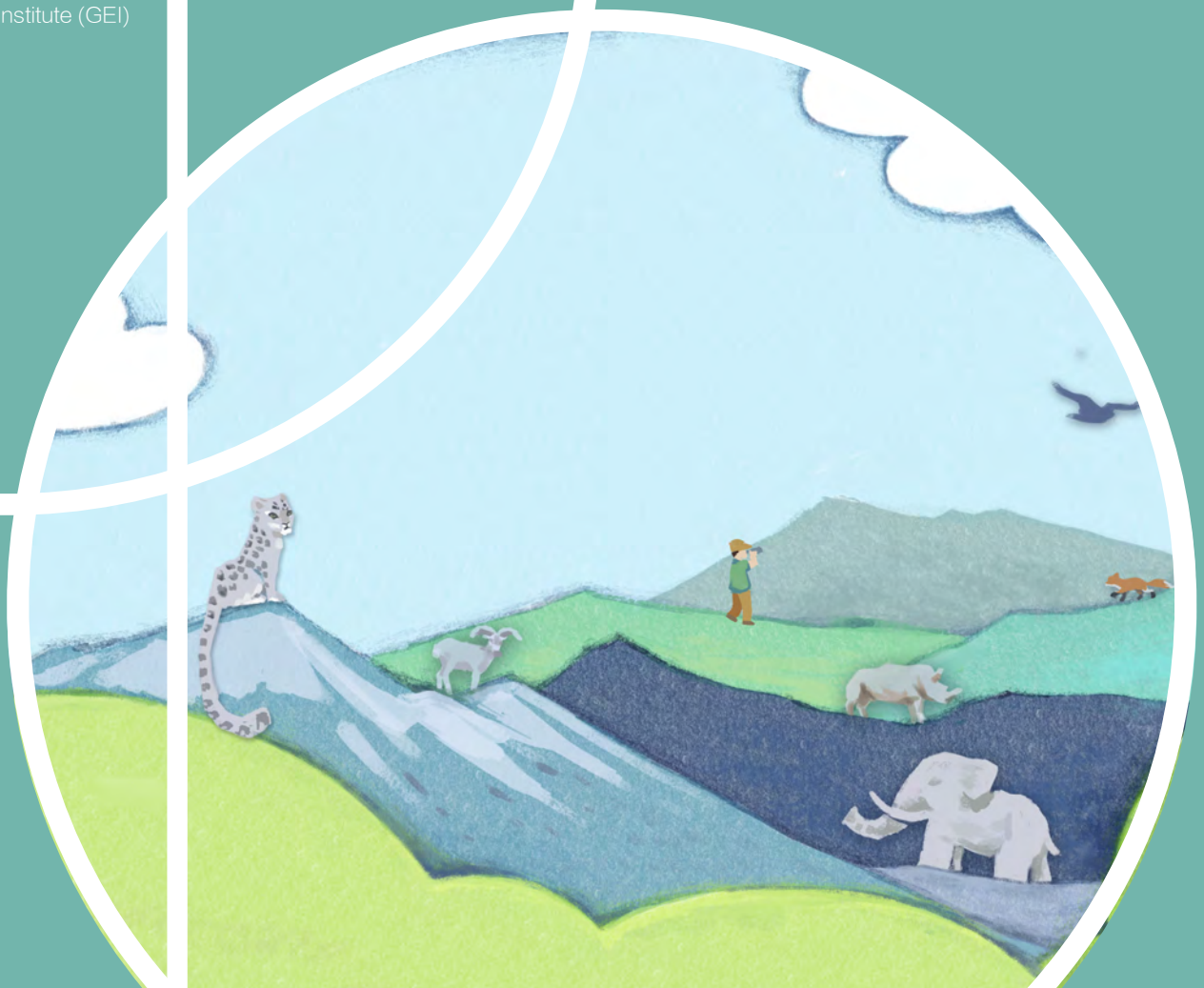
100+ Biodiversity Positive Practices and Actions Around the World

Selected Highlights

Authorities for guidance
CBD Secretariat
Office of the Executive Committee for the Preparation of COP15

Co-hosts
China Environmental Protection Foundation (CEPF)
Paradise International Foundation

Co-organizers
Shan Shui Conservation Center (SSCC)
Global Environmental Institute (GEI)



About the Call for "100+ Biodiversity Positive Practices and Actions Around the World"

The fifteenth meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD) will take place in Kunming in October 2021. In order to showcase noteworthy biodiversity-related actions, practices and models and to demonstrate the strong commitment of non-governmental actors worldwide to protect, conserve and sustainably use biodiversity, and under the guidance of the CBD Secretariat and the Office of the Executive Committee for the Preparation of COP15, China Environmental Protection Foundation and the Paradise International Foundation Foundation co-hosted the call for "100+ Biodiversity Positive Practices and Actions Around the World".

A total of 258 practices from 196 organizations around 26 countries of 7 continents were received. After the preliminary review, pre-review and final review of the collected practices, a total of 108 were selected as "Noteworthy Practices", of which 19 of them were selected as "Outstanding Practices". This case collection presents some of the cases.

Authorities for guidance

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Office of the Executive Committee for the Preparation of COP15

Co-hosts

China Environmental Protection Foundation (CEPF)
Paradise International Foundation

Co-organizers

Shan Shui Conservation Center (SSCC)
Global Environmental Institute (GEI)

Supporter

Yangtze River Fisheries Administration, Ministry of Agriculture and Rural Affairs of China

IUCN

China Environment News

Chinese Academy of Forestry

National Resource Centre for Chinese Medica, China Academy of Chinese Medical Sciences

Conservation International (CI)

Client Earth

The Global Environment Facility's (GEF) Small Grants Programme (SGP) implemented by UNDP (UNDP GEF SGP)

Weibo

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Citizen science based database of bird conservation Photographer / Ming Wei
© China Birdwatching Association

Thousand-Island Lake Water Fund -- Exploration on Ecological Sustainable Development of Thousand-Island Lake Basin

Hangzhou Thousand-Island Lake Huku Agricultural Technology Co., Ltd.
(Thousand-Island Lake Water Fund)

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Sustainable use
Financial support mechanisms | Technological innovation

Targets: Freshwater & wetland | Farmland | Flora | Avifauna | Freshwater creatures

CASE INTRODUCTION

In China, non-point source pollution has replaced point source pollution to be the main problem of water pollution. It's not easy to control the non-point source pollution caused by unreasonable land use and agricultural production in the source catchment area, and it needs a long-term fund management mechanism to control this problem. Since 2018, the Thousand-Island Lake Water Fund has closely worked together with the government and social capital to protect and develop more than 1000 mu (1mu=0.067 hectares) of rice fields and tea plantation along the Thousand-Island Lake basin. It has reduced the agricultural pollution load by using reasonable incentive mechanisms, and developing the market-oriented beneficiary-paid mode within the Thousand-Island Lake basin. It takes advantage of its location to drive the transformation and upgrading of industries such as local culture and creation, ecological travel vacation and nature education.

