam, 1998)**.**

Yet many guidelines, tools and recommendations have been published on how to improve the use of research in government decision-making processes. These are usually based on a general understanding of how governments use research (summarised in section 2) supplemented by practical experiences. A 2016 literature review identified more than 150 possible interventions and tools that provide 'the best ways of getting research used by decision makers' ranging from behavioural 'nudges', to social marketing, power analysis, Evidence Ecosystem Assessment (EEA) and more (Breckon and Dodson, 2016; Oliver and Cairney, 2019). Despite the impressively long lists of tools and recommendations, in practice there is limited evidence of their effectiveness (Breckon and Dodson, 2016; Brick et al., 2018; Oliver and Cairney, 2019). A recent systematic review found most academic and non-academic publications that offered advice on how to better link research and policymaking are not based on evidence of which approaches are more effective (Oliver and Cairney, 2019). However, this lack of evidence is not necessarily an indication of ineffectiveness — more a reflection of how difficult it is to track and evaluate the impact of research on policy. Moreover, what is 'effective' is also very context specific: strategies which worked well for one country or issue may not work well in another.

Despite the difficulties in evaluating effectiveness of different approaches, academic and non-academic publications have pointed to some basic principles on how to optimise research use in governments. They fall into five main categories:

1. **Improve the demand for research**. If a government's structures, processes and culture do not encourage the use of research and evidence, it is always going to be a struggle to optimise research's influence on government decisions (Breckon & Dodson, 2016). There may be structural, procedural, cultural, and capacity challenges within governments that need to be addressed to increase research uptake (Head, 2010; Head and Alford, 2015; Mayne et al., 2018). For example, governments in developing countries with limited budgets may not have funds to establish science programmes and hire well-trained technical staff to support politicians in using research; and a lack of independent monitoring and accountability systems for evidence-based policy formulation and implementation can hinder the use of evidence for policymaking.

   How to address the demand-side challenges is often context-specific and depends on what is feasible in each political and economic context. The commonly recommended approaches to improve demand focus on embedding demand for research in government's organisational structures and systems – something that is usually not possible for one-off research projects. They include:

   - Improve incentives to use research. Offer public prizes and awards for government employees and politicians who actively use research (Breckon and Dodson, 2016); link resource and budget allocation to effective use of evidence (OECD, 2020); require evidence reviews to be used as the basis for any policy proposals, and formalise evidence use as part of government's performance management systems (Goldman and Pabari, 2021). To encourage uptake of research related to environmental degradation, there need to be targeted approaches to incentivise use of research on environment and nature. For example, embedding the value of natural resources in how government measures growth and development through natural capital accounting (Vardon et al., 2017).
   - Improve capacity to use research within government. Investing in training programmes and developing mentoring schemes to improve skills to find or recognise, evaluate, commission, and use research (Goldman and Pabari, 2021; OECD, 2020); developing guidelines on evidence-based policymaking and creating evidence maps to support government officials to use research (Goldman and Pabari, 2021). Such training programmes, guidelines and decision support tools need to be open to the possibility that new evidence may show

government decisions in a policy arena have been weak or wrong in the past, and to recognise types of evidence that have previously been ignored eg. Indigenous knowledge (Swiderska et al., 2021).

- Adaptive processes that build on learning by doing. Institutionalising strong monitoring and evaluation systems for policy implementation so that evidence and research on 'what works' can be integrated in policy design and revision (Goldman and Pabari, 2021; Stewart et al., 2019). To encourage uptake of research related to environmental degradation, this entails ensuring lessons and evidence related to nature are included in such review processes across sectors. This can draw on the mandates of influential actors in the government, for example, state of environment review processes led by government and environmental audits commissioned by parliament.
- Commit to transparency and adopt participatory approaches. Increasing the transparency of policymaking processes and making them more participatory so that the public can provide inputs and scrutinise whether and how research has been used (Parkhurst, 2017). For example, the Ghanaian government committed to a process over several years in which the potential impacts of introducing various legal and economic measures for making the domestic and international timber trade more sustainable were considered, analysed and debated by an impressive range of stakeholders. This process demonstrably defined some of the measures subsequently adopted (Mayers et al., 2008).

2. **Improve the supply of research**

- Improve research quality. Low quality data and information can prevent good policy design. For example, it is a common shortcut to simply copy data on soils or species in regular updates of natural resource surveys and inventories where capacity to update the data is low. But outdated data on soil degradation and species status can block the development of effective government policies to understand and address environmental degradation (Romijn et al., 2015; Tydecks et al., 2018). In addition, policymakers may perceive 'quality' in different ways from researchers (IIED, 2014). For example, they may care more about the existing reputation of the individuals and organisations who are doing the research than the robustness of the research methodology. They are rarely equipped well enough to critique the latter (Andrews, 2017; Gollust et al., 2013; Oliver and Pearce, 2017). Therefore, it is also important to ensure peer review and other means to assure the trustworthiness and legitimacy of the research and the researchers, so they are more likely to be used (Gollust et al., 2013; Mayne et al., 2018).
- Improve the policy relevance of research. Policymakers are more interested in research that is relevant to the policy problems they care about, and are more likely to use research that doesn't only provide critique but also concrete policy options and evidence of solutions that work (Kenny et al., 2017; Nutley et al., 2013; ODI, 2004). Research that is seen to define or provoke a new debate, provide a new or better analysis of a tricky issue, and 'asks the right questions at the right time' is also more likely to be used (Mayers and Bass, 1999). For environmental degradation issues, this is often research that has taken interdisciplinary approaches to integrate social, environmental and political science (Scoones, 2022; Topp et al., 2018; Wowk et al., 2017).
- Improve research access and communication. How to improve access and communication will depend on who the target audience is. For example, effective research products to put something on the public agenda may look very different from framing and formats needed to influence a specific piece of legislation (Breckon & Dodson, 2016). It may involve adapting and improving how the research is communicated in a changing context and to different audiences, including the framing, focus, formats, style of the research products and the timing and methods of promoting those products (Breckon and Dodson, 2016; Mayers, 2014; Phoenix et al., 2019).

3. **Connect the supply and demand better:** increased interaction, networking and collaboration between government and researchers can nurture mutual understanding, cultivate trust and build collaborative relationships which ultimately improve research use in governments (Breckon and Dodson, 2016; Gollust et al., 2013). Researchers can work together with governments to identify

policy needs and relevant research questions, and co-produce or promote research to answer the questions (Hinrichs-Krapels et al., 2020; Phoenix et al., 2019). Such engagement and interactions need to have long-term horizons to cultivate the trust and mutual understanding which enable better engagement strategies that optimise research use in governments (Cairney and Kwiatkowski, 2017).

4. **Use multiple strategies and find allies.** The greatest impacts are often achieved through the pursuit of multiple strategies listed above and engaging with a diversity of stakeholders (Breckon and Dodson, 2016; Mayne et al., 2018). The stakeholders may not only be the direct policymakers that research is trying to engage but also policy-influencers, such as:

    - 'Change makers' – influential people and organisations who are champions of evidence within the government; those who can influence public debate to put pressure on governments to change; and/or those who are trusted by both policymakers and researchers to facilitate change (Breckon and Dodson, 2016).
    - Partners and networks who can provide support, build credibility of evidence and share lessons learnt on how to better connect research and governments' decision-making processes (Mayers, 2014).

5. **Embrace trial and error and adapt to changing circumstances.** Perhaps most government decisions and strategies at least aspire to be 'the right idea at the time'. But as the old saying goes, 'strategies rarely survive their first encounter with the enemy'. The 'law of unintended consequences' often holds sway, and circumstances can change quickly. Despite best intentions, rigorous attention to the latest research and the most meticulous planning, decisions often need a rethink. The same applies to research strategies and actions seeking to optimise research use in those government decisions. Political contexts can change unexpectedly, and research strategies will need to be adapted accordingly. As researchers navigate the complexity of people and nature interactions, evidence may evolve that points to the need for different responses from government (Mayers and Bass, 1999). A good strategy for influence is to be patient, continuously learn from failures and success, and adapt accordingly (Evans and Cvitanovic, 2018; Mayers, 2014).

3.2 Practical constraints

But even basic principles can be very difficult to put into practice. Some of the common dilemmas and barriers are interlinked and include:

- **Divergent values and incentives.** There can be vast differences in the worldviews, values, professional routines and career incentives between politicians and researchers. Those differences can be challenging to overcome to facilitate meaningful collaboration between researchers and policymakers, especially in countries where there is little connection, or especially deep mistrust, between them (Gollust et al., 2013; Izzi, 2018). Building relationships between researchers and policymakers takes time and rewards for such investment are not immediate. On the one hand, many researchers may already be resource and time-constrained in conducting research. And taking time to do policy engagements may not benefit and can even jeopardise their reputation and careers (Breckon and Dodson, 2016; Evans and Cvitanovic, 2018; Oliver and Cairney, 2019) On the other hand, policymakers must also juggle various demands on their time, yet they often receive too much disparate information from diverse stakeholders seeking to influence their decisions (Andrews, 2017; Gollust et al., 2013). While most government decisions about nature are likely to stand or fall on their ability to accommodate diverse perspectives, decision-making processes that are able to shed unfounded prior assumptions, be open to diverse options and listen to hidden voices and alternative knowledge, are rare (Scoones, 2022).
- **Entrenched powers and biases.** Much published advice on how to better improve research influence on policy is in the form of opinion pieces by those who consider themselves successful in linking research and policy and are comfortable working in this area. They are often written by those who are working in developed countries. This type of advice may not reflect the contexts in developing countries and the struggles and perspectives of those who are currently excluded or underrepresented in the research and policy arenas, including women, black, Asian and minority

ethnic groups, local communities, and Indigenous Peoples (Cairney and Oliver, 2020; Stewart et al., 2019). Blindly following existing recommendations and advice may reinforce existing power dynamics and bias (Cairney and Oliver, 2020; Davidson, 2017; Malbon et al., 2018). For example, Indigenous Peoples' knowledge and local communities' perceptions may not be considered 'quality' evidence by some governments and technical experts; and women and early-career researchers can be excluded from co-production processes that only engage senior positions in both governments and academia. In addition, in collaborating with governments, researchers often find they have less power to call for information or to present their independent findings, especially when the funding is provided by the government and there is limited civic space to influence the collaboration. In these situations, researchers may have to cede control over the research agenda and interpreting the findings, and may not be able to speak critically (Oliver and Cairney, 2019). A reflection of the power imbalance between researchers and government is perhaps the fact that there is far more published advice for researchers to change and understand the way governments work, than for the government to change and understand researchers better.

- **Balancing short-term demands and long-term needs**. Policymakers may not always be able to specify what formats, styles and types of information they need, and their needs can change quickly depending on the political context and events that may demand 'quick fixes' and responses (Forrester et al., 2009; Garrett and Islam, 1998; Topp et al., 2018). But policymakers may also have preferred formats, style and types of information depending on their education and background. When a need for information emerges, policymakers also have to act quickly and have a limited time window to collect information before making decisions (Oliver et al., 2014). Budgetary constraints and short election cycles often constrain the governments' ability to invest in long-term research (Head, 2010). This presents challenges for researchers to develop enough quality evidence at the right scale and build it up over the long term. It also creates a difficult balance between catering to short-term needs and trying to create demand for future research and waiting for a moment of change (Garrett and Islam, 1998).

Generic guidance on tackling these issues is of little use. But identifying and acknowledging such challenges is an important step towards making informed choices based on specific contexts (Oliver and Cairney, 2019).

4. How to optimise the influence of research on government decision making: tactics to address environmental degradation

Though it is no easy task to overcome the challenges highlighted in Sections 2 and 3, several key approaches resonate through our literature review and the 11 case studies from eight countries presented in Annex I. In the following sections, we describe these in tactical terms – ways of working that different stakeholders can consider marshalling their capacity to adopt – to try to optimise research influence on government decisions about the environment.

4.1 Cultivating and supporting 'knowledge brokers'

'Knowledge brokers' are those who understand the challenges for both researchers and policymakers and can facilitate better research uptake based on that understanding (Bandola-Gill and Lyall, 2017). Depending on context, knowledge brokers may be individuals or a group of individuals, an organisation or a network; they can be employed by governments or led by researchers or by others like think-tanks, NGOs or local communities (Bandola-Gill and Lyall, 2017; Bednarek et al., 2018; Garard et al., 2018; Goldman and Pabari, 2021; Hinrichs-Krapels et al., 2020; Phoenix et al., 2019; Stewart et al., 2019; Topp et al., 2018; Wowk et al., 2017). For example:

- In Pakistan, an influential NGO leader who was trusted by the government and civil society actors ensured the research produced to inform the National Conservation Strategy (NCS) was always practice-oriented and policy-focused. This effective leadership inspired the resulting NCS to

mandate a knowledge-brokering institution, the Sustainable Development Policy Institute, which has been supporting the government to use research in their decision making ever since.

- In Kenya, a government agency brought together verbal and written inputs submitted by the public, which drew on both lived experiences and scientific studies, into an accessible format for the parliament to help its deliberations on Kenya's 2013 Wildlife Conservation and Management Act (WCMA).
- In Uganda, members of a multi-stakeholder Forest Governance Learning Group, including researchers, NGOs and government representatives, worked together to translate research evidence into tailored messages for the public, media, lawyers and governments. This helped to stop the president's attempts to degazette Mabira Forest Reserve for sugarcane plantations.
- In Indonesia's Papua province, building on decades of experience working across local, provincial and national scales, a group of civil society actors facilitated a team of scientists to work closely with reformers in the provincial government to adopt and implement a ground-breaking 100 year low-carbon sustainable development vision. With their support, the provincial governments used diverse methods and knowledge, ranging from local traditional knowledge to economic modelling, spatial mapping and complexity science, to inform their development vision and implementation plan.

Some common characteristics for effective knowledge brokers include (Bandola-Gill and Lyall, 2017; Bednarek et al., 2018; Garard et al., 2018; Goldman and Pabari, 2021; Hinrichs-Krapels et al., 2020; IIED, 2014; Phoenix et al., 2019; Stewart et al., 2019; Topp et al., 2018; Wowk et al., 2017):

- A good understanding of at least some of both the research supply and demand challenges and opportunities
- High convening power, trusted and respected by relevant actors in government, research bodies and civil society
- An ability to facilitate constructive exchanges, build relationships and navigate some of the power dynamics across disciplines, sectors and scales.

Effective knowledge brokers have often been working with the same group of stakeholders for a long time, which enables them to gain trust and respect and build a very good understanding of key stakeholders' interests and capabilities. Given that their key role is often the facilitation of lasting connection between those with diverse views, sources of evidence and capability, they may tread a fine line to maintain credibility with different stakeholders. Effective knowledge brokering roles are hard-won and easily lost.

4.2 Facilitating multi-stakeholder processes

Multi-stakeholder processes can bring together those who voice different values and interests, and ensure that government decisions are based on careful consideration of evidence produced and supported by stakeholders with different approaches and expertise (Cashore et al., 2019; Mayers and Bass, 1999; Morrison, 2019; Stern P. C., 2005; VAKAYIKO, 2014). Knowledge brokers are often those best placed to facilitate such multi-stakeholder processes, ensuring that they are built on research as well as a good understanding of power dynamics and different interests and values.

Multi-stakeholder process can be used to steer research design, provide inputs into research process, review and validate research findings, disseminate research results and support research uptake in governments (Goldman and Pabari, 2021). For example, multi-stakeholder processes facilitated by local researchers helped inform the design, methodology and the finalisation of the environmental and social impacts assessment of Hua Na Irrigation (HNI) project in Thailand. Such a process distinguished this assessment as the rare exception in the Lower Mekong, as the final assessment results were widely supported by local stakeholders.

A multi-stakeholder process can highlight different concerns and interests, cultivate trust among stakeholders, and allow those who may interpret the same information in different ways to work together and find options that are more widely supported (Mayers and Bass, 1999; Monzani, 2020; Stern P C, 2005). For example, hundreds of stakeholders were engaged through interviews,

workshops, open calls for comments and other consultative processes to inform and ensure wide acceptance of the NCS in Pakistan and the WCMA 2013 in Kenya. Over a decade of multi-stakeholder processes to develop a timber legality licensing system ensured widespread support and many stakeholders are armed with evidence to effectively fend off any attempts to derail the system.

Such processes should encourage open discussion among stakeholders who have different perspectives, interests and areas of expertise, but as a priority must include those who are affected by government decisions. For example, a multi-stakeholder Green Reference Group (GRG) for the Southern Agriculture Growth Corridor (SAGCOT) in Tanzania, has members who represent government, agribusiness, donors, conservation and development NGOs, farmers' associations, apex organisations and financial organisations who worked together to shape the green growth vision for SAGCOT. However, the SAGCOT experience also highlights the practical challenges in engaging all those who are affected by government decisions; some of them may not be aware that they are or will be affected – and are therefore less willing to engage. Who the affected stakeholders are may also change over time; and local communities are not always well-organised to engage and may have very divergent views.

Where there is a history of mistrust and power imbalance among key stakeholders, the multi-stakeholder process will require patience and careful design to nurture trust and ensure stakeholders can participate on a basis of parity, rather than entrenching power imbalances. It may take time to build willingness, skills and confidence from the stakeholders to engage constructively with each other. Rushing or forcing stakeholders immediately into multi-stakeholder settings may risk entrenching power imbalances and mistrust. For example, in Nepal, a participatory process was undertaken by the Nepal government to engage local communities in developing Scientific Forest Management (SciFM) plans. However, the plan itself was so complex and the process so bureaucratic that the 'participatory' process came to be dominated by technocrats, 'experts' and government officials – with only limited roles for local knowledge, further alienating some community members.

There are inevitable tensions in multi-stakeholder processes. For example, between full disclosure of the views of participants and the safety of those participants, and between sufficient concerted participation and exhaustion with the process. In some contexts, stakeholders can be forgiven for seeing multi-stakeholder processes less as incubation of useful action and more as diversion from it. As with knowledge brokering, a careful balance among a range of context-specific tensions is needed in multi-stakeholder processes to make them work.

4.3 Valuing different types of knowledge and enabling locally-led research

Stakeholders who are currently marginalised from both research and policy processes and whose lives can be heavily impacted by policy decisions, can have valuable experiences to share. Their interests and priorities need to be reflected in both research and policy formulation processes. For example:

- Indigenous Peoples and local communities, and their knowledge are often not reflected in research. But they have valuable lived experiences on how to be effective stewards of nature (Holland, 2022; Mayers and Bass, 1999). For example, in Kenya, local communities play a key role in conserving wildlife and were an important voice in shaping Kenya's WCMA 2013. In Papua Indonesia, Indigenous Papuans' wisdom and tradition put strong emphasis on equitable growth, ecological sustainability and wellbeing of local communities – outcomes which are the foundation for the provincial government's low-carbon development vision. In Niger, with minimal external support and building on traditional practices, local farmers have been restoring land using Farmer-Managed Natural Regeneration (FMNR) techniques since the early 1980s. They improved the technique through experimenting on their fields and, together, regenerated 200 million trees over seven million ha of farmland across Niger and neighbouring Mali. In stark contrast, the top-down technocratic 'scientific' forest management (SciFM) approach in Nepal that was developed with limited local input, was abandoned after millions of dollars had been spent to pilot and promote it.
- The astonishing success of FMNR in Niger and the failure of complex high-cost SciFM in Nepal also underline the importance of simple low-cost restoration techniques in achieving impacts at scale. Those low-cost restoration techniques, like FMNR, can bring benefits to local communities and are not reliant on external expert inputs. Locally-led research, based on traditional and local knowledge,

can help identify such methods that are adaptable to local social, economic and environmental contexts.

- Research led by the global south can provide critical insights and ensure research results are firmly grounded in local and national contexts. This means they are more likely to be used by developing country governments. For example, local experts and local peer-reviewers driving NCS in Pakistan ensured the strategy was widely embraced. A group of reformers within the Papua provincial government worked together to support each other, lead research efforts and pursued a low-carbon development pathway against all odds. Ugandan government agencies have a strong and shared ownership over the Natural Capital Accounting system because it was developed based on national needs and under the joint leadership of both Ugandan policymakers and experts.

However, these locally and southern-led research initiatives are often not considered high quality by conventional research evaluation methods. These tend to measure numbers of academic papers published and citations, and look for formal peer reviews (Lebel and Mclean, 2018). But there are encouraging new initiatives that are seeking to address this challenge. For example, new participatory research approaches that incorporate local communities' views and voices (Enns, 2022); and new research quality evaluation criteria that can better capture the values of southern-led researchers, use of participatory approaches and engagement with local communities (Lebel and Mclean, 2018).

Experience shows that building research teams that include often-marginalised voices (eg. southern-based researchers, Indigenous Peoples' representatives, ethnic minorities, race and gender difference), as well as those who have different world views, ideologies and experiences, can help to devise research methodologies and processes that are sensitive and responsive to different types of knowledge and local context. They can also help the research team become more effective in engaging a wider range of stakeholders in the uptake of research findings (Goldman and Pabari, 2021). In Thailand, a trans-disciplinary local research team facilitated a participatory environmental and social impact assessment of the HNI project. Local community representatives with diverging views on the HNI project were involved in designing and carrying out the assessment. Elected local community representatives were part of the data collection team; they organised village group discussions and conducted village level surveys. Such local-led participation ensured wide grassroots support for the final assessment results and enabled local communities' knowledge to be used alongside scientific data to assess potential impacts. For example, local knowledge of flooding history was combined with bio-physical data collected by researchers to enrich the evaluation of flood risks.

4.4 Galvanising an active civic space and social movements

An active civic space allows people 'the freedom and means to speak, access information, associate, organise, and participate in public decision making' (Malena, 2015). An active civic space makes democratic, multi-stakeholder processes the norm rather than the exception in government decision making and legislative processes. For example, after more than a decade of civil society efforts to push for review and two failed attempts to revise the Kenya's WCMA, the constitution of Kenya 2010 enshrines open public participation in legislative process by stating that 'Parliament shall not bar anyone from participating on any grounds'. This paved the way for WCMA 2013 to be enacted through a multi-stakeholder process.

An active civic space opens more windows for research to influence governments and for the public to have more scrutiny over what research and evidence is used by the governments. It gives more opportunities for different stakeholders to use the research and evidence they trust to inform the debate. For example, civil society actors provided important evidence to shape Kenya's WCMA through open call for public inputs. While in Indonesia, civil society actors now have free access to timber supply chain information and help the state to carry out monitoring activities and generate evidence that informs the enforcement and improvement of the timber legality system.

Worryingly, however, too many states around the world continue to restrict civic space. Only 3.1% of the world's population lives in countries with open civic space according to CIVICUS Monitor 2021 report (*CIVICUS*, 2022). Where civic space is limited and governments' decisions are made without transparency, public campaigns and protests are often the only way to hold decision makers to account and to demand evidence-based policy. NGOs and local communities involving thousands of households organised fierce demonstrations against HNI in Thailand and demanded the government redo its impact

assessments in a participatory manner. The #StopEACOP campaign continues to fight and influence the construction of the East Africa oil pipeline and has pressured multi-national banks and insurers into not supporting the project. The largest street demonstration in Uganda in 2007 forced the government to abandon the proposed deal to turn a fourth of Mabira Forest Reserve into sugarcane plantations.

Research can be used to catalyse active civic space and those social movements when civil space is limited. For example, both for the public campaign to stop East Africa oil pipeline and for the campaign to save Mabira Forest Reserve, research debunking government's arguments for those projects was used effectively to catalyse public debate and gather wider public support. Research can also play a facilitating and supporting role for existing social movements and public consultation processes. In the HNI case, local communities supported by NGOs kicked off intense protests after they observed the serious negative environmental and social impacts of a similar project in neighbouring communities. Local researchers then worked with those local communities and facilitated participatory processes to gather evidence and find solutions to address their concerns.

While the case of Mabira Forest Reserve in Uganda demonstrates an effective social movement in a constraining political environment, it also hints at the risk that social movements are prone to manipulation by those with ill-informed or malicious intent. On the fringe of the Mabira movement a small number of people sought to stoke racial tension. Without effective inclusion and shared responsibility, well-intentioned movements may be used by others as a cover to further divide society, or entrench biases and power imbalances, risking restricting the power of civic spaces to hold government accountable in the long term.

4.5 Committing to long-term, patient and flexible investment in linking research and policy

Both brokering knowledge and facilitating multi-stakeholder processes require high levels of skill and experience to be effective. They also need long-term investment to nurture skills and learning and cultivate the relationships and trust needed to seize opportunities for change (Forrester et al., 2009; Goldman and Pabari, 2021; Izzi, 2018; Mayers and Bass, 1999). Mobilising and organising local communities — as well as marginalised and vulnerable stakeholders — to collaborate or lead research, requires good understanding of local contexts, dedicated resources, and time and patience to build willingness, capacity and nurture trust. Especially since the changes and impacts on policy are often gradual (Cashore et al., 2019; Monzani, 2020). Using diverse methods effectively across an interdisciplinary team, and ensuring all partners are treated equitably and research results are meaningful and useful for all those involved, also requires long-term investments into partnership building and trial and error (Izzi, 2018). When donors and governments provide patient investments in this way, the rewards often far outweigh the costs. For example, the time and resources invested into engaging more than 3,000 stakeholders in shaping Pakistan's NCS set the foundation for decades of environmental action to come. Although the environmental and social impact assessment in HNI took significantly longer to conclude because of its participatory approach, the project was implemented faster and more effectively compared to similar projects which rushed a top-down planning process.

NGOs and researchers who invest their time and efforts in working with the same groups of key stakeholders, and collecting similar types of data in the same area over long periods of time are also important. They can identify approaches that will likely be widely supported and take advantage of moments of change. For example, civil society organisations continued to push for revision of WCWA in Kenya over 15 years. This helped to provide the momentum to build the evidence, trust and relationships needed to finally enact the Act when the political moment came. Satellite images and social economic data collected in the same areas in Niger over long periods could effectively demonstrate the impacts of FMNR, persuading the government to further support and promote it. In Papua, years of effort enabled conversations to be held between local communities and governments, and decades of work went into building trust and networks needed to shape a transformative vision for the province.

Yet, more needs to be done to sustain these changes. Local NGOs and researchers face major challenges where too many research funding calls have narrow aims, topic areas and time horizons. Local researchers too often have to cater to donor demands and international interests rather than working on topics where there are genuine demands from national and sub-national governments and

local communities. The focus of those research funding calls tend to change frequently, based on donors' priorities and perceived gaps in international knowledge. So it is difficult for local researchers and NGOs to develop the long-term research projects needed to build quality data, evidence and communication pathways to carry data and evidence effectively to national stakeholders.

Many donors recognise the importance of investing in relationships and supporting local change-makers in the long term. But they are constrained by fast-changing political priorities and budget allocations. A way to overcome this is to invest in finance delivery mechanisms that can more effectively channel funds to local level, let local stakeholders decide on priorities, and build the capacity of committed local change-makers who are working in the same locality with the same group of stakeholders over the longer term. For example, donors and the Indonesian government have established a trust fund to secure long-term funding for independent forest monitors and to build local capacity to monitor timber legality.

5. Strategic considerations for REDAA

Design of the REDAA programme could consider the following strategic choices to help improve research uptake in government decision making:

1. **Select proposals that can demonstrate a good understanding of barriers and opportunities for research to influence government decision making.** A three-year grant, for example, in the anticipated five-year REDAA programme, may not be sufficient to enable research to influence policy. But if proposals can demonstrate a good understanding of existing barriers and opportunities for translating research into action in their chosen geography and operational scale, it can help REDAA select grantees who are incentivised and have the necessary skills and strategic knowledge to influence policy. REDAA may also require grantees to include a research communications and engagement strategy that builds on the understanding of barriers and opportunities, and is therefore aimed at specific points of policy and/or system leverage.

2. **Ensure priority themes, calls for proposals and initiatives funded by REDAA are based on priorities identified by institutions in Sub-Saharan Africa, South Asia and Southeast Asia.** REDAA-supported initiatives should focus on the issues that resonate most with the governments and other key stakeholders in the REDAA regions. REDAA may wish to adopt a broad focus in its research funding calls, calling on applicants to demonstrate priorities and issues (eg. which ecosystem to focus on, or which national or sector policies and government partners to target) with justification for why and how research on those priorities and issues will have good uptake by government.

3. **Support research that identifies context-specific approaches that get evidence into use by governments.** Published research that brings together barriers and opportunities for evidence to translate into government policy — on context-specific environmental degradation and restoration issues — is often scarce. Research might be supported that itself identifies the specific challenges and effective processes to improve research use by governments in particular contexts.

4. **Include a focus on knowledge brokers and multi-stakeholder processes in REDAA regions and countries.** REDAA can identify and provide targeted support for existing knowledge brokers and multi-stakeholder processes relevant to environmental degradation to help improve the use of its research portfolio.

5. **Ensure some research adopts diverse methodologies to incorporate different types of knowledge and local research leads.** Such research is often in short supply and REDAA can support projects to pioneer methods and build long-term capacities to develop more locally-led research. Where local communities and Indigenous Peoples identify a need for organisational or capacity development to participate in dialogues and research in meaningful ways, REDAA could support activities that help mobilise and strengthen community-based organisations.

6. **Explore opportunities to link REDAA with other sources of support for long-term, patient financing of locally-led research activities.** REDAA may wish to engage with other funders to

identify effective financing delivery models that can channel funding to locally-led research activities, strengthen existing mechanisms or/and support new and emerging models.

7. **Build in mechanisms to critically reflect on REDAA's experiences, capturing and sharing lessons.** Throughout the life of the research programme, REDAA stakeholders should reflect on their own and shared experiences on using research to influence governments. They should learn from grantees and foster learning among grantees – but also reflect on how research impacted REDAA's design and operation itself. The facilitators of REDAA could maintain a learning log to capture lessons throughout REDAA's lifetime and REDAA can organise networking events to support grantees to reflect and learn from each other. REDAA should also make the lessons learnt widely and freely available. Those lessons learnt can inform other donors and researchers alike in their funding calls or research designs.

8. **Develop mutual support among grantees and consider how to best provide guidance on optimising the influence of research on government decision making.** There is much published guidance and advice on how to improve research use in governments. The challenge is to navigate the fine balance between generic advice that lacks nuanced understanding of the practical challenges highlighted in this report, and prescribed actions that may not fit all contexts. One way to navigate this is to develop mutual support among grantees through the programme's community of practice, so they can learn from doing. In addition, building on this report and lessons learnt in evaluating progress in the programme, REDAA facilitators can consider how to best develop suitable guidance and effective support for both REDAA grantees and others who are interested in improving research use in government decisions.

Government decisions are influenced by many factors and stakeholders. Research processes and the evidence they produce can be strong influences, but their impacts on decisions may not be readily visible and are often hard to track. Those who are trying to use research to influence governments to address environmental degradation and pursue practical restoration approaches are often fighting a losing battle. Other stakeholders can be far more powerful and the issues may be complex and too full of uncertainties to be tractable by policymakers. This study makes the case for REDAA to support those who are trying to fight that battle.

Annex I: Case studies

1. Adoption of Pakistan's National Conservation Strategy (NCS)

Sources: (Halle, 2002; Irshad, 2018; Runnalls et al., 1995)

Background to the government's decision. The Pakistan Cabinet adopted the NCS in March 1992. Though the Strategy had many flaws – for example, its potential different impacts on Pakistani society were only weakly analysed — its adoption was one of the key milestones in Pakistan's recent environmental history and laid the foundation for various subsequent environmental actions in Pakistan. It has enhanced coordination on environmental actions between federal, provincial governments and civil society actors.

What research influenced the decision?

- **Environmental assessment**. In developing the NCS, NGOs, researchers and government officials worked together and produced a detailed assessment of Pakistan's environmental situation, including the state of deforestation, soil erosion, desertification and freshwater pollution. The assessment explicitly showed how environmental degradation would affect the economy of the country as well as people's standard of living, health and income.
- **Economic development recommendations**. Research carried out to prepare for the NCS also identified detailed recommendations to shift Pakistan's economic development process to a more sustainable model. This included how to better implement policies, strengthen institutions to support policy implementations, improve regulatory framework and engage the public more effectively through raising awareness of environmental issues.

How research influenced the decision – lessons learnt

- **Key roles played by those who have the trust of both researchers and policy holders.** An influential conservationist in Pakistan, Aban Marker Kabraji, International Union for Conservation of Nature Pakistan's country director, understood the political context and had access to elite politicians as well as key civil society players. She led the production of practical, clear research documents to inform the NCS. Under her leadership, the strategy process was informed by research evidence but also remained highly practical and policy focused, making it attractive to donors and local politicians in Pakistan. To implement the NCS the establishment of a new institute was proposed – the Sustainable Development Policy Institute (SDPI) — to provide a 'knowledge brokering' role by conducting research to advise governments in the long term. The Strategy envisioned SDPI to 'mobilise sectors and stakeholders through analysis and advocacy' and link such analyses to 'a programme for change' which the Institute is still championing today.
- **Locally-led research builds local demand to be heard.** International experts and NGOs initiated the process of the NCS. However, they put considerable focus on providing support and sharing international experience for a process that was led and owned by key stakeholders in Pakistan. Much of the research that laid the foundation for the strategy was led by and peer-reviewed by local experts. Those local experts also consulted local officials and NGOs through the research process, which grounded recommendations in local reality while building wide support and demand for the research findings to be recognised at policy level.
- **Co-production of the research by government officials**. Syed Ayub Qutub, a government official, co-authored the research and recommendations that fed into the Strategy. Powerful ministries were strongly involved in development of the NCS (the deputy chairman of the Planning Commission supported the multi-sectoral research and became a champion of the Strategy). Senior public servants and a large number of middle and lower-level government officials also participated in the numerous drafting groups and consultations during the three-year process leading up to adoption of the NCS. This meant that, despite high government turnover at the top level, government officials were familiar with the evidence generated and the strategy content when it was time for adoption.

- **Facilitated deliberative multi-stakeholder process given sufficient time**. The development of the strategy was a multi-stakeholder process, in which the Pakistan government had the financial support of the Canadian government among others. It involved more than 3,000 people through interviews, workshops, comments on the drafts and other consultation processes over three years. As well as national and local government officials, key stakeholders included businesses, media, local communities, NGOs and academics working across environment and development sectors. They helped to define the issues that needed to be researched, provided inputs in shaping both the research and the strategy, and supported the implementation of the NCS once it was adopted. The multi-stakeholder process provided many stakeholders across sectors with the first opportunity to network and build relationships with each other, creating the foundation for useful collaboration in later years.

2. Review and enactment of Kenya's Wildlife Conservation and Management Act 2013

Sources: (Goldman and Pabari, 2021; Kenya Wildlife Conservancies Association, n.d.; Wildlife Conservation and Management Act, 2013; WWF, 2014)

Background to the government's decision. The Kenya Wildlife Conservation and Management Act 2013 (the Act) was approved in December 2013 and came into force in January 2014. The Act built on more than 15 years of effort to engage key stakeholders in Kenya to improve wildlife governance so it can be more effective and inclusive. The Act lays out principles for wildlife management in Kenya including devolution, public participation, ecosystem approach, sustainable use and benefit sharing between governments and local communities. The government also committed to regular monitoring of the performance of the Act and continued engagement with stakeholders to amend and improve it.

What research influenced the decision?

- **Wildlife management best practices**. A multi-stakeholder taskforce conducted a literature review of best practices in wildlife management from other countries, including other southern African countries, the US and Australia.
- **Public responses**. The public was also invited by the government to submit responses to the draft Act. Community-based organisations, NGOs and members of the public all submitted responses, which referred to published research, grey literature and individual experiences. The Parliamentary Research Service (PRS), a dedicated unit in the government to support parliamentary decisions, collated and analysed those submissions to inform the final bill.
- **Briefs on key issues emerging from public response**. The PRS also compiled additional evidence and prepared briefs on issues that required further deliberations and evidence, for example, a brief on poaching trends given many public comments referred to 'the poaching crisis'.

How research influenced the decision – lessons learnt:

- **Key roles played by government body and NGOs to translate research into targeted recommendations.** Both the PRS and various NGOs played a knowledge brokering role. For example, PRS collated public submissions — both verbal and written — published research and grey literatures. PRS then compiled them in accessible formats for the Parliament to aid the deliberations and adoption of the Act. PRS also conducted further research in areas in the draft bill that required more information or debate. NGOs collaborated to collate evidence and research and jointly submitted concise and targeted recommendations to the government that referenced this evidence in the Act.
- **Adaptation to changing needs over several years and several multi-stakeholder processes.** The Act incorporated the inputs by many stakeholders engaged through open calls for public response as well as stakeholder interviews, workshops and informal meetings (breakfast meetings involving policymakers, experts and practitioners). The multi-stakeholder engagement process helped to build relationships and mutual understanding among stakeholders who often have diverse perspectives and a history of conflicts and mistrust in the wildlife sector. The process also helped identify areas of agreement and effective ways to continue to engage and build trust. It helped build credibility and wider support for the Act. Some, however, felt the public consultation process during the final stages of the enactment of the Act was rushed. For example, the call for public review of the draft bill was only released a short time before the final rounds of parliamentary hearings. The government committee in charge of the review and enactment of the Act had limited resources to gather evidence itself. The resource gap and the rushed final process meant that well-funded and organised NGOs and international development partners who can collate and present evidence effectively to support their ideological positions seemed to have the most influence in the process. The multi-stakeholder efforts to adopt the Act started in 2006, eight years before the enactment. Over the eight years, different actors initiated different stakeholder mobilisation processes and only some of these documented and shared key evidence and lessons learnt.

- **Proactive methods to incorporate local communities' knowledge.** Many stakeholders including government agencies like Kenya Wildlife Service (KWS) recognised the important role local communities play in wildlife conservation and management. But engaging those local communities, who often reside in remote areas and may not be well organised, was challenging. During the revision of the Act, government organised proactive outreach and engagement with the local communities supported by NGO partners. KWS and other NGOs also supported the establishment of the Kenya Wildlife Conservancies Association (KWCA) in 2012 to strengthen the voices of community groups around the country. KWCA was active and instrumental in the enactment of The Act.
- **Long-term investment enables the right moment for change to be seized.** The first attempt to revise The Act started in the late 1990s and the first extensive stakeholder consultation meetings were organised in 2006. But due to various factors including change of governments, the Act was only enacted in 2014. However, the long process helped build the evidence, network and trust needed to successfully review and enact the Act when the window for change finally opened**.** Ie. a new constitution in Kenya that supported public consultation; a poaching crisis that received both international and national attention; and a new government in place to open space for debate and change.
- **The country's Constitution creates space for public participation in legislative process.** The constitution of Kenya 2010 enshrines open public participation in legislative process by stating that 'Parliament shall not bar anyone from participating on any grounds'. This change was pivotal for the enactment of the Act as it catalysed public consultation and multi-stakeholder processes that brought in different types of evidence to shape the Act. The experiences from the participatory development of the Act were documented and analysed by the government body leading the enactment of the Act and used to develop guidelines and checklists for good practices to strengthen public participation in policy formulation in Kenya. The commitment from the government to learn from doing and continue to use evidence and participatory process to further improve the Act, helped it gain wider support.

3. 'Greening the vision' of the Southern Agriculture Growth Corridor (SAGCOT) in Tanzania

Sources: (Buseth, 2018; Hou-Jones et al., 2019; Lugangira, 2020; West and Haug, 2017)

Background to the government's decision. The Tanzanian government announced the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) at World Economic Forum Africa in 2010. It aimed to attract both public and private investments to increase agriculture production and productivity, create jobs and stimulate economic growth in an area of approximately five million ha in the Central and Southern Highlands region. SAGCOT was initially backed by multinational agriculture corporations and donors. The original policy document on SAGCOT published in 2011 received a lot of criticism due to limited attention paid to potential negative environmental and social impacts. In 2012, a green growth investment framework (also known as 'greenprint') for SAGCOT was published to address the concerns and ensure the SAGCOT strategy is 'environmentally sustainable, socially equitable and economically feasible'. This framework was later renamed as 'A vision for agriculture green growth' to avoid any reference to 'investment'. From its initiation to date, SAGCOT has been surrounded by controversy. Its implementation has been very slow and the reality on the ground is far from a perfect picture of 'triple wins' for environment, food security and economic development. However, the evolution of its branding and strategy on paper offers some useful lessons on how research could be better used to inform government strategies.

What research influenced the decision?

- **Environmental and social assessments**. To inform the greenprint, an assessment of agriculture, environment and climate conditions, trends and challenges was conducted by a multi-stakeholder team supported by EcoAgriculture Partners, a US-based NGO. In 2013, the government also commissioned environmental and social impact assessments to receive World Bank funding for developing the SAGCOT programme.
- **Agricultural 'green growth' best practices from other countries**. Experiences from Brazil, South Korea and Taiwan were collated to inform the greenprint. The greenprint also draws on the conceptual framework for Agriculture Green Growth (AGG) and some best practices that can help achieve AGG including agroforestry, conservation agriculture and rainwater harvesting.

How research influenced the decision – lessons learnt

- **Several multi-stakeholder platforms to convey diverse views.** Given its high profile, both internationally and in Tanzania, many civil society organisations, companies, government agencies and academia had shown keen interest in SAGCOT. Many stakeholders have very strong and often polarising views about it. For example, whether smallholder or large-scale commercial farming should be the future for Tanzania's agriculture development. To alleviate those tensions, SAGCOT Centre Ltd (SCL), the limited company coordinating SAGCOT's activities, established a multi-stakeholder Green Reference Group (GRG) to advise it on social and environmental issues. GRG currently has 20 members representing government, agribusiness, donors, conservation and development NGOs, farmers' associations and apex organisations and financial organisations. The membership was kept intentionally small to allow the group to function efficiently in its role in advising SCL. GRG played a key role in shaping the greenprint and has been actively engaged in facilitating and monitoring the greenprint's implementation. In addition, in partnership with The Forests Dialogue and International Union for Conservation of Nature, SCL convened multi-stakeholder land use dialogues that engaged a wider set of national and international stakeholders on contentious issues around SAGCOT. During those multi-stakeholder dialogue processes, different stakeholders were also able to bring in research and evidence and collaborate on conducting research, such as geoinformation on soil suitability, environment vulnerability and hydrological studies. However, implementation of SAGCOT remains intangible so it is difficult to discern whether the views and evidence from stakeholders have been influential.
- **Specific efforts needed to engage local communities and sub-national governments.** Some felt that the multi-stakeholder engagement process hasn't sufficiently engaged local communities

and sub-national governments, contributing to the lack of cross-scale coordination and lack of progress to turn ‘greenprint’ into reality on the ground. Engaging local communities in an area as big as SAGCOT is challenging. Not all local communities living in the SAGCOT area are well organised and traditionally there have been tensions between famers and pastoralists. Smallholder farmers also have different experiences and therefore views on working and engaging with agriculture companies. There are also farmers and herders from other regions moving into SAGCOT in search of more fertile soil. Capturing those complex local realities and dynamics can be challenging for time and resource-bound researchers and others who want to engage local communities in multi-stakeholder processes.

4. Degree of attention to social and environmental impacts in approval of dams in the Lower Mekong river basin

Sources: (Hall and Manorom, 2015; Keskinen et al., 2012; Manorom, 2020)

Background to the governments' decisions. The increasing demand in electricity has led to a rise in governments approving large-scale hydro-power projects in the Lower Mekong Basin. As of 2020, more than 200 large dams were planned, completed or being constructed on the main Mekong river or its tributaries in Laos, Vietnam, Thailand and Cambodia. Many decisions to construct the dams seemed to be driven mainly by energy security concerns, economic gains for the government and a few companies, while underestimating or ignoring social and environmental impacts. One exception seems to be the Hua Na Irrigation (HNI) project in Thailand, where environmental and social impacts heavily influenced the design of the project through a participatory process to assess those impacts.

What research influenced the decisions?

- **Consultant or government-led economic, environmental, and social impacts assessments**. Numerous regional and national assessments were carried out to inform governments' decisions in building these dams. For example, the Mekong River Commission (MRC) conducted a regional assessment to determine environmental, social, and economic impacts of water-resource developments including dams. Governments in Laos, Thailand and Vietnam also commissioned impact studies for specific dams under consideration. The assessments used to support the construction for the dams often focused on significant economic benefits. For example, the MRC assessment estimated economic gains from hydropower development to rise by as much as US$160 billion by 2040 for lower Mekong countries. While those who opposed the construction of dams often referred to the significant loss of natural capital and highlighted inappropriate assessment methodologies that underestimate environmental and social impacts. Governments reportedly picked consultants likely to produce assessments that support their decisions, and reportedly ignored or withheld unfavourable results commissioned by governments or conducted independently.
- **Participatory environmental and social impact assessments**. In the case of HNI, the government accepted a participatory impact assessment process recommended by NGOs and academia. The scientists played a facilitating role in bringing governments, local communities and NGOs together through the impact assessment process to inform the design and final decision.

How research influenced the decision – lessons learnt

- **Researchers facilitating multi-stakeholder processes.** Most of the approval processes of the dams were subject to controversy, with the assessments and analysis used to support approval being criticised as unreliable and biased. The HNI is an exception thanks to the participatory multi-stakeholder process adopted and facilitated by researchers to assess environmental, social and health impacts of HNI. Local communities both for and against the project, NGOs, private companies, government officials and researchers participated and engaged in often intense debates on the scope of the impact assessments, research methodologies and report finalisation. Such a multi-stakeholder participatory process was critical for the wide support of the final assessment results. The process also allowed stakeholders with different views on the project to negotiate and build consensus on how HNI should be implemented. The key stakeholders involved in the assessment process continue to work together to operate and monitor the implementation of HNI.
- **Valuing different types of knowledge and enabling local-led research.** While many assessments for dams were completed by national, regional or international consulting companies, an interdisciplinary research team from three local universities led and facilitated the participatory social, environmental and health impact assessment for HNI. Elected local community representatives also contributed to data collection of the assessments, by organising village group discussions and conducting village level surveys. Such locally-led participatory process enabled local communities' knowledge to be used alongside scientific data to assess potential impacts. For

example, local knowledge of flooding history was combined with bio-physical data collected by researchers to evaluate flood risks.

- **Patient investment in initial process to ensure effective implementation in the long-term.** Many assessment processes for dams were concluded in just a few months. The participatory process used for HNI started in December 2007 when government allocated funds for research, and concluded almost two years later when a final report was presented to the Cabinet in late 2009. HNI's example showed that the time and resources invested in the initial assessment process were well spent, as the project could be implemented swiftly after the approval due to wide support at grassroots level. This is in stark contrast with other large-scale schemes, which were not able to deliver the anticipated benefits partly due to a rushed planning phase that drew on widely contested research.
- **Large grassroots-led protests opening space for more evidence to be used in government's decisions.** In the case of HNI, NGOs and local communities involving thousands of households organised protests after the project was approved by Thai government in 1989. The fierce opposition from local communities was fuelled by the disastrous environmental and social impacts caused by the construction of an irrigation project upstream of HNI. Here the dam destroyed vast areas of wetland and made water too saline for farming. As part of their petition to the government, local communities and NGOs rejected the initial assessment and demanded a participatory process. The large scale and effective protests at local level paved the way for government to better commission and use evidence for HNI. In many other cases in lower Mekong, where civic space is constraint and local communities affected by those projects are less well organised, governments seem to continue to use biased assessments results as basis for their decisions.

5. Limited attention to potential impacts and limited investment support, in approval of oil pipeline in Uganda and Tanzania

Sources: (Mukeredzi, 2022; *#STOPEACOP* , n.d.; Vetter, 2022)

Background to the governments' decisions. In December 2021, Uganda parliament approved the East African Crude Oil Pipeline Bill. A similar law was passed in Tanzania in August 2021. In February 2022, the president of Uganda, the vice president of Tanzania and representatives of the East African Crude Oil Pipeline Company (EACOP) signed a US$10 billion final investment decision (FID). This gave the green light for EACOP to construct an oil refinery in Uganda and 1,443km crude oil export pipeline that will transport crude oil produced in the Lake Albert basin in Uganda to a seaport in Tanzania. EACOP is co-owned by TotalEnergies, China National Offshore Oil Corporation and Uganda National Oil Company and the national oil company of Tanzania. The project includes operations that will disturb protected wildlife habitats, including national parks and forest reserves and will likely displace 14,000 people.

What research influenced the decision:

- **Environmental and social impact assessment (ESIA)**. In accordance with the regulations in both countries, EACOP commissioned an ESIA, which was submitted to both governments in 2019. As part of the assessments, stakeholder engagement meetings were held with national, sub-national governments, community representatives and NGOs. The Uganda government approved the ESIA citing the route had been chosen based on feasibility studies that made it 'more secure and cheaper'. EACOP also took actions to reduce negative environmental and social impacts, for example, altering the routes and the design of the pipeline to minimise impacts on high biodiversity areas. The company is also continuing to engage key stakeholders in Uganda and Tanzania, including civil society actors to refine their implementation plans and monitor environmental and social impacts.
- The ESIA reports submitted by EACOP were further reviewed by independent agencies including E-tech International and The Netherlands Commission for Environmental Assessment. Both reviews identified gaps and shortcomings of the official ESIA reports and both reviews were shared officially with the governments. Human rights NGOs also published independent human rights impact assessments highlighting significant risks and potential negative impacts for local communities.
- **Estimates of economic benefits**. EACOP claimed the project would create 12,000 direct jobs and nearly 50,000 indirect jobs with US$1.7 billion worth of business opportunities for local companies. It also estimates the pipeline will increase Uganda and Tanzania's foreign direct investment by 60%, generating revenue of up to US$2 billion from oil exports. Those figures were also used by the governments to justify the approval of the pipeline. However, those who are against the pipeline published a research report questioning who will really benefit beyond the big oil companies and citing the devastating impacts oil exploration is likely to have on the economy by accelerating climate change and causing loss in natural capital.

How research influenced the decision – lessons learnt

- **Tailored messages and strategies based on research needed.** Civil society organisations campaigning against the oil pipeline, translated long reports on its negative social, environmental and economic impacts into tailored messages for the government, as well as other key stakeholders. This included shareholders of Total and CNOOC, banks who are or could finance the projects, contractors who will carry out the construction, and insurers who have a track record of supporting oil pipe projects. Those tailored messages draw on research to illustrate the potential high financial, environmental, social and reputational risks for those different target audiences. The campaign with banks and insurers appears to have been effective, with many multinational banks and insurers confirming they will not finance or insure the oil pipeline. This has reportedly delayed the construction of the pipeline despite governments' backing of the project.
- **Public campaigns open up debates and more opportunities for key research to be used.** More than 260 civil society organisations have joined the #StopEACOP campaign, supporting it through

public mobilisations, legal actions, research, activism and media advocacy. The research the campaign generated was used to debunk government claims that the oil pipeline will be good for the people and the economy of Uganda, and highlighted the existing and potential negative impacts on people, biodiversity and climate. The evidence generated lays a strong foundation for the campaign to stimulate more public debate, encourage more people to take action and hold those who support the oil pipeline accountable. While the campaign was unable to stop the pipeline construction, it has put more pressure on the company to monitor and mitigate its social and environmental impacts. However, in Tanzania and Uganda, governments have reportedly tried to repress any protests against the pipeline and some local activists have been reportedly detained and harassed by the governments. Local newspapers and TV also largely ignored the evidence the campaign produced and focused on the economic benefits of the oil pipeline.

6. Rejection of de-gazettement of Mabira Forest Reserve for a sugarcane plantation in Uganda

Sources: (Birdlife International, 2008; Hönig, 2014; Mayers, 2007, 2011, 2014; Mugagga and Ssenkabirwa, 2022; Twesigye, 2008)

Background to the government's decision. In early 2007, supported by the Cabinet, Uganda's President Yoweri Museveni approved a deal for a subsidiary company of an Indian-owned business conglomerate, Mehta Group, to convert one quarter of the Mabira Forest Reserve (about 7,100ha) to a sugarcane plantation. NGOs organised public campaigns and catalysed parliamentary sub-groups, unions and church groups to take action against the plans. This included one of the capital's biggest public protests, which while predominantly peaceful, ended with several lives lost. The government withdrew the proposed plans in October 2007. In August 2011, the president tried to revive the plan shortly after winning his fourth term in office. Another public campaign supported by NGOs, local communities, and lawyers – notable for a high proportion of young people using social media to organise and protest – seems to have been key in persuading the president to drop the plan and the head of Mehta Group to reportedly state that the company was no longer interested in the deal. Since then, the plan has not been re-tabled. Nowadays, the biggest threats to the reserve are illegal logging and encroachments for charcoal production and farming. Some reports show that Uganda government agencies have been trying to better protect and restore the forest reserve including organising regular tree planting activities and increasing measures to control illegal logging.

What research influenced the decision?

- **Short term national economic benefits**. The president cited increased tax revenue, reduced burden for government's foreign exchange, energy security and other economic benefits for local people (jobs and investments by the company in infrastructure) as evidence to support the decision. The Cabinet, Mehta Company and others who supported the deal also released counterarguments discrediting the research conducted by the campaign.
- **Long term economic values of natural resources and policy alternatives**. As part of the public campaign against the plan, research was conducted to capture the economic values of the forest land as well as the ecosystem services that the forests provided. For example, carbon, fuel, social security, water purification, recreational values and livelihoods benefits for local communities. The research made strong arguments that turning forests into sugarcane plantation made no economic sense. Policy alternatives for production of more sugar were also analysed – showing the greater benefits that outgrower sugar production on other land would bring, compared with production on the excised Mabira land.
- **Legal analysis.** Research also highlighted the legal context of the deal and this galvanised commitments by NGOs to challenge it in the local, national and East African regional courts.

How research influenced the decision – lessons learnt

- **Enabling stakeholders to use research, give voice to their positions and take action in their organisations.** Civil society organisations who initiated the campaign to save the forest reserve organised regular weekly meetings with key stakeholders to share information, research and coordinate activities. Those key stakeholders included religious and cultural institutions, donors, environmental lawyers, bankers and journalists. They also worked closely with government officials who were against the deal. For example, in 2007, senior officials in the National Environment Management Agency (NEMA) and the National Forestry Authority (NFA) rejected the deal. The executive director of NFA — along with the entire board — resigned over the issue, adding more pressure on the government**.** Later in 2011, the opposition party also publicly supported the campaign. The Forest Governance Learning Group (FGLG) — a network of influential teams made up of individuals in local and national organisations in ten countries including Uganda, and supported by IIED — also played an important role, building trust among key stakeholders and bringing influential stakeholders into the debate including government officials, NGOs, researchers, and the media.

- **Translating research evidence into targeted messages for different stakeholders.** NGOs leading the campaign as well as members of FGLG played important knowledge brokering roles, translating research evidence into targeted messages for different stakeholders. This included bumper stickers and SMS campaigns targeting the general public, personal stories targeting national and international news outlets, and evidence for legal cases brought against the government. A joint civil society letter outlining the illegality of the deal and policy alternatives, was also sent to the government and shared with President Museveni directly via a joint civil society meeting with him.
- **Unprecedented public demonstrations driving change.** The campaign successfully used evidence to challenge the legal, social and economic arguments used to support the deal and started intense public debate on the issue. Many public demonstrations were organised in Kampala and elsewhere which put increasing pressure on the government to abandon the deal. Many hailed this civil society movement as a sign of growing civil society activism and environmental awareness in Uganda, unusual in a low-income developing country with a history of authoritarian regimes and political repression. However, it is important to note that the interests active in the campaign were far from unified. Though the campaign was initiated and generally voiced around environmental concerns, the unprecedented public opposition to the deal was partly the result of support by groups with conflicting interests and diverse values. For example, business interests who were competing for the same land; and some in political opposition parties who sought to use the campaign purely for political gain. A small minority also exploited the history of anti-Asian sentiment in the country, and escalated racial tensions when several people of Asian origin were killed in the biggest protest of the campaign.

7. Improving environmental governance through Natural Capital Accounting (NCA) in Uganda

Sources: (Goodrich, 2021; The World Bank, 2020)

Background to the government's decision. With the support of international partners, including the World Bank and UNEP-WCMC (United Nations Environment Programme- World Conservation Monitoring Centre), the government of Uganda has been developing a National Capital Accounting (NCA) system. The system builds on Uganda's previous attempts to establish NCA dating back to 1999 and provides 'physical and monetary information' about the country's natural capital wealth as well as income and other benefit flows. Uganda's National Development Plan (NDP) III published in early 2020 incorporated a specific target to operationalise and institutionalise NCA in Uganda. In addition, many targets for natural resources management in NDP III were designed based on information generated by NCA (eg. targets for forest and wetland cover). NCA has also been used to support increasing national budget allocation for natural resource management in Uganda. The Uganda government has started to institutionalise the use and production of NCA by establishing a dedicated government unit and recruiting dedicated staff for NCA.

What research was used to inform the decision?

- **Status of natural resources.** For fisheries, tourism, land, water and forest accounts, standardised metrics were used to capture the different types of natural capital, their quantities and qualities, their locations, how they are used and with what physical and financial impacts.
- **Ecosystem accounting framework**. Drawing on land accounts, an experimental ecosystem accounting framework was used to estimate carbon storage, carbon sequestration, water yield and sediment retention in eight river basins. A national experimental ecosystem service account was also designed along with a suggested plan for the full account's production. Two sets of complementary macroeconomic indicators were developed: adjusted macroeconomic measures of national income and savings to reflect a wider range of changes in natural assets; and comprehensive indicators to assess national wealth including natural capital, produced capital, human capital and financial assets. Good practices from other countries' experiences in developing NCA were also drawn upon, especially from Rwanda and Zambia.

How research influenced the decision – lessons learnt

- **Co-production between researchers and governments.** Both those who produce and collect the data (Ugandan researchers, NGOs and civil servants), as well as different government agencies who can use the data, were involved in the development of NCA. Such a co-production process ensured strong understanding and ownership of NCA by the government while also helping data providers to design a system that is user-friendly and resonates with users' concerns and priorities. The co-production process also helped to identify specific opportunities where the information can be used to influence governments' policies, plans and budgets.
- **Institutionalising ways to improve research use across sectors.** The Uganda Bureau of Statistics (UBOS) was central in convening diverse stakeholders across environment and development sectors to produce and use NCA. UBOS has established networks with all ministries through their statistical units and has been working with organisations that hold data. However, UBOS' mandate does not cover interpretation of the data produced through NCA. A more systematic, multi-disciplinary approach to enhance capacities within the government to interpret data was 'rehearsed' through the World Bank and UNEP-WCMC programmes, both of which emphasised the need for a 'decision-centred' NCA.
- **Mutual recognition of the need for both government-led and external research.** Uganda government agencies that manage natural resources have been arguing for a national system that can evaluate and monitor the status and the values of its natural capital since the late 1990s. Through early efforts to build various natural capital accounts, there is growing expertise as well as interest in NCA in Uganda. Building on such strong national interests, international agencies like the World Bank and UNEP-WCMC supported a Ugandan-led process and

facilitated exchanges with other countries who are developing NCA. UBOS and other government technical agencies led the data quality control procedures supported by international peer reviewers. Ugandan experts also facilitated the production process and conducted the research needed to develop the accounts. Both international (low-resolution) data and Ugandan (high-resolution) data were used, with an explicit focus to enhance capacity and create institutional structures within Uganda to collect, integrate and use data. All the above helped to ensure the Uganda government's strong ownership of NCA and willingness to use it in devising national policies.

- **Long-term investment.** Institutionalising NCA's production and use within government agencies takes time and requires long-term support to continue to facilitate collaborations among data producers and users. The Uganda government had already made budgetary provision, but still requires international support. A unique feature in Uganda is its National Plan of Action on Environmental Economic Accounts, which offers a framework for building the accounts over the long term, and can make best use of separate research and accounting initiatives.

8. Promoting Farmer-Managed Natural Regeneration through presidential decree in Niger

Sources: (Cameron, 2011; Koffi and Worms, 2021; Gazillions of Trees: Who Benefits from Mass Tree-Planting Campaigns? , 2022; Reij and Garrity, 2016; Reij and Winterbottom, 2015; Smale et al., 2018)

Background to the government's decision. In July 2020, the Niger government adopted a presidential decree to promote Farmer-Managed Natural Regeneration (FMNR), a low-cost farmer-led approach to restore and regenerate trees on agriculture lands. As part of the decree, the government re-emphasised that farmers who planted or maintained trees have exclusive rights to those trees. The decree also includes other concrete measures to support the spread of FMNR in Niger. For example, it encourages farmers to set up village committees to monitor planted trees, and it launched a National FMNR prize to reward the best-performing farmers and communities. This decision built on past government measures to incentivise FMNR, including the Rural Code passed in 1993 and the 2004 forestry law which transferred ownership of the trees from the state to farmers. These measures together represent a paradigm shift from a century or more of government prohibition of such ownership and agricultural extension advice and support against such regenerative practices.

What research influenced the decision?

- **Local knowledge and locally-led innovation**. With minimal external support and building on traditional practices in the Sahel, farmers started to restore land using FMNR in Niger from the early 1980s. They started piloting FMNR to cope with the environmental, political and economic crisis at the time (frequent sandstorms, lack of government support, high costs and low yield on farms). Before the adoption of the presidential decree in 2020, FMNR was already widespread in Niger largely through farmers learning from each other. Local community leaders and entrepreneurs were the first to pioneer, improve and champion the technique and their experiences and innovations paved the way for the other research listed below.
- **Evidence of the impressive scale and impacts of innovation adoption**. Before 2004, studies were published observing FMNR adoption in several case study villages. Since 2004, through extensive field research and analysis of satellite imagery, research led by national and international researchers started to reveal the true impressive scale of FMNR adoption. It is estimated that there are now around 200 million trees regenerated on more than a million family farms across seven million ha of southern Niger and neighbouring Mali thanks to widespread FMNR. Based on field work, numerous studies have also been published to document the economic, social and ecological impacts of FMNR, including higher crop yields, increased income, better access to food and fuel, enhanced social capital, increased soil fertility and soil carbon, increased biodiversity on farm and improved climate resilience.
- **Documenting success factors, best practices and barriers for further adoption**. After the impressive scale of its success started to be revealed in 2004, studies have been conducted to understand the reasons for this success and how it may be replicated elsewhere. Some of those best practices and ways to overcome identified barriers for further adoption were included in the presidential degree. For example, organising farmers and supporting collective actions via village committee; providing extra incentives through the national FMNR prize; emphasising the exclusive rights of farmers to the trees that they regenerated; allowing pastoralists to benefit from the trees on farm if they obtain permission of use from the farmers first.

How research influenced the decision – lessons learnt:

- **Local farmers recognised as researchers and innovators.** Local farmers piloted FMNR based on traditional knowledge, improved the technique through experimenting on their fields and spread FMNR spontaneously through word-of-mouth. They became the experts, researchers, trainers and champions of FMNR in Niger. The local knowledge and locally-led innovation were the main forces behind the change in government's actions and policies. For example, seeing the success of FMNR with little cost burden on the government, Niger's Forest Service already started to promote FMNR and effectively stopped treating trees-on-farm as state properties in the late 1980s. After the Rural Code was passed in 1993, farmers acted on the

perception that they had right to trees on farm before the forest law officially transferred the rights to farmers in 2004. External experts, NGOs, religious groups and other civil society actors, supported farmers and local communities by facilitating knowledge exchange and providing technical, organisational and financial support where needed. This locally-led approach stands in stark contrast with the largely failed top-down, technocratic and donor-led approaches in Niger to restore land through forestry plantations and nurseries. The success of FMNR also highlighted the importance for research on restoration techniques not to fixate on 'cutting-edge' methods but also explore low-cost methods that are based on local practices and knowledge. Those methods are often more flexible and adaptable to local social, economic and environmental conditions. Therefore, they are more likely to be taken up by local communities and governments in developing countries as they do not rely on funding from governments or donors.

- **Multi-stakeholder platform leveraged research to effect legislative change.** Supported by a World Vision-Niger (WV)-led project called Regreening Africa, a multi-stakeholder forum National Consultation and Coordination Committee was formed to promote FMNR in Niger. And it was instrumental in shaping the Presidential Decree. The forum was chaired by the head of the Ministry of Environment and brought together key government agencies, researchers and NGOs also working on restoration. The members of the forum regularly shared experiences and together identified key challenges and next steps needed to further spread FMNR in Niger. Building on those common visions, the forum established a multi-stakeholder working group including heads of different government agencies, village heads, traditional leaders and NGOs, to draft and validate a presidential decree on FMNR over a period of eight months. The Ministry of Environment then took the agreed draft to the president and the president finally adopted the decree after a three-month review process.
- **Local knowledge reflected in legislation, and legislation translated for local knowledge.** WV and other NGOs could effectively communicate the lessons they learnt from local farmers to key government agencies and show the potential for FMNR to be spread further to meet various national targets in Niger. WV also invested years in one-on-one regular meetings with key government agencies and other key NGO stakeholders to build trust that is needed to establish the multi-stakeholder forum led by the Ministry of Environment. WV is also translating the presidential decree into various local languages to ensure farmers understand government policies and their rights.
- **Long-term and patient investment at local level.** To capture the scale and impacts of FMNR, availability of remote sensing imaginaries dating back to the 1950s played an important role. Many NGOs and researchers have also been working in the same area with local communities for decades, enabling them to use filed data collated over a long period to show clear social and economic impacts of FMNR (eg. crop yields and income). In addition, brokering knowledge between government, researchers and local communities as well as facilitating a multi-stakeholder process, took a long time to build trust and a common awareness of the challenges and opportunities that informed the presidential decree.

9. Tightening, relaxing, then tightening again the checks on timber legality in Indonesia

Sources: (EU FLEGT Facility, 2017; FAO, 2021; Nicholas, 2020; Open Letter of Indonesian Civil Society Coalition to the President of the Republic of Indonesia for Revocation of Regulation of the Minister of Trade Number 15 of 2020 Concerning Provisions on the Export of Forestry Products Industry, 2020)

Background to the government's decision. In February 2020, as part of a trade stimulus strategy dealing with the economic impacts of COVID-19, the Indonesian Ministry of Trade published a new trade regulation. This stated that companies were no longer required to obtain special licenses proving the legality of the timber and other wood products they exported. The new regulation was set to be implemented on 27 May 2020. The legality licencing requirements, which the new regulation tried to scrap, were adopted as part of the Voluntary Partnership Agreement (VPA) signed by Indonesia and the EU through the EU's Forest Law, Enforcement, Governance and Trade (FLEGT) Initiative. Indonesia was the first Asian country to ratify VPA in 2014 after seven years of negotiations. On May 11 2020, the Ministry of Trade revoked the regulation, reinstating legality reporting regulations for timber exports, citing a request from the Ministry of Environment and Forestry (MEF).

What research influenced the decision?

- **Evidence showing legality requirements are effective and do not hamper exports**. Those against the regulation cited data from the national statistical agency showing that Indonesia's timber and furniture exports increased due to the legality requirements, debunking the Ministry of Trade's claim that removing the requirement will boost trade. This data was also captured in infographics included in a civil society joint open letter to the Indonesia president demanding the new regulation be revoked. Evidence also showed the importance of the legality licensing process in combating illegal activities in Indonesia, explaining why legality checks need to take place along the value chain.
- **Analysis of the policies violated by the decision**. A group of civil society organisations also did quick analysis on how the new regulations violated/contradicted other existing public policies.
- **Polling showing business views of the decision**. Gadjah Mada University in Indonesia surveyed 137 timber businesses and nearly half of them felt ending the legality verification would harm their business.

How research influenced the decision – lessons learnt

- **Multi-stakeholder processes secure support from those who can wield evidence effectively.** The legal licensing requirements were developed over a decade through a multi-stakeholder process where representatives of civil society, private sector and governments participated in the negotiations of VPA and jointly oversaw its implementation. Therefore, many stakeholders are supportive of the existing legality licensing system and familiar with the evidence used to develop it. regulation and did not even include MEF in the decision, which led to fierce backlash on all fronts. For example, many private sector representatives, including Indonesian Pulpwood Plantation Companies and Indonesian Furniture Entrepreneurs Association, publicly raised concerns about the new regulation. The former Director General for sustainable production forest management of MEF initiated a petition demanding the regulation be revoked and received more than 1,000 supporters within the first three days of the petition's release. Similarly, supported by Environmental Investigation Agency (EIA), a group of Indonesian civil society organisations organised a joint press conference and released an open letter to Indonesia's president which cited evidence supporting revocation of the new regulation.
- **Civil space enables communities' to use their knowledge to uphold effective law and resist bad decisions.** Indonesia's VPA acknowledges the important role civil society actors can play in monitoring forest legality. It provides rights for civil society to access information, guarantees the protections of those independent monitoring bodies against threats, and indicates how public and

private finance should be provided for civil society actors in the long term. NGOs have worked closely with MEF to monitor the implementation of VPA. Building on strong knowledge of VPA requirements, NGOs help identify and document suspected illegal activities and compile analysis and information about those activities into reports to government authorities to take further action. NGOs also consult with local community members to select priority areas for monitoring, while government authorities and NGOs train community members to support the monitoring activities. Such participatory process to monitor the implementation of VPA laid foundations for strong grassroots support for the timber legality system and many of those independent monitors were the most vocal in criticising the new regulation. It also generated important data and evidence on the benefits of such a system and the importance to have checks along the timber value chain. This evidence was used to support the revocation of the export regulation.

- **Long-term leveraging investments build up an effective evidence base.** Building on a multi-stakeholder process initiated by Indonesia government to design a timber legality assurance system in 2003, the EU provided funding to support a continued multi-stakeholder process for VPA negotiations and implementations since 2007. Such long-term investments built up evidence and a wide stakeholder network in support of the legality system in Indonesia. In addition, in 2017, donors and Indonesia government supported the establishment of a trust fund to ensure long-term finance for independent forest monitors and build local capacity to support monitoring. The fund aims to leverage not only donor funding but also to mobilise state budget, forest carbon payments and crowdfunding.

10. Adopting and implementing 'Vision 2100' in Papua Province, Indonesia

Sources: (Andriansyah et al., 2018; Bappeda Provinsi Papua, 2013; Elson, 2016; Indrawan et al., 2019; Papua Province Regulation on Spatial Planning (Peraturan Daerah), 2013)

Background of the government's decision. Most of Indonesia's last remaining intact forests are in Papua. In 2009, the provincial government developed Papua Province 'Vision 2100'. Led by the provincial development planning office (BAPPEDA), this was the province's first attempt to seek an ambitious low-carbon development path for Papua. It was supported by a Blueprint for Sustainable Land Use completed in 2011 which commits to retain 90% of Papua's land as 'natural and cultural landscapes' — community-controlled landscape with a blend of traditional agriculture, natural forest management and conservation. The vision proposes community-led development where local communities are empowered to find their own sustainable development pathways. Based on the blueprint, Papua's new 2013 Spatial Plan Regulation committed to reverse the plan of converting 20% (around 1.5 million ha) of forest land as proposed in the previous spatial plan. As such, it was one of Indonesia's first legal commitments to reduce planned deforestation. To enforce the vision, the provincial government has established an open access online database for land use licenses and relevant spatial data and requires all land use license appliers to comply with the provincial spatial plan and to obtain community consent.

The vision grew out of two years of analysis, reflections, field visits and dialogue led by a group of development planners within BAPPEDA. A team of economists, sociologists, ecologists, GIS and systems thinking specialists generated baseline data and analysis that supported the development and the implementation of the vision.

Though powerful interests are still trying to exploit the abundance of natural resources on Papua, the Vision 2100, supported by provincial and local champions, has proven to be an effective force to slow the conventional development tides and the rate of forest loss in the province.

What research influenced the decision?

- **Evidence that conventional development model is not working**. For example, a huge increase in public spending in the province since 2001 failed to reduce poverty, while the loss of natural resources accelerated.
- **Spatial mapping and modelling**. Information about current land use and licenses issued in Papua was mapped. Researchers conducted spatial and economic modelling of business-as-usual and alternative, sustainable development scenarios, demonstrating that a low deforestation pathway can save up to one gigaton of carbon emissions, provide more stable Gross Regional Domestic Product (GRDP) and tax revenues, and better human development outcomes.
- **Learning from community-led initiatives from near and far**. Lessons were learned from existing successful community-based enterprises for sustainable tourism, timber and cacao in Papua. For example, the Raja Ampat Homestay Association generates gross annual revenues of US$1.5 million, employs more than 600 local community members and represents 60 family-owned businesses that run sustainable tourism ventures while preserving their ancestral land. Lessons from Scotland's land reform and rural vitalisation process were also a focus. BAPPEDA and the Centre for Human Ecology in Scotland engaged in a learning programme between 2012-2015 where the provincial officers learnt and witnessed how community-controlled land and businesses can unleash sustainable rural development.
- **Application of complexity theory to catalyse organisational change**. Mandated by the (then) head of BAPPEDA, in 2013, the Complexity Group at London School of Economics (LSE) facilitated dialogues to uncover leverage points for change to support the implementation of Vision 2100.

How research influenced the decision – lessons learnt

- **Valuing local knowledge and supporting local champions.** Papua Vision 2100 is rooted in local values and wisdom which put strong emphasis on equitable growth, ecological sustainability and wellbeing of local communities. It was pushed forward by a group of provincial government staff (both senior and junior) who have deep conviction that an alternative development pathway is the right thing to do for future generations of the province. Those local champions and reformers in Papua are still supporting each other to pursue the vision despite pressures from central government and other powerful stakeholders. Such locally-owned vision stands in stark contrast with other low-carbon development plans elsewhere that were drawn up by consultants or were heavily dependent on donor funding, which only largely stayed on paper.
- **Facilitating researchers from diverse disciplines to work closely with government officials to drive reform.** A team of economists, sociologists, ecologists, GIS and systems thinking specialists worked closely with the group of reformers within BAPPEDA to develop Vision 2100. The team was facilitated by the social enterprise Seventy Three Pte Ltd working in partnership with the environmental NGO Yayasan Pengembangan Biosains dan Bioteknologi (YPBB). Together, they brought together more than a decade of experience working with local and national government in Indonesia. They were also able to draw on years of experience working with communities in Papua and a good understanding of the wider political economy of Indonesia, to shape their own vision for development. In supporting the development of Vision 2100, the team could equip provincial government partners with key evidence at strategic moments. They ensured provincial reformers took the lead at every step and acted on their own solutions within their own timetables. For example, they supported local government staff to conduct their own research on development trends affecting communities and to present their own findings to their superiors and colleagues to inform Vision 2100. They encouraged government staff to observe or act as resource persons in community training events so they could get to know local communities' perspectives and the importance of community empowerment, while building trust between government officials and local communities. They linked provincial government officials with the Complexity Group at LSE to initiate dialogues that could help institutionalise positive change.
- **Investment in trust between stakeholders over the long term**. It took years to make local communities and governments recognise the need to speak to each other about their visions for development**.** And there is still much more work to do to build meaningful dialogues. Institutionalising the work of reformers started under Vision 2100 also requires deep and long-term investment in organisational learning and change, to challenge the status quo that limits uptake of research and innovation. It also took years for the knowledge brokers to build trust with provincial government officials and local communities, and decades working in the same locations to have a good local network and deep understanding of the complex political, social and economic context. It takes a lot of trial and error and learning from doing over a long period of time.

11. Promoting then abandoning 'scientific forestry management' in Nepal

Sources: (Basnyat, 2021; Jayasawal et al., 2016; Poudyal et al., 2020; *Struggles over "Science": Think globally, manage locally*, 2016)

Background to the government's decision. In 2012, the (then) Ministry of the Forests and Soil Conservation (MFSC) of Nepal officially promoted Scientific Forestry Management (SciFM) as one of the four strategic pillars in its forestry strategy. In 2014, MFSC enacted SciFM guidelines, which effectively promoted an intensive forestry management system aimed at maximising revenues generated from harvesting timber. The Forest Policy in 2015 further promoted SciFM by focusing on increasing forest productivity. In 2016, the Nepal government allocated US$5 million to expand SciFM. By 2020, SciFM was reportedly implemented in more than 600 forest user groups, covering 120,000ha of forests. However, researchers and the local community apex organisation — Federation of Community Forestry Users Nepal (FECOFUN) — questioned how technically sound SciFM was and highlighted its potential negative impacts on biodiversity, as well as on local communities who manage forests for multiple uses. Overharvesting and local corruption related to SciFM were also extensively covered in national media. By 2020, facing increasing public opposition to SciFM and escalated tensions between political parties, the Nepal government and the parliament started to consider abandoning the programme and formed independent committees to investigate it. The committees gave recommendations to abolish the practice after completing their investigations. In January 2021, following the recommendations, the cabinet decided to abandon SciFM.

What research influenced the decision?

- **Evidence supporting SciFM – from elsewhere, from a national perspective**. SciFM methods to maximise timber production were developed originally in more homogenous forests in Western Europe. The potential economic, social and environmental benefits from applying SciFM included increasing forest revenue, reducing reliance on imported timber, creating more jobs (especially for youth), providing more firewood and timber for local communities, and improving forest conditions and increasing carbon capture. Research results that were often cited to support SciFM include the estimate that 'Nepal is losing US$91 million/year because of its lack of appropriate forest management practices'; and decreasing growing forest stock for timber harvesting due to inactive forest management with very low intensity forest harvesting. Evidence of piloting success in the Terai area was also used, where about 8,810ha was afforested or reforested through SciFM.
- **Evidence opposing SciFM – from communities, from the local level**. Evidence of negative economic, social and environmental impacts from implementing SciFM was generated, including observations through field trips by the independent committees who were charged to investigate SciFM. For example, observed patches of forests being felled and perceived overharvesting (though some argue that felling was part of the SciFM plan and within the regeneration potential of the forests); reported incidences where community forestry user group leaders, traders and government officials colluded for personal gains when implementing SciFM. Examples and evidence of how community-based forest management is successful in managing forests without SciFM were also prepared and drawn on.

How research influenced the decision – lessons learnt

- **Diverging views can only be bridged with effective multi-stakeholder processes**. SciFM was highly controversial. It was hard to get some key stakeholders to reach consensus on it, partly due to the long history of mistrust between government officials who were promoting it and community forest users who were wary of recentralisation of forest control. Some leaders of community forest users viewed SciFM as another way for central government to control how local communities use forests. While some local community members and timber companies supported SciFM because they related it to more income generation opportunities. Some government technocrats who promoted SciFM viewed local communities as obstacles for realising SciFM's true potential by not following the prescribed 'scientific' plans. Donors and other international agencies who supported SciFM equated it with the widely accepted approach of Sustainable Forest Management, for which there are internationally-accepted principles. They

thought it could be achieved in more participatory ways to deliver benefits to climate mitigation, biodiversity and local economies.

- During the design and implementation of SciFM, there was a lack of meaningful multi-stakeholder engagement to reconcile those diverging views and to build trust among key stakeholders, including private sector, local communities, community representatives, researchers, NGOs and governments. After millions of dollars was spent to promote SciFM over seven years, a survey conducted in 2019 revealed key stakeholders, some within the same institution, still had different understandings of what SciFM entailed. Many key stakeholders were concerned with the lack of transparency in how management plans were developed and how costs and benefits from production forests were shared under SciFM. While stakeholders agreed there was potential to increase the productivity of Nepal's forests, the government chose a highly contested 'scientific' management model to increase productivity and ignored recommendations from other key stakeholders to research and devise diverse silviculture practices that better suit local contexts.
- The lack of meaningful engagement and trust-building led to wide dissatisfaction with SciFM. The media also covered overharvesting and corruption under the disguise of SciFM which led to further public outcry to investigate and cancel the programme.
- **Top-down policy will only be complied with if locally-led research supports it**. SciFM guidelines prescribed detailed and complex silvicultural regimes, designed mainly to increase timber productivity. The 'scientific' methods prescribed were based on high-cost and expert-dependent techniques applied in Europe where forests were more homogenous, and on fewer than five years of piloting experiences in the Terai in Nepal. The generic guidelines and bureaucratic process imposed under SciFM ignored diverse local economic, social and environmental contexts and different stakeholders' aspirations and values for their forests. Therefore, where SciFM was applied, it did not achieve the envisioned social, economic and environmental benefits. For example, the costs of developing forest plans and implementing the prescribed forest management regime far outweighed the market price for timber. The high cost of implementing SciFM also limited forest managers' ability to invest in other approaches that could help improve forest governance. The generic practices prescribed by the guidelines undermined and often contradicted local traditional practices and caused conflicts and further exacerbated mistrust between government technocrats and local communities. Donors including Finland, Sweden and the UK supported the Nepal government to use a more participatory approach to deliver SciFM, through actively building local capacity and engaging with local communities to develop forest management plans. But some argued that SciFM, by design, shifts power away from the local community and makes a truly participatory approach difficult. This is because it is a top-down technocratic model that gives trained forestry technicians more power and authority over local communities in deciding how to manage their forests.

References

Andrews, L (2017) How can we demonstrate the public value of evidence-based policy making when government ministers declare that the people “have had enough of experts”? *Palgrave Communications*, *3*(1). https://doi.org/10.1057/s41599-017-0013-4

Andriansyah, M N, Firmansyah, R, Wijaya, A, and Chitra, J (2018) Indonesia’s last forest frontier: 3 facts to know about Papua. In *WRI*. https://www.wri.org/insights/indonesias-last-forest-frontier-3-facts-know-about-papua

Bandola-Gill, J, and Lyall, C (2017) Knowledge brokers and policy advice in policy formulation. https://www.e-elgar.com/shop/handbook-of-policy-formulation

Bappeda Provinsi Papua (2013) *Paupa Visi 2100*.

Basnyat, B (2021) Pitfalls of Scientific Forestry Practices in the Community Forestry of Nepal. *Forestry: Journal of Institute of Forestry, Nepal*, *18*(01), 30–40. https://doi.org/10.3126/forestry.v18i01.41749

Bednarek, A T, Wyborn, C, Cvitanovic, C, Meyer, R, Colvin, R M, Addison, P F E, Close, S L, Curran, ., Farooque, M, Goldman, E, Hart, D, Mannix, H, McGreavy, B, Parris, A, Posner, S, Robinson, C, Ryan, M, and Leith, P (2018) Boundary spanning at the science–policy interface: the practitioners’ perspectives. *Sustainability Science*, *13*(4), 1175–1183. https://doi.org/10.1007/s11625-018-0550-9

Benson, E, Forbes, A, Korkeakoski, M, Latif, R, and Lham, D (2014) Environment and climate mainstreaming: Challenges and successes. *Development in Practice*, *24*(4), 605–614. https://doi.org/10.1080/09614524.2014.911819

Birdlife International (2008) Campaign to save Mabira Forest In Uganda from sugarcane plantation for biofuel. http://datazone.birdlife.org/sowb/casestudy/campaign-to-save-mabira-forest-in-uganda-from-sugarcane-plantation-for-biofuels

Breckon, J and Dodson, J (2016) Using Evidence: What works? www.alliance4usefulevidence.org

Brick, C, Freeman, A L J, Wooding, S, Skylark, W J, Marteau, T M and Spiegelhalter, D J (2018) Winners and losers: communicating the potential impacts of policies. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0121-9

Buseth, J T (2018, April 26) Grabbling Green? The institutionalization of the green economy in Tanzania. *Noragric Blog*. https://blogg.nmbu.no/noragric/2018/04/26/grabbing-green-institutionalization-green-economy-tanzania/

Cairney, P and Kwiatkowski, R (2017) How to communicate effectively with policymakers: combine insights from psychology and policy studies. *Palgrave Commun*, *3*. https://doi.org/10.1057/s41599-017-0046-8

Cairney, P and Oliver, K (2020) How Should Academics Engage in Policymaking to Achieve Impact? *Political Studies Review*, *18*(2), 228–244. https://doi.org/10.1177/1478929918807714

Cameron, E (2011) From vulnerability to resilience: Farmer Managed Natural Regeneration (FMNR) in Niger.

Cashore, B, Bernstein, S, Humphreys, D, Visseren-Hamakers, I and Rietig, K (2019) Designing stakeholder learning dialogues for effective global governance. *Policy and Society*, *38*(1), 118–147. https://doi.org/10.1080/14494035.2019.1579505

CIVICUS (2022) https://monitor.civicus.org/

Davidson, B (2017) Storytelling and evidence-based policy: lessons from the grey literature. *Palgrave Communications*, *3*(1). https://doi.org/10.1057/palcomms.2017.93

Elson, D (2016) Re-imagining development: A think piece on Papua for the CLUA Indonesia Strategy 2016-2020. www.73-ltd.com

Enns, C (2022) Trade offs between poverty alleviating and environmental restoration.

EU FLEGT Facility (2017) The Indonesia-EU Voluntary Partnership Agreement. https://www.euflegt.efi.int/background-indonesia

Evans, M C, and Cvitanovic, C (2018) An introduction to achieving policy impact for early career researchers. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0144-2

FAO.(2021) Ten lessons learnt on Independent Forest Monitoring from the FAO-EU FLEGT Programme. https://www.fao.org/in-action/eu-fao-flegt-programme/news-events/news-details/ru/c/1455750/

Forrester, J, Moora, H and Mikaela Persson, L.(2009) Getting to Policy Impact: Lessons from 20 Years of Bridging Science and Policy with Sustainability Knowledge. https://www.researchgate.net/publication/312024553

Garard, J, Koch, L and Kowarsch, M (2018) Elements of success in multi-stakeholder deliberation platforms. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0183-8

Garrett, J L and Islam, Y (1998) Policy research and the policy process: Do the twain ever meet?

Goldman, I and Pabari, M (2021) Using Evidence in Policy and Practice; Lessons from Africa.

Gollust, S E, Seymour, J W, Pany, M J, Goss, A, Meisel, Z F and Grande, D (2013) Mutual Distrust: perspectives from researchers and policy makers on the research to policy gap in 2013 and recommendations for the future. *Inquiry*, *54*, 1–11. https://journals.sagepub.com/doi/10.1177/0046958017705465

Goodrich, R (2021) Lessons for building a natural capital legacy. In *IIED*. https://www.iied.org/lessons-for-building-natural-capital-legacy

Hall, D S and Manorom, K (2015) Decision-making in the Mekong: Science, nature and society. *Global Asia*, *10*(1). https://globalasia.org/v10no1/cover/decision-making-in-the-mekong-science-nature-and-society_david-s-hallkanokwan-manorom

Halle, M (2002) Moving the frontier: the story of the Sarhad Provincial Conservation Strategy. International Institute for Sustainable Development.

Head, B W (2010) Reconsidering evidence-based policy: Key issues and challenges. In *Policy and Society* (Vol. 29, Issue 2, pp. 77–94). https://doi.org/10.1016/j.polsoc.2010.03.001

Head, B W and Alford, J (2015) Wicked Problems: Implications for Public Policy and Management. *Administration and Society*, *47*(6), 711–739. https://doi.org/10.1177/0095399713481601

Hinrichs-Krapels, S, Bailey, J, Boulding, H, Duffy, B, Hesketh, R, Kinloch, E, Pollitt, A, Rawlings, S, van Rij, A, Wilkinson, B, Pow, R and Grant, J (2020) Using Policy Labs as a process to bring evidence closer to public policymaking: a guide to one approach. *Palgrave Communications*, *6*(1). https://doi.org/10.1057/s41599-020-0453-0

Holland, E (2022) Low tech, bottom up, placed-based approaches: REDAA ESRC scoping paper.

Hönig, P (2014) Civil Society and Land Use Policy in Uganda: The Mabira Forest Case (Vol. 49, Issue 2).

Hou-Jones, X, Franks, P and Chung, J H (2019) Creating enabling conditions for managing trade-offs between food production and forest conservation in Africa Case studies from Ethiopia and Zambia. www.iied.org

IIED (2014) ESPA Research into Use workshop summary.

IIED (2016) Budgeting for Sustainability in Africa: Integration of Pro-Poor Environment, Natural Resources and Climate Change to achieve the Sustainable Development Goals – Guidance Manual.

Indrawan, M, Sumule, A, Wijaya, A, Kapisa, N, Wanggai, F, Ahmad, M, Mambai, B V and Heatubun, C D (2019) A time for locally driven development in Papua and West Papua. *Development in Practice*, *29*(6), 817–823. https://doi.org/10.1080/09614524.2019.1609907

Irshad, K (2018) An overview of Pakistan National Conservation Strategy.

Izzi, V (2018) Research with development impact: lessons from the Ecosystem Services for Poverty Alleviation programme. https://www.espa.ac.uk/files/espa/Research%20with%20development%20impact_WP_final.pdf

Jayasawal, D, Bishwokarma, D and Allen, R (2016) Scientific Forest Management Initiatives in Nepal: MSFP experiences and lessons learnt.

Kenny, C, Rose, D C, Hobbs, A, Tyler, C and Blackstock, J (2017) The Role of Research in the UK Parliament Volume One. Houses of Parliament.

Kenya Wildlife Conservancies Association. (n.d.). *Our story: the origin and growth of Kenya's leading voice on wildlife conservation*. Retrieved August 10, 2022, from https://kwcakenya.com/about-us/our-story/

Keskinen, M, Kummu, M, Käkönen, M and Varis, O (2012) Mekong at the crossroads: Next steps for impact assessment of large dams. *Ambio*, *41*(3), 319–324. https://doi.org/10.1007/s13280-012-0261-x

Koffi, G and Worms, P (2021) Niger formally adopts farmer-managed natural regeneration. World Agroforestry (ICRAF). https://www.worldagroforestry.org/blog/2021/01/12/niger-formally-adopts-farmer-managed-natural-regeneration

Lebel, J and Mclean, R (2018) A better measure of research from global south. *Nature*. https://www.nature.com/articles/d41586-018-05581-4

Lugangira, N (2020) SAGCOT: Africa's success story. In *Experience capitalization: 4Ps in East Africa* (pp. 69–73).

Malbon, E, Carson, L and Yates, S (2018) What can policymakers learn from feminist strategies to combine contextualised evidence with advocacy? *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0160-2

Malena, C (2015) Improving the measurement of civic space. www.transparency-initiative.org

Manorom, K (2020) Participatory water governance and impact assessment: a case study of the Hua Na Irrigation project in northeast Thailand. In *Opportunities and challenges for the greater mekong subregion* (1st Edition, pp. 88–97). Routledge.

Mayers, J (2007) Forest protest ends in teargas and death- but a green governance movement starts to emerge in Uganda. IIED. https://www.iied.org/forest-protest-ends-teargas-death-green-governance-movement-starts-emerge-uganda

Mayers, J (2011) Uganda's forest grabbers are back-but the people are ready. https://www.iied.org/ugandas-forest-grabbers-are-back-people-are-ready

Mayers, J (2014) Social justice in forestry: gains made and tactics that work. www.iied.org

Gazillions of trees: who benefits from mass tree-planting campaigns? IIED (2022)

Mayers, J and Bass S. (1999) Policy that works for forests and people.

Mayers, J, Birikorang, G, Yaw, E, Kwebena, D, Nketiah, S and Richards, M (2008) Assessment of Potential Impacts in Ghana of a Voluntary Partnership Agreement with the EC on Forest Governance Final Report

Mayne, R, Green, D, Guijt, I, Walsh, M, English, R and Cairney, P (2018) Using evidence to influence policy: Oxfam's experience. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0176-7

Monzani, B (2020) The use of dialogue within IIED's work What works and why Evaluation case study. www.iied.org

Morrison, V (2019) Resolving wicked problems: key factors and resources. https://ccnpps-ncchpp.ca/resolving-wicked-problems-key-factors-and-resources/

Mugagga, H and Ssenkabirwa, A M (2022, March 18) UPDF moves to save depleted Mabira forest reserve. *Monitor*. https://www.monitor.co.ug/uganda/news/national/updf-moves-to-save-depleted-mabira-forest-reserve-3752066

Mukeredzi, T (2022, March) Controversial East Africa oil pipeline moves one step closer to construction. *China Dialogue*. https://chinadialogue.net/en/energy/controversial-east-africa-oil-pipeline-moves-one-step-closer-to-construction/

Nicholas, H (2020, March 26) Indonesia ends timber legality rule, stoking fears of illegal logging boom. *Mongabay*. https://news.mongabay.com/2020/03/indonesia-timber-illegal-logging-legality-license-svlk/

Nutley, S, Powell, A and Davies, H (2013) What counts as good evidence? *Alliance for Useful Evidence.*

ODI (2004) Bridging research and policy in international development: an analytical and practical framework. https://odi.org/en/publications/bridging-research-and-policy-in-international-development-an-analytical-and-practical-framework/

OECD (2020) Building Capacity for Evidence-Informed Policy-Making. OECD. https://doi.org/10.1787/86331250-en

Oliver, K and Cairney, P (2019) The dos and don'ts of influencing policy: a systematic review of advice to academics. In *Palgrave Communications* (Vol. 5, Issue 1). Palgrave Macmillan Ltd. https://doi.org/10.1057/s41599-019-0232-y

Oliver, K, Innvar, S, Lorenc, T, Woodman, J and Thomas, J (2014) A systematic review of barriers to and facilitators of the use of evidence by policymakers. In *BMC Health Services Research* (Vol. 14). https://doi.org/10.1186/1472-6963-14-2

Oliver, K and Pearce, W (2017) Three lessons from evidence-based medicine and policy. *Palgrave Commun*, *3*. https://doi.org/10.1057/s41599-017-0045-9

Open letter of Indonesian civil society coalition to the president of the republic of Indonesia for revocation of regulation of the minister of trade number 15 of 2020 concerning provisions on the export of forestry products industry (2020) https://eia-international.org/wp-content/uploads/Open-letter-to-president-Jokowi.pdf

Papua Province Regulation on Spatial Planning (Peraturan Daerah), Pub. L. No. No. 23 (2013)

Parkhurst, J O (2017) The politics of evidence: from evidence-based policy to the good governance of evidence.

Phoenix, J H, Atkinson, L G and Baker, H (2019) Creating and communicating social research for policymakers in government. *Palgrave Communications*, *5*(1). https://doi.org/10.1057/s41599-019-0310-1

Poudyal, B H, Maraseni, T, and Cockfield, G (2020) Scientific forest management practice in Nepal: Critical reflections from stakeholders' perspectives. *Forests*, *11*(1). https://doi.org/10.3390/f11010027

Reij, C and Garrity, D (2016) Scaling up farmer-managed natural regeneration in Africa to restore degraded landscapes. *Biotropica*, *48*(6), 834–843. https://doi.org/10.1111/btp.12390

Reij, C and Winterbottom, R (2015) Scaling up regreening: Six steps to success. https://www.wri.org/research/scaling-regreening-six-steps-success

Romijn, E, Lantican, C B, Herold, M, Lindquist, E, Ochieng, R, Wijaya, A, Murdiyarso, D and Verchot, L (2015) Assessing change in national forest monitoring capacities of 99 tropical countries. *Forest Ecology and Management*, *352*, 109–123. https://doi.org/10.1016/j.foreco.2015.06.003

Runnalls, David, IUCN--the World Conservation Union, Pakistan., and Canadian International Development Agency (1995) *The story of Pakistan's NCS: an analysis of its evolution*. IUCN--The World Conservation Union, Pakistan.

Struggles over "Science": Think globally, manage locally (2016) https://www.learngala.com/cases/nepal-community-forestry/

Scoones, I (2022) Understanding the root causes of environmental degradation, and how different actors perceive the challenge.

Smale, M, Tappan, G and Reij, C (2018) Chapter 1. Farmer-managed restoration of agroforestry parklands in Niger. In *Fostering transformation and growth in Niger's agricultural sector* (pp. 19–34). Wageningen Academic Publishers. https://doi.org/10.3920/978-90-8686-873-5_1

Stern P C (2005) Deliberative methods for understanding environmental systems. *Bioscience*, *55*(11), 976–982.

Stewart, R, Dayal, H, Langer, L and van Rooyen, C (2019) The evidence ecosystem in South Africa: growing resilience and institutionalisation of evidence use. *Palgrave Communications*, *5*(1). https://doi.org/10.1057/s41599-019-0303-0

#STOPEACOP (n.d.). Retrieved June 16, 2022, from https://www.stopeacop.net/home

Swiderska, K, Argumedo, A, Song, Y, Rastogi, A, Gurung, N, Wekesa, C and Li, G (2021) Indigenous knowledge and values: key for nature conservation. http://pubs.iied.org/20351IIED

The World Bank (2020) Natural Capital Accounting: informing policy decisions and management of Uganda's natural resources. https://www.researchgate.net/publication/357974671

Topp, L, Mair, D, Smillie, L and Cairney, P (2018) Knowledge management for policy impact: the case of the European Commission's Joint Research Centre. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0143-3

Twesigye, B (2008) Lessons from citizen activism in Uganda: Saving Mariba Forest. www.saiia.org.za

Tydecks, L, Jeschke, J M, Wolf, M, Singer, G and Tockner, K (2018) Spatial and topical imbalances in biodiversity research. *PLoS ONE*, *13*(7). https://doi.org/10.1371/journal.pone.0199327

VAKAYIKO (2014) Kenyan roundtables support cross-sectoral climate-change work. www.inasp.info

Vardon, M, Bass, S, Ahlroth, S and Ruijs, A (2017) Forum on Natural Capital Accounting for Better Policy Decisions: Taking Stock and Moving Forward Wealth Accounting and the Valuation of Ecosystem Services. www.worldbank.org

Vetter, D (2022, April) Climate activists renew pressure on "devastating" East African oil pipeline *Forbes*. https://www.forbes.com/sites/davidrvetter/2022/04/13/climate-activists-renew-pressure-on-devastating-east-african-oil-pipeline/?sh=348ff3da5aa2

West, J and Haug, R (2017) Polarised narratives and complex realities in Tanzania's Southern Agricultural Growth Corridor. *Development in Practice*, *27*(4), 418–431. https://doi.org/10.1080/09614524.2017.1307324

Wildlife Conservation and Management Act, Pub. L. No. Act No. 47 of 2013 (2013)

Wowk, K, McKinney, L, Muller-Karger, F, Moll, R, Avery, S, Escobar-Briones, E, Yoskowitz, D and McLaughlin, R (2017) Evolving academic culture to meet societal needs. In *Palgrave Communications* (Vol. 3, Issue 1). Palgrave Macmillan Ltd. https://doi.org/10.1057/s41599-017-0040-1

WWF (2014) Kenya finally gets a new wildlife law. https://wwf.panda.org/wwf_news/?216350/Kenya-finally-gets-a-new-wildlife-law