

Science & Action Research for Indigenous Knowledge Advancement

SARIKA Technical Brief

A Global Centre on Biodiversity for
Climate-funded project led by
WCS Cambodia

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The Global Centre on Biodiversity for Climate (GCBC) is a UK Official Development Assistance (ODA) program that aims to support developing countries to shape decision-making and develop policies that better value, protect, restore and sustainably manage biodiversity in ways that tackle climate change resilience and poverty alleviation.

PARTNERS

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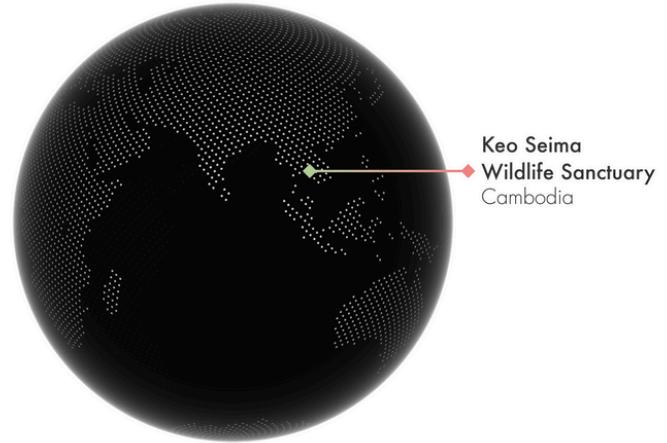
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Project Overview



Indigenous communities in Cambodia have safeguarded biodiversity for generations through practices such as rotational farming, protection of sacred forests, and sustainable harvesting of forest products. Their cultural, spiritual, and economic practices have sustained some of the nation's most vital ecosystems. Nevertheless, conservation policies have often overlooked these contributions, limiting the effectiveness of biodiversity management strategies.

The three-year SARIKA initiative, funded by the Global Centre on Biodiversity for Climate, seeks to address these gaps. The project is committed to placing Indigenous leadership and knowledge at the forefront of conservation. It aims to refine governance frameworks by adopting participatory, community-led approaches and to pilot innovative financing mechanisms such as procurement auctions. It also seeks to align scientific understanding with traditional knowledge to make biodiversity management more sustainable and effective.

The project will collaborate with the Indigenous Bunong people, who have stewarded the forests of Keo Seima Wildlife Sanctuary (KSWS) for centuries. It is among Cambodia's most biodiverse landscapes, with over 1,000 recorded species 85 of which are globally threatened. It is also the site of the Keo Seima REDD+ carbon finance project, which has been active since 2010.

While the REDD+ project has increased community involvement, more work is needed to fully recognize and reward the Bunong people's contributions to biodiversity management.

Launched in February 2025, the project brings together conservation practitioners, Indigenous-led organizations, Bunong community leaders, and academic institutions from the Global North and South in a transdisciplinary partnership. The partners will document Bunong resource-management practices and co-develop governance models and financial mechanisms that foster sustainable land use. Their findings will illustrate how biodiversity, climate, and livelihoods are intertwined through community-led natural-resource management. The project will share this evidence with decision-makers so it shapes policies, practices, and investment strategies that deliver measurable socio-ecological benefits and advancing inclusive, climate-resilient poverty reduction.

Capacity and partnership building will be the foundation of efforts throughout the project's lifetime. The project will build strong and equitable partnerships among Indigenous communities, academic researchers, and conservation practitioners by providing training opportunities and tools to enable effective engagement with policymakers. It will also equip these groups with actionable strategies to establish an equitable, inclusive, and durable model of conservation governance. Four project researchers will build their

research careers through scholarships, exchange visits, and mentorship by leading academics. This support will strengthen the research-practice interface in Cambodia for the long term.

Integration with the Keo Seima REDD+ project lies at the heart of the initiative. We will provide actionable insights that strengthen the benefit-sharing mechanism and embed Indigenous knowledge within governance structures. The REDD+ project's landscape-scale design offers a real-world testing ground where new approaches can be applied, refined, and proven effective.

This in-built capacity supports scalability, future replication, and broader global recognition of Indigenous-led conservation models.

Indigenous Peoples manage a substantial share of the planet's biodiversity and carbon reserves. Their time-tested knowledge systems hold immense potential for sustainable development and climate resilience. This project will harness that expertise to reimagine conservation practices and ensure they remain both effective and just.



Photo: Tong Len

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Background

The Kunming-Montreal Global Biodiversity Framework underscores the importance of human rights-based conservation models that respect Indigenous knowledge systems. Global evidence shows that effective and sustainable biodiversity management is enabled by governance structures rooted in procedural equity that ensure local communities play a meaningful role in decision-making.

In Cambodia, governance frameworks often fail to adequately recognize Indigenous rights, leading to restricted resource access and heightened vulnerability to land expropriation. These systemic gaps have led households to adopt cash crop production, often fueled by microfinance loans, at the expense of forest ecosystems, agrobiodiversity, and community life. While Indigenous Communal Land Titles (ICLTs) provide some protections, slow bureaucratic processes limit their accessibility and effectiveness, and restrictions on the size of titled land can exclude critical resources like wild foods, tree resin, and spirit forest areas.

To date, the REDD+ project has secured seven ICLTs, created new livelihood streams, and paid communities more than \$2 million through its benefit-sharing mechanism. However, persistent inequalities and emerging risks remain. Closing these gaps demands governance and incentive models that embed Indigenous knowledge and protect biodiverse socio-ecological systems.



Progress has been limited by a lack of evidence about the benefits of Indigenous-led governance and a scarcity of proven governance and incentive mechanisms. Novel payment systems that recognize Indigenous knowledge offer great potential but remain largely untested at broader scales in contexts that prioritize Indigenous rights. Building equitable partnerships among researchers, practitioners, policymakers, and communities is essential to overcoming these barriers.

KSWS offers a unique setting to address these challenges. Home to many of Cambodia's Bunong people, the landscape serves as a vital cultural and economic resource. The Keo Seima REDD+ project has laid a foundation through Indigenous land titling, community development initiatives, and conservation incentives. Meanwhile, extensive biodiversity and carbon storage datasets make it a compelling case study for how Indigenous knowledge can underpin sustainable livelihoods, biodiversity conservation, and climate resilience.

Despite these advancements, Bunong resource management practices remain poorly understood. SARIKA will document these practices and assess their ecological and social contributions. The findings will demonstrate how Indigenous communities' knowledge and stewardship drive lasting environmental and social benefits, thereby strengthening their role in conservation governance.

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Research Questions

The SARIKA project focuses on key research questions distilled from critical knowledge gaps about how Indigenous management can improve biodiversity governance and funding mechanisms. These questions guide a comprehensive inquiry into the intersections of conservation policy, ecological practice, and community rights.

01

How do Indigenous Bunong communities manage land and resources, and how have they done so historically?

What governance models could better recognize Indigenous knowledge, practice, and sustainable use of biodiversity?

02

How do Indigenous agroecological management practices contribute to the sustainable use of biodiversity and climate mitigation?

How do different land uses, such as rotational agriculture, contribute to biodiversity and climate mitigation?

How effective are current policy arrangements, such as ICLTs and Community Protected Areas, at maintaining forest cover and biodiversity?

03

How can funding mechanisms for sustainable biodiversity management be designed (or redesigned) to better support Indigenous practices?

What preferences do communities have for participating in financing mechanisms, and how could innovative payment systems (such as procurement auctions) reflect these preferences?

How would different incentives perform in terms of effectiveness and equity?



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Outcomes and Output



The project links outcomes, the societal and ecological changes it seeks, to clear outputs, the products and actions needed to achieve them. This structure creates a cohesive strategy that closes gaps in biodiversity governance and empowers Indigenous communities.

Table 1: SARIKA Outcomes and Outputs

OUTCOMES	OUTPUTS
<ol style="list-style-type: none">1. Generate robust evidence for governance and incentive models that better recognize and reward Indigenous knowledge contributions in sustainable biodiversity management.2. Empower Indigenous communities to advocate for the recognition of traditional knowledge and practices in sustainable financing mechanisms.3. Inform the implementation of the Keo Seima REDD+ program by providing evidence-based designs for incentive mechanisms rooted in Indigenous knowledge and sustainable use.4. Strengthen transdisciplinary research capacity to better bridge policy and practice in Cambodia.	<ol style="list-style-type: none">1. Documentation of Bunong sustainable use practices and proposals for improved governance models, shared through a technical report, a scientific paper, and a policy brief. An action research manual will guide Indigenous communities in applying the findings.2. Quantification of how Indigenous management practices contribute to biodiversity conservation and carbon storage, communicated through two scientific articles, two policy briefs, and a technical report.3. Evaluation of innovative financing mechanisms to support Indigenous management practices, with lessons for redesigning REDD+ payments shared in two scientific articles, a policy brief, a technical report, and a community toolkit.4. Development of transdisciplinary research partnerships between five Global South and Global North institutions and Indigenous communities. This includes training, workshops, mentorship, and exchange visits to Monash University and the University of Oxford.5. Dissemination of research findings to national and international audiences through scientific and policy publications, workshops, and social media.

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Implementation

Project Partners



SARIKA convenes a robust consortium of partners, each bringing specialized expertise, longstanding field experience, and deep engagement with Indigenous communities and conservation initiatives. These stakeholders provide the foundation for an interdisciplinary approach to addressing complex biodiversity management and governance challenges.

- **Wildlife Conservation Society (WCS) Cambodia:**

As the lead implementing organization, WCS Cambodia oversees technical support, project management, and stakeholder coordination. Its decades-long presence in Cambodia ensures operational expertise and strong relationships with local communities.

- **Cambodia Indigenous Peoples Organization (CIPO):**

The foremost Indigenous-led NGO in Cambodia, CIPO plays a critical role in advocating for land rights and governance reforms. It provides a vital link to Bunong communities, ensuring that participatory approaches remain culturally sensitive and locally driven.

- **Interdisciplinary Centre for Conservation Science (ICCS), University of Oxford:**

ICCS brings expertise in interdisciplinary conservation research and capacity building. It contributes expertise in participatory research, and the ICCS fellowship program provides tailored mentorship and training to researchers.

- **Department of Economics, Monash University:**

Specializing in conservation finance, Monash supports the design of innovative incentive mechanisms (such as procurement auctions) to enhance equity and efficiency in REDD+ benefit-sharing.

- **Faculty of Agricultural Economics & Rural Development, Royal University of Agriculture (RUA):**

RUA is Cambodia's premier institution for rural development research. Its expertise in biodiversity, agriculture, and ecological sustainability is integral to the project's goal of integrating traditional land-use practices with conservation science.

- **Local Community Researchers from Keo Seima Wildlife Sanctuary:**

Indigenous community members serve as conservation experts from whom the project aims to learn. Their leadership in co-designing governance and incentive frameworks ensures that solutions align with on-the-ground realities and promote long-term sustainability.

- **Cambodian Ministry of Environment (MoE):**

As the official proponent of the Keo Seima REDD+ project, the MoE plays a pivotal role in aligning this initiative with broader national conservation goals. Working closely with WCS, the MoE ensures that the GCBC project meets Climate, Community, and Biodiversity (CCB) accreditation standards.





Activities

The project's activities are structured to address specific outputs while advancing broader outcomes. Each action builds on Indigenous knowledge to inform conservation science and policy reform. The framework prioritizes measurable results and lays the groundwork for scalable and practical models.

Table 2: Key Project Activities

ACTIVITY	ASSOCIATED OUTPUT	DETAILS
Documenting Indigenous Knowledge	Output 1	Conduct participatory action research in three Bunong communities to map land use, co-design governance models, and embed Indigenous knowledge in conservation frameworks.
Biodiversity and Carbon Measurement	Output 2	Deploy drones, acoustic monitors, and vegetation plots and integrate Bunong knowledge of land-use impacts to quantify biodiversity and carbon outcomes.
Modeling Procurement Auctions	Output 3	Design and modeling of innovative procurement auctions informed by community preferences to ensure equitable and effective incentives for sustainable land management.
Capacity and Network Building	Output 4	Train more than 200 participants in participatory action research and Indigenous-led conservation governance, supported by mentorship from Monash University and the University of Oxford.
Knowledge Sharing	Output 5	Collaborate with Indigenous communities to publish 14 knowledge products. Each product will reflect local priorities and reach broad audiences through workshops, academic platforms, and social media.



Photo: Tong Len

Methodology

SARIKA will be implemented by seven researchers, comprising four postgraduate and three community researchers. Project partners will provide technical expertise and training in the required methodologies. This collaboration will keep the work grounded in local contexts while applying cutting-edge science.

CIPO will collaborate with three Indigenous communities to employ participatory action research, documenting traditional knowledge and mapping biodiversity-management practices. Participatory mapping and other inclusive methods will capture diverse local knowledge from women, elders, and youth. The effort will produce co-designed governance models that better recognize and integrate Indigenous contributions into conservation.

RUA and WCS will lead biodiversity assessments with drone-based remote sensing, acoustic monitoring, vegetation plots, and soil cores. This suite of methods will give a robust view of biodiversity and carbon outcomes across land-use classes.

The team will employ a synthetic-control approach that utilizes long-term Landsat forest cover data and biodiversity transects to assess the impact of formal community governance on forest health.

RUA and Monash University will model procurement auctions using data from scenario interviews and participatory workshops with about 150 households. The analysis will reveal community preferences for benefit sharing and test whether auctions can align incentives with sustainable land use

Solutions developed through the project will scale and adapt for wider use across Indigenous communities engaged in conservation finance. All methods will meet strict ethical standards reviewed by institutional boards, and the team will share findings openly to support transparency and replication.



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Looking Ahead



The SARIKA project envisions a future where Indigenous knowledge is recognized and placed at the center of biodiversity governance. The Keo Seima REDD+ framework provides a long-term financial foundation, ensuring that lessons from the project's three-year span will continue to inform conservation efforts well beyond its conclusion. The unique role of the Indigenous Bunong people is central to this vision, as their longstanding stewardship of Cambodia's forests provides a proven model for sustainable land management.

We hope that the relationships established between WCS, RUA, CIPO, the Ministry of Environment, and local Indigenous leaders will lay a foundation for incorporating innovative transdisciplinary research into Cambodia's national policy framework. As REDD+ programs expand globally, these governance models and benefit-sharing mechanisms could serve as a tested blueprint for integrating Indigenous perspectives into broader conservation strategies.

Box 1: Supporting Indigenous Peoples Beyond SARIKA

WCS is advancing Indigenous leadership in conservation through two parallel initiatives. In one initiative, developed with The Nature Conservancy and RECOFTC under the Science for Nature and People Partnership (SNAPP) and co-designed with Indigenous peoples, WCS is creating guidelines on equitable benefit-sharing for REDD+ project developers and rights holders.

The other, in partnership with the Cambodian Indigenous Women's Association (CIWA),

focuses on advancing Indigenous leadership and governance within the Keo Seima REDD+ project.

These initiatives echo a paradigm shift happening in conservation. Instead of decisions being made from the outside, Indigenous leaders are increasingly shaping the future of their territories. We hope this signals a true change in conservation practice, one where those who know the land best take the lead.

Capacity-building efforts form a key pillar of the project's legacy. Indigenous communities will have the knowledge and tools to develop governance models and independently maintain sustainable biodiversity financing mechanisms. Training manuals and toolkits developed in collaboration with the Indigenous People's Alliance will enable other communities to adopt these successful approaches and achieve lasting impact.

Strengthening partnerships among conservation practitioners, Indigenous communities, and academic researchers will enhance research capacity, deepen collaboration, and ensure that evidence-based approaches remain aligned with emerging challenges as they inform policy and practice. Ongoing knowledge exchange will sustain impact, drive improvement, and secure lasting results. The project also faces slow bureaucratic processes and the challenge of aligning diverse stakeholder interests, and it

acknowledges these realities from the outset.

To address these obstacles, the project will use transparent data sharing, participatory decision-making, and community peer review. These steps build trust, support scalability and resilience, and place Indigenous knowledge at the core of fair and effective conservation. In doing so, the project unites local priorities with global environmental goals and sets a foundation for enduring impact.



Photo: Tong Len

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Cambodia Indigenous Peoples Organization