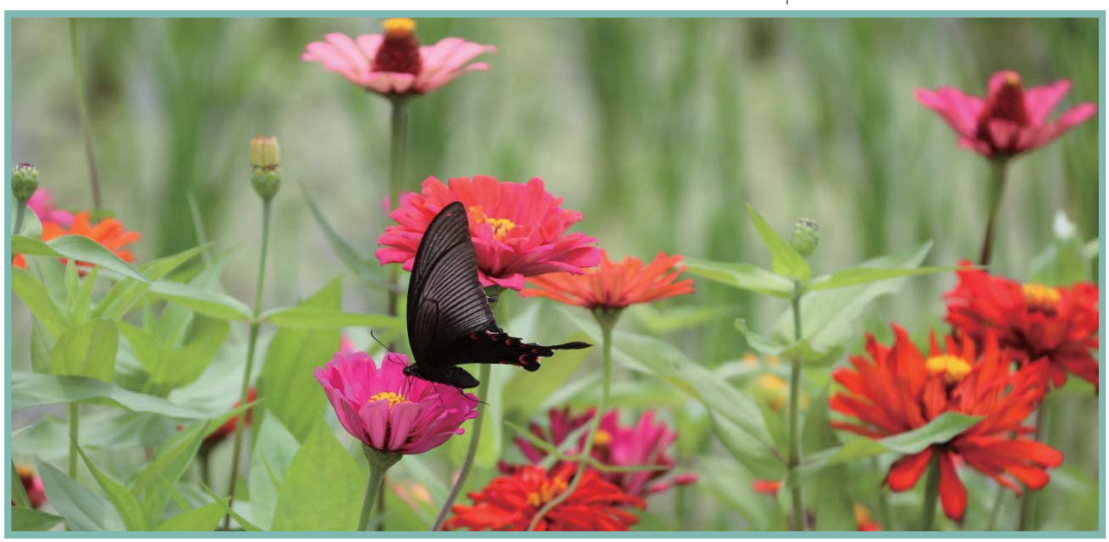
Starting with scientific analysis, it can identify the most critical polluted regions, and test for the best agricultural measures and standards. It has also built an intelligent agricultural water-protection platform to encourage farmers, which is the key to promote ecological measures to the whole basin of Thousand-Island Lake in Zhejiang Province and even to Huangshan in of Anhui Province in the upper reaches. It

has also provided quantifiable indicators for ecological compensation, ecological improvement and embodiment of ecological value. The implementation of "Double reduction of fertilizer and medicine" policy in demonstration site of Thousand-Island Lake makes the loss rate of nitrogen and phosphorus in the demonstration field reduce by up to one third without any reduction of yielding. It has made preparation for the large-scale popularization of technology.

In terms of protection of ecology, Thousand-Island Lake Water Fund promotes nature-based solutions and biological prevention and control measures, to creatively protect and further enrich the biodiversity of agricultural ecosystem in two demonstration sites. At present, it has achieved outstanding results, and has had a realistic basis for wide-range promotion.

The success of the mode of Water Fund lies in its ability to integrate multiple resources to provide financial and management mechanisms for large-scale protection actions unprecedentedly, and the long-acting self-operation achieved by self-iteration. It can not only attract water users to invest in the protection of water source catchment areas, but also combine pollution and water control with agriculture and forestry industry. In the short term, it can improve of quality of water sources, and bring more environmental benefits including public health, biodiversity and climate change; While in the long term, it can strengthen the protection effect by use of financial mechanism, which helps to attach the importance of water source environmental protection to the new rural construction, and enable communities to benefit from the protection. At the same time, it has developed the beneficiary-paid mode in places with water source from its practice, and has formed the long-acting operation mode.

International experience and actual practice in Hangzhou have proved that Water Fund is an effective water source treatment model that can be copied.



Procter & Gamble nature-based solutions to combat climate change

Procter & Gamble (China)

Approaches: *In-situ* conservation

Targets: Ecosystems | Species diversity

CASE INTRODUCTION

In response to the global goals set out in the "Paris Agreement" and the dual carbon goals set by the Chinese government, Procter & Gamble (P&G) announced a new commitment in 2020 : P&G global operations will achieve carbon neutrality in the next ten years. In addition to the current science-based goal of reducing greenhouse gas emissions by 50%, P&G will also promote the implementation of a series of nature-based solutions to combat climate change, push for the realization of carbon benefits, and offset the remaining carbon emissions in the next ten years. Thereby, making the company's operations to be carbon-neutral.

Nearly two-thirds of our carbon emissions reduction will require the help of technological solutions, but nature itself can also resolve up to one-third of the impact of climate change. This is the origin of P&G's nature-based solutions to combat climate change. P&G will make extensive efforts that are based on this plan, for sustainable development in both professional and fundamental aspects:

Find the right partner. With the help of top scientific researchers that have relevant

research experience, to help us take the most important step to protect the earth's ecology:

P&G will work with Conservation International (CI)and World Wide Fund for Nature (WWF) to jointly identify and fund a series of projects aimed at protecting, improving and restoring important ecosystems such as forests, wetlands, grasslands and peatlands. In

addition to offsetting more carbon emissions, an important role of “nature-based solutions to combat climate change” is that it can bring greater synergistic benefits in terms of environment and social economy, thereby protecting the natural environment and improving local residents’ lives. P&G will identify, measure, and disseminate the synergies created by our various investments in nature.

P&G is formulating a detailed project funding plan to provide support for related projects around the world:

-Work with the CI to carry out the Palawan Conservation Project in the Philippines- to protect, improve and restore Palawan mangroves and important ecosystems. Palawan is the fourth largest "irreplaceable" area in the world, with many rare and endangered wild animals.

-Work with the WWF to advance the Atlantic Forest Ecological Restoration Plan- the Atlantic Forest on the east coast of Brazil, lays the foundation for the restoration of the forest landscape, and has a significant positive impact on biodiversity, water resources and other synergies including food security.

-Join forces with the Arbor Day Foundation to establish an evergreen tree alliance-to unite the power of enterprises, communities, and citizens, and adopt effective measures to protect the necessities of life affected by climate change . For example, by planting trees to restore areas destroyed by wildfires in Northern California, and to improve the forest environment in Germany.

In addition, P&G China is also leading young talented personnels forces to explore the implementation of nature-based solutions in China and to help the construction of ecological civilization. The "P&G China Pioneer Project" was jointly initiated by the China Environmental Protection Foundation and P&G China in 2015. The project supports the development of college student associations and promotes the improvement of professional abilities in student associations. The project also cultivates talents, projects, and college student associations via "learning in action", and cultivates future leaders for China's environmental protection industry. The project has provided project activity funds and capacity building support for 144 clubs in 125 universities in 11 provinces, cities and regions. 8,078 college students directly participated in the project activities, and the learning exchange network has benefited 100,000 students.

The 2020 "Procter & Gamble China Pioneer Program" project takes "Youth and Nature-Based Solutions" as the theme and conducts extensive research. The 2021 "Procter & Gamble China Pioneer Program" will continue to use "Youth and Nature-Based Solutions" as the theme to encourage more college students to participate in nature-based solutions (NbS) project cases, and carry out in-depth research and practice.

At the same time, P&G’s brands are also accelerating their pace to contribute to biodiversity.

Herbal Essences, a natural hair care brand, announced that it has joined forces with the Kew Garden of the Royal Botanic Garden and the Kunming Institute of Botany of the Chinese Academy of Sciences to support the Kew Garden "Millennium Seed Bank Partnership”, in order to help scientists to conduct research and protection of 20 species of endangered plants in China.

The action to support the "Millennium Seed Bank Partnership" contains a series of endangered plants with great value, including plants that have been listed as first-level protection in the "List of Wild Plants Protection under State Priority Conservation" , such as wild ginkgoThe wild populations of such protected plants are extremely endangered, and to prevent them from extinction will hold great significance to the development of the ecological environment and human social life.

"Yixin Huatai One Yangtze River" charitable ecological protection project

Huatai Securities

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Sustainable use
Policy-making & implementation | Financial support mechanisms |

Targets: Forest | Grassland | Ocean and coastal | Urban | Freshwater & wetland | Mountain

CASE INTRODUCTION

A good ecological environment is the fairest public product, and protecting the ecological environment is a natural social responsibility of financial enterprises. In respondence to the Yangtze river Comprehensive Protection strategy, Huatai Securities established the "Yixin Huatai One Yangtze River" charitable ecological protection project to gather multiple social forces and incubate innovative solutions for the harmonious coexistence of man and nature based on community-based and citizen science practices to protect species and their habitats.

Protect the biodiversity of the Yangtze River Basin

Reached a strategic cooperation with the Shan Shui Conservation Center to carry out species monitoring and community-based conservation with herders as the main body in the source of the Yangtze River, and create high-quality nature watch products, so that herders can benefit from conservation. In the Yangtze River Delta, Shan Shui and Fudan University, the public is invited to participate in the collection and data analysis of urban wildlife distribution, and to improve the urban wildlife management system. In the Yangtze River Delta region, Shan Shui and Fudan University invite the public to participate in the data collection and analysis of urban wildlife distribution, and improve the urban wildlife management system.

Initiated the "Wildlife Conservation Small Fund" with the WWF and the One Planet Foundation to support the local protection of rare and endangered species in the Yangtze River Basin, and provide financial and intellectual support to local organizations to fill the gaps in the protection of some threatened species.

Promote citizen science and strengthen publicity of public welfare

Citizen Science Action covers central cities in the Yangtze River basin such as Shanghai, Nanjing, Suzhou, Wuhan, and Chengdu, and first-tier cities such as Beijing and Shenzhen to raise the public as a strong force for species monitoring and research. Carried out "Four Seasons in PKU campus", "Four Seasons in Beijing" and other nature observation projects, and support public activities such as "Plant Guardians" and "Shenzhen City Nature Challenge" and reached over 10,000 direct participants.

Innovate the form of public welfare publicity. In 2020, together with the SEE Foundation, the "One Yangtze River" Carnival was held, with nearly 400,000 people participating online and offline. In 2021, it joined hands with the Beijing Representative Office of the International Crane Foundation to launch the "One Yangtze River Thousand Crane" through TikTok and Weibo to promote scientific knowledge of crane conservation, organized a cross-industry art tour exhibition, and received more than 860,000 online and offline participants.

Use ESG as a link to promote dialogue between capital market and ecological protection

In December 2020, sponsored the "One Yangtze River" sustainable development forum with China Environmental Protection Foundation and Shan Shui to explore the ecological environment access in ESG investment, publish biodiversity impact assessment tools, and provide biodiversity impact assessment for construction, investment, and planning institutions, and assist Shan Shui in establishing communication mechanisms with ESG rating agencies and asset management agencies.

Explore ecological poverty alleviation

In 2020, subsidiary Huatai United Securities funded Shan Shui to carry out franchise projects in national parks, supporting the Sanjiangyuan National Park and the Sichuan Administration of Giant Panda National Park, and the Qinghai area of Qilian Mountain National Park in the Yangtze River Basin, and exploring the opportunities for local communities to benefit from high-quality ecological products.

Free Flying Wings

SEE FOUNDATAIN

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Policy-making & implementation | Financial support mechanisms

Targets: Avifauna

CASE INTRODUCTION

Free Flying Wings is a comprehensive ecological conservation project to protect the most endangered waterbirds and their habitats in China. Projects puts the protection of more than 100 of the wetland in an urgent need and gives priority to the protection of 24 species of rare and endangered birds, initiated by non-governmental organizations, enterprise investment, the social public to participate in the "social participation" model to carry out positive wetland protection work, complementary structures, and the official nature protection system of civil protection network, and establish protection demonstration base. Therefore, the government and society should be mobilized to jointly protect the most endangered migratory birds and their habitats in China. The three major strategies of the project are to build a civil conservation network, establish a conservation demonstration base, carry out scientific research and promote policy.

So far, the Network has supported 65 private conservation organizations to carry out 142 projects, covering 90 wetland plots in more than 20 provinces and cities in China. The project covers basic bird survey, wetland patrol and data collection, publicity and education, anti-poaching and wildlife rescue. More than 6,500 bird surveys and patrols have been carried out, covering an area of more than 4,000 square kilometers. At the same time, more than 1,100 various publicity and education activities have been carried out,

covering more than 750,000 people. Free Flying Wings provides a great boost to civil participation in the protection of migratory birds and their habitats, and also provides a good platform for the personnel of civil protection agencies to improve their professional quality.

In terms of the construction of protection demonstration bases, Free Flying WIngs continues to promote the establishment of protection sites such as Tiaoni wetland in Jiangsu province, Luanan Wetland in Hebei Province, Minquan Yellow River Crossing wetland in Henan Province, Xinghua Bay Wetland in Fujian Province, and Baibird Lake wetland in Xinjiang Province.

For the 24 rare and endangered birds concerned by the project, Free Flying Wings has carried out special protection and scientific monitoring activities. Through the development of special protection actions, the basic information of the main distribution range, population size, protection status, threats and other basic information of these rare and endangered birds in China has been basically understood, which has built a solid foundation for further carrying out more targeted species protection and recovery actions. Free Flying Wings is active in policy promotion, such as submitting proposals to the two sessions, and actively seeking publicity opportunities for the international community's foundation and the national bureau of forestry and grassland wetland, natural protected area have reached a cooperation agreement, the department in charge of assisting the government to carry out targeted capacity building activities, to participate in the second phase of Huang Bohai properties for work, and actively participate in the meeting and hosting international protection, as a bird fly project achievement and experience of communication, to expand the international influence.

UNDP/GEF SGP China Program

(UNDP/GEF SGP)

Approaches: Financial support mechanisms

Targets: Forest | Grassland | Ocean and coastal | Urban | Farmland | Mountain | Dry and sub-humid land | Flora | Mammals | Amphibians | Avifauna | Marine creatures | Germplasm resource conservation

CASE INTRODUCTION

The GEF Small Grants Program supports CSOs and communities to protect nature while enhancing livelihoods by providing funding and technology, as well as capacity building, to CSOs in China. Since its inception in China in 2009, it has supported 135 projects in 26 provinces, autonomous regions and municipalities directly under the Central Government of China, providing a cumulative total of US$6.35 million in direct funding to Chinese CSOs. Of these, 53 projects were supported in the area of biodiversity, providing $2.74 million in financial support. Projects primarily support remote, vulnerable, underdeveloped and poor communities, with grants going directly to local CSOs and CBOs, the project implementers approved by the National Steering Committee, with grants of up to $50,000 per project. The program has played an active role in raising public awareness of environmental protection, promoting communities as conservationists of natural resources, addressing poverty with ecological conservation tools, and promoting endogenous community development. The program's contributions go far beyond grants to civic and community-based organizations. By raising public awareness, building partnerships, and promoting policy dialogue, the GEF Small Grants Program creates an enabling environment for public and community participation in achieving sustainable

development goals and addressing global environmental issues. As the GEF is the compliance funding mechanism for several multilateral environmental conventions, including the Convention on Biological Diversity (CBD), the Small Grants Program also serves as a powerful catalyst for civil society organizations and other stakeholders to come together to support community-based activities that help countries implement the CBD at the community level. The program supports biodiversity project activities related to wild species and habitat conservation, wetland conservation, water forest protection, nature sacred habitat survey and database building, establishment, alliance and recognition of community conservancies; development of ecotourism and nature education; market linkage of biodiversity-friendly products; sustainable management and use of natural resources; restoration of fragmented landscapes; revival of indigenous cultures and the strengthening of community self-governance. In order to break down barriers, integrate the different focus areas of the GEF, link biodiversity conservation and sustainable development and other social issues, and make a greater impact with limited funds, the Small Grants Program began in 2015 to move from an evenly spread effort across the country to a landscape approach, selecting three key landscapes: the high mountain valley landscape of the Hengduan Mountains in Yunnan, the alpine grassland landscape of the Sanjiangyuan in Qinghai, and the coastal zone of Beibu Gulf. The program focuses on supporting specific projects in the field, and supports linkages between these projects to form in situ conservation networks, sharing their lessons learned and complementing each other's strengths and weaknesses.

PARTNERS Principles for community-based conservation

Snow Leopard Trust

Approaches: *In-situ* conservation

Targets: Mountain

CASE INTRODUCTION

Historically, conservation approaches have tended to exclude local communities and restrict traditional access which has often led to their marginalization and disenfranchisement. Community-based conservation approaches focus on the practice of conservation being equitable, just, and inclusive. These approaches can also be used to foster coexistence and conserve biodiversity outside protected areas which currently cover only 15.4% of earth's land surface. For these approaches to be successful, it is not only important that the local communities are engaged, but also how they are engaged. Practical tools for respectful and effective ways to engage with local communities as equal partners in conservation have been generally lacking. Conservation practitioners often lack the skills and training required for effective community engagement, and typically learn through trial and error.

To address this gap, the Snow Leopard Trust and its partners have developed a pioneering approach and a training program called PARTNERS Principles for community-based conservation which has proven effective at building capacity of frontline conservationists to engage local communities in wildlife and habitat conservation. The PARTNERS Principles (Presence, Aptness, Respect, Transparency, Negotiation, Empathy, Responsiveness, and Strategic support) provide a strategic tool for community-based conservation. Rather than being prescriptive, we have developed this program as an immersive training based on sharing of and learning from both positive and negative

experiences of practitioners. PP were distilled from two decades of conservation experience, and from ideas in applied ecology, conservation and natural resource management, community health, social psychology, rural development, negotiation theory, and ethics.

Using the PARTNERS Principles approach, our own teams have been working with over 150 local communities, who are protecting c.150,000 sq. km of snow leopard habitat. The PARTNERS Principles have provided, for the first time, a framework for pragmatic and ethical community-based conservation. They have been recommended for conservation capacity enhancement by the Global Snow Leopard and Ecosystem Protection Program, a high level intergovernmental alliance of environment ministers of 12 snow leopard range countries.

In 2016 PARTNERS Principles for community-based conservation book released by the Kyrgyz President;

In 2017 a PARTNERS paper published in the Journal of Applied Ecology; PARTNERS included in policy brief of the 12-nation intergovernmental alliance as a tool to train conservationists;

2016-2020 PARTNERS training program created and piloted, 20 PP trainers trained, Over 200 practitioners from 20+ countries were trained

2020 A helpline was launched to help frontline conservationists solve problems in real time.

2021 PARTNERS paper showcasing experiences of field practitioners/trainees published in the Journal of Sustainability;

The approach makes it possible for any conservationist, anywhere in the world, to achieve conservation ethically while bringing respect and the rights of local communities into focus.

100+ 生物多样性保护全球案例

100 Biodiversity Positive Practices and Actions Around the World

07

Technological Innovation

CHANDO Grass planting in Himalayas
© JALA Corporation

Connected Conservation

Connected Conservation Foundation

Approaches: *In-situ* conservation | Technological innovation

Targets: Forest | Grassland | Farmland | Mountain

CASE INTRODUCTION

Background

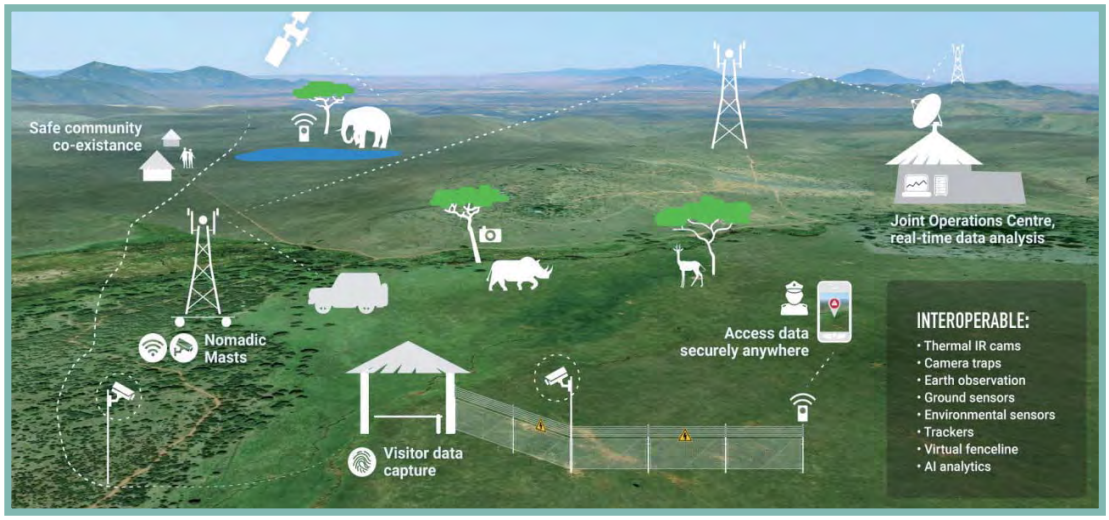
The latest statistics show that more than one million species are at risk of extinction. UN nations are working to increase the protected areas from 15% to 30% of the planet by 2030. Protected areas are a cornerstone of conservation practice to safeguard our natural heritage, but the following are common challenges facing Africa's protected areas and its wildlife.

1.Illegal wildlife poaching

Illegal wildlife poaching rates surged during the pandemic, and local livelihoods remain devastated by the loss of tourism. In South Africa, every day, a rhino and elephant are killed. Illegal wildlife poaching undermines the rule of law and incentivises crime.

2.Human-wildlife conflict (HWC)

HWC events are increasing as the space for nature shrinks and the competition for resources rises. When elephants raid crops or carnivores prey on livestock, it can damage



the local perception of wildlife and lead to wildlife and human deaths.

3.Habitat destruction

Habitat destruction is a threat to wildlife. Suitable habitats must be maintained, yet only 15% of the world's land is protected. This must increase so that important ecosystems can sustain life on earth. Bush clearing, charcoal burning, overgrazing of grasslands by livestock must all be managed to ensure enough resources for the co-existence of people

and wildlife.

Technologies are vital in helping deliver the UN's goals and reversing declining species population trends. A conservation toolbox of appropriate solutions helps protected area managers secure and manage natural ecosystems for the benefit of wildlife and people. A recent survey shows the importance of conservation tools and how the use of technology has increased during the pandemic, helping field teams get an early warning to tackle an increase in poaching, snare setting, increasing human-wildlife conflict and manage pressures on natural resources.

Our solution

A Reserve Area Network for protected areas brings together communications, the latest sensors and network connectivity to vast, remote landscapes. Alerts, conservation intelligence and live video can be shared from strategic locations to a central operation centre, from simply providing internet connectivity at Parks HQ to more advanced solutions that deploy thermal cameras at fence lines and a LoRaWAN network of sensors to track people, rangers, visitors, vehicles, natural resources and wildlife.

Our technology gives rangers around the clock visibility across their reserve. It provides an early warning of conservation issues so rangers can respond to stop poaching and human-wildlife conflict before it can occur.

We combine: Network infrastructure, digital radios, data servers at operation centres, boundary based incursion detection with long-range thermal cameras, GPS tracking, real-time video PTZ cameras, camera traps and low power LoRa based sensors to monitor electric fences and manage environmental resources such as water. All of the above is integrated into our alerting platform, where AI intelligence is used to filter information, and this is visualised through Vulcan's Earth Ranger software.

By enabling real-time data collection and analysis, we also help improve protected area management effectiveness, increase the speed of decision-making and response, keep rangers safe, and leave wildlife undisturbed.

This year Connected Conservation is proud to add new technology partners Microsoft and Airbus Foundation, alongside founding technology partners NTT and Cisco. New partners are joining the collective mission to integrate their products and resources to (1) Connecting people with effective technology, transferring innovation into lasting impact for nature and (2) Develop technical capacity to own tools and create employment opportunities for local people. Newly signed agreements will couple Airbus high-res satellite imagery with Microsoft, NTT and Dimension Data's cutting-edge Artificial Intelligence and on-the-ground technology to add critical new data and intelligence to Connected Conservation Foundation's existing solution. These new projects aim to expand ranger visibility and protection to 1,000 more km2 for biodiversity and their habitats.

A summary of our overall impacts includes:

- Partnering with five sites over two countries
- Connectivity, communications for real-time sensing covering 1,000,000 hectares, helping rangers protect 30+ threatened species
- Equipping four joint operations centres as hubs for intelligence and analysis
- 100+ rangers equipped with connectivity and communications
- 96% reduction in poaching in our pilot project in the first 18 months (when coupling technology with excellent conservation management)

UN Biodiversity Lab and Mapping Essential Life Support Areas

United Nations Development Programme

Approaches: Public participation | Policy making and implementation | Technological innovation
Sustainable use of biodiversity

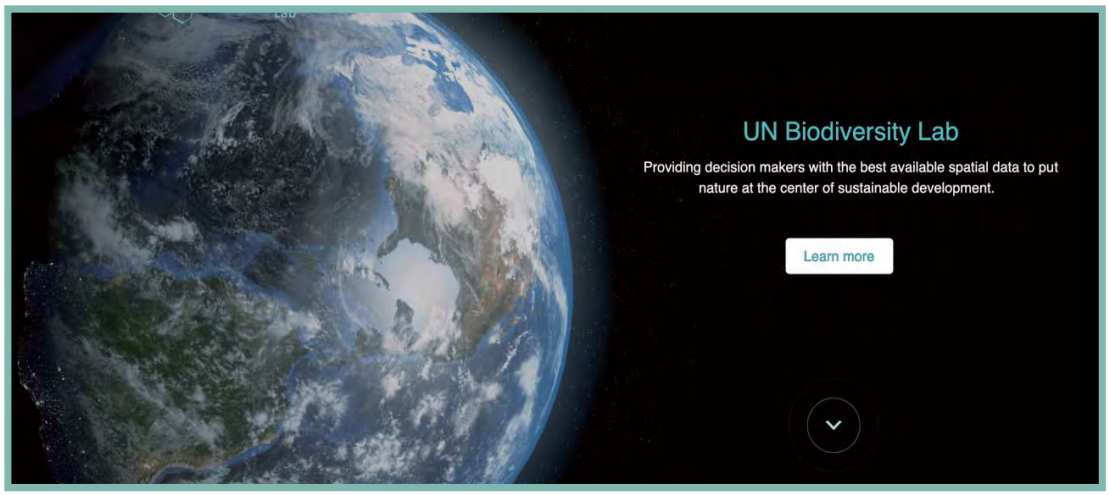
Targets: others

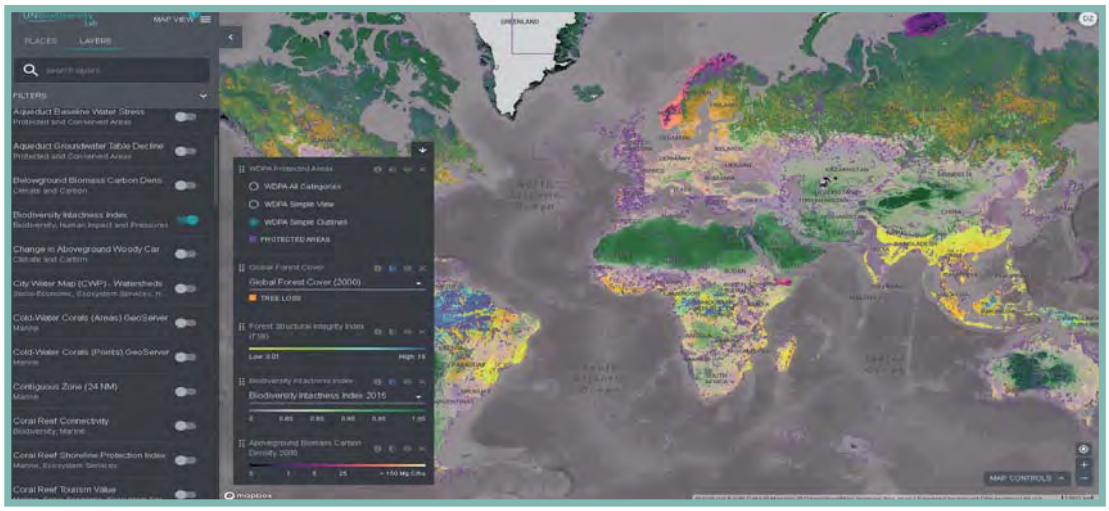
CASE INTRODUCTION

We live in a deeply interconnected world, where the health of natural and human systems underpins the future of our societies, economies, and planet. Spatial data brings together intelligence generated from sources as diverse as satellites orbiting the earth, national and global science teams, and the deep place-based knowledge of Indigenous Peoples and local communities. The maps created by these data layers can provide a powerful resource to address our planetary crisis.

The UN Biodiversity Lab (UNBL) (www.unbiodiversitylab.org) provides access to global public data on people and planet in new ways to empower governments and stakeholders to take action. Our mission is three-fold: (1) to democratize access to spatial data and analytic tools as a global public good; (2) to support decision-makers to leverage spatial data for insight, priority-setting, and implementation; and (3) to empower stakeholders to use spatial data for monitoring and reporting. We strive to provide a comprehensive offering that can support governments at all levels to deliver on internationally agreed goals and targets for nature, including the post-2020 Global Biodiversity Framework, and achieve the 2030 Agenda for Sustainable Development.

With over 400 of the world's best datasets on nature, climate change, and sustainable development, UNBL enables policymakers and other stakeholders to use spatial data to take action for people and planet. UNBL is a free, open-source environment that does not require any previous GIS experience. The platform provides the ability for users to:





• Visualize core global public good datasets at the heart of decision-making on nature and sustainable development;

• Access curated collections that integrate spatial data for insight and action;

• View and download dynamic indicators of change for any country in the world;

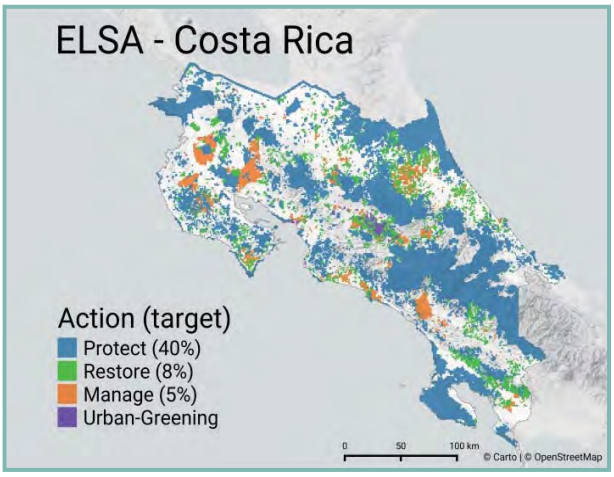
• Create workspaces to securely upload national data and analyse it alongside global data;

• Develop communities of practice that nurture data transparency and cross-sectoral collaboration; and

• Draw on the expertise of UNBL partners to develop national strategies and plans.

UNBL provided a critical resource that led to a two-fold increase in the number of maps between Parties' Fifth National Reports and Sixth National Reports to the Convention on Biological Diversity (CBD). UNBL was shortlisted for the UN Secretary General's Innovation Award in 2018, received two highly coveted grants from the UNDP Innovation Facility (2017-2019), and has been awarded two NASA grants in partnership with top tier researchers (2017-2021).

Building on engagement around the platform, in 2019, the UNDP convened world class scientists to develop approaches to use spatial data to identify where nature-based actions to protect, manage, or restore 'essential life support areas' (ELSAs) can deliver efficiently across national priorities for biodiversity, climate, and sustainable development. Working with Costa Rica as an initial pilot, this work brings together a powerful coalition of governments, NGOs, research institutes, and intergovernmental organizations. It has now been scaled to create customized national analyses for 11 additional countries based on their national context and priorities. With funding from the Gordon and Betty Moore Foundation, UNDP and partners are now in the process of creating an approach to map ELSAs that can be used for any country in the world via the UNBL platform.



AI for Earth

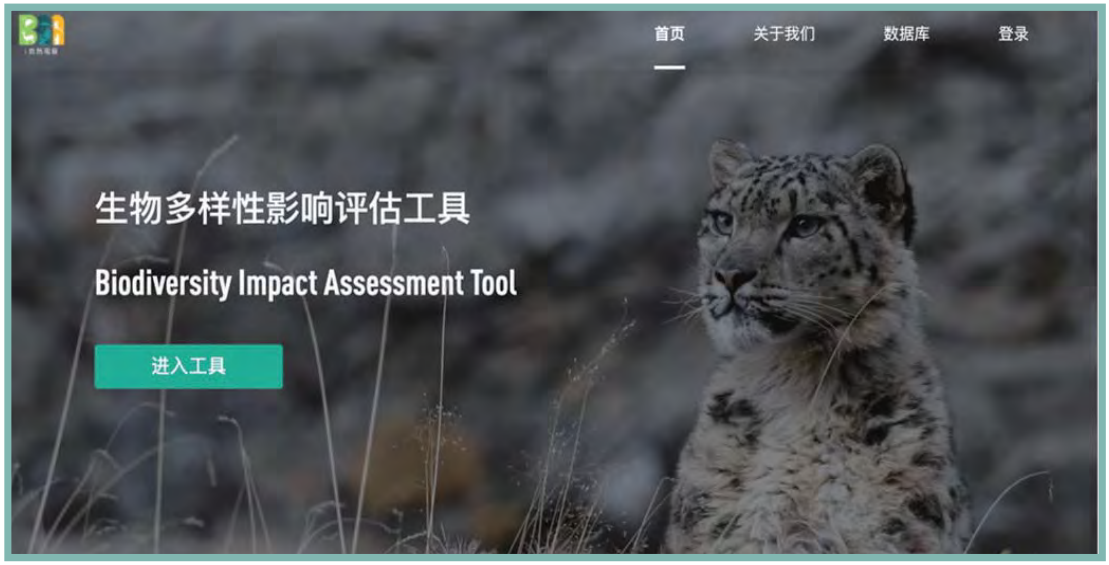
Microsoft (China) Co., Ltd.

Approaches: Public participation | Publicity & advocacy | Financial support mechanisms | Technological innovation | Sustainable use

Targets: Mammals | Amphibians | Avifauna

CASE INTRODUCTION

AI for Earth is a $50 million, 5-year commitment from Microsoft to put AI at work for the future of the planet. It supports organizations all around the world that are working on challenges in biodiversity conservation, climate change, agriculture, and water. AI for Earth puts Microsoft Cloud and AI tools in the hands of those working to solve global environmental challenges. Besides cash and cloud grants, engineering and data science team releases open-sources tools, models, infrastructure, data, and APIs to support sustainability and environmental science. For example, The Analytics Lab team at Conservation Science Partners (CSP) is using the Planetary Computer to monitor forest change, habitat connectivity, and the impacts of human land use across the U.S., providing a range of project partners and stakeholders with the data they need to make better conservation decisions in near real time; Wild Me used computer vision and deep learning algorithms to create a platform called Wildbook for identifying and tracking wildlife, combining the strengths of AI and citizen scientists to fight extinction; APN Cape York, CSIRO and Microsoft are using cloud computing and artificial intelligence (AI) to identify turtle and predator tracks on remote beaches, to help protect vulnerable marine turtle populations in northern Australia and Cape York. In China, The partnership with Shan Shui Conservation Center is a concrete example of how the two parties work on biodiversity



protection by using API with the support from data scientists.

Microsoft Camera Trap API is a practical tool for wildlife protection organizations. Cameras hidden in wildlife habitats allow researchers to capture photos of animals in their natural surroundings. But the vast amount of visual data also brings a big challenge for nonprofits to distinguish, share, manage, label, or even to analyze and use it.

Shan Shui Conservation Center is one of leading Chinese nonprofit organizations dedicated to conservation practices. Shan Shui also has strong willing of digital transformation. Microsoft’s mission is “empower every person and every organization on the planet to achieve more”. Sharing the same vision of accelerating social good with technology, Microsoft and Shan Shui established the partnership on “AI for Earth”.

To improve work efficiency and save manpower from laborious work, empowered by Microsoft Azure and AI technology, Microsoft supported Shan Shui to develop a platform which solves its major problem of data collecting and processing. Shan Shui can use Camera Trap animal recognition API to identify and classify pictures automatically by weather there are wildlife captured in the picture or not. Besides good and stable performance and privacy protection, this tech solution also enabled Shan Shui to improve their workflow efficiency by 50% with high accuracy of 90% on picture recognition, facilitates Shan Shui to spend less time on annotating images and more time on valuable things like conservation innovation.

To better manage and use data, Microsoft supported Shan Shui built a Power BI solution to visualize data collected from “citizen science” project - a project engaged public to join in nature watch actions and contribute to biodiversity data. Power BI enables Shan Shui to visualize and analyze the vast data, and to better interact with the public or provide data basis for experts/ policy makers/decision makers.

Moreover, Microsoft supported Shan Shui to develop a Biodiversity Impact Assessment Tool (BIA) and to promote environmental awareness among the public. BIA which is empowered by Azure is designed to provide nature instructional information for indoor and outdoor professionals, citizen, educators and policy makers. By circling a range of position, this tool will tell the distribution of threatened species in this area. For policy makers or real estate developers, this provides information on ecological considerations; For citizens and educators, this is a platform for them to know the nature and love the nature.

IDOLPHIN: Development of Individual recognition and citizen science tool for Chinese White dolphin based on Tencent Cloud AI

China Blue sustainability institute

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Technological innovation

Targets: Ocean and coastal | Mammals | Marine creatures

CASE INTRODUCTION

The iDOLPHIN project focuses on the small population of Chinese white dolphin in Guangxi Pan Sanyangwan (continuous sea area centered on Sanyangwan). It combines other small populations in east Guangdong and Xiamen Bay with three different aspects: small population conservation research collaboration, photo identification data standardization and citizen science tool development. We practice the crowd-sourced conservation method that combines science, community, public welfare organizations and Internet enterprises.

In terms of small population conservation cooperation, iDOLPHIN improved the resolution of photo identification data in time and space through data and technical cooperation, and analyzed the habitat use, population structure and human interference of Pan Sanniangwan White dolphin by combining the historical data from 2011 to now, so as to evaluate the population status, and develop priority protection plans for different threat factors. At the same time, we compared with other small populations in the east of Guangdong and Xiamen Bay, the possible extinction paths of small populations of Chinese white dolphin were analyzed.

For the standardization of photo recognition data, two small population data sets (>100,000 photos, 258 heads) based on Shantou and Qinzhou were used. The cross test of three main modules (fin detection, Fin scoring, FIN matching) and one optimization module (Group match) was carried out. CNN could achieve an average accuracy of 89.55% (top-1) and the accuracy was greater than 95% in high-quality photos. The optimization module based on group information can improve the identification accuracy of low-quality photos by about 3%, thus realizing the artificial intelligence standardization of photo data processing. At the same time, we realized platform transplantation with Tencent cloud AI, with recognition speed of 11 seconds per piece, and completed the development of online cloud collaboration tools.

In the development of citizen science tool, iDOLPHIN combines the data of individual identification with cloud computing by supporting wechat mini program. It develops citizen science tool and improves the awareness of local species and public participation ability of the community. At the same time, through cooperation with rural education ngos "undertaker", we aimed at rural schools to carry out the Marine biodiversity equal education, developed WeChat applet wa white dolphins and Marine mammals as the theme of rural children's science education, and developed in collaboration with shandong science and technology press, children with white dolphin as the theme of popular science books "wow! White dolphins, which filled the gap of Marine biodiversity popularization for children.

DOLPHIN uses ARTIFICIAL intelligence to standardize individual identification data and develop online cloud collaboration tools that provide common technical tools for data collaboration and visualization.

The iDOLPHIN project sets different conservation research topics through the data protocol of the Small population Chinese White dolphin, improves the overall data continuity and resolution, and establishes partnership for conservation research. At the same time, the photo recognition technical specifications are revised according to the operation differences of different cooperative teams.

(1) Popular science creation and citizen science tools for children

At present, there is a lack of citizen science tools and public participation platforms in China, and there is also a gap in popular science creation for children of indigenous species.

IDOLPHIN cooperates with the Domestic rural education NGO "Shoulder Action" to carry out equal education on Marine biodiversity, develop wechat mini program "WA White Dolphin" and online and offline popular science courses. At the same time, I worked with an illustrator to develop the popular science book "Wow! White Dolphins" for children.

(2) Public participation based on individual identification

Community species awareness is also constrained by the transparency of scientific data and the development of citizen science tools.

The iDOLPHIN project realizes cloud collaboration and public participation of individual identification data by using Tencent cloud AI for online cloud computing, developing citizen science tools and supporting wechat mini programs. Citizen science is based on individual identification in photographs also helps local communities build an individual awareness of species.

(1) Standardization of photo recognition data and the use of artificial intelligence and cloud computing

In terms of technological innovation, photo recognition will be combined with machine learning and cloud computing to realize the combination of scientific data and Internet technology, providing reference for the automation, cloud collaboration and visualization of species data.

(2) Small population research based on data collaboration and skill sharing

By means of data protocol, it can realize data sharing and technology synchronization while protecting copyright. Secondly, on the premise of improving data resolution, different small populations of white dolphin conservation issues were set up to compare the differences in habitat use and social network of different small populations, and put forward protection strategies for small populations conservation.

(3) Use the Internet and AI cloud computing to develop citizen science tools

Through the Internet and cloud computing, data visualization and public participation are realized, and convenient citizen science tools are provided while serving the data cloud collaboration of scientific research teams.

Snow Leopard Intelligent Identification and Monitoring Data Management Cloud Platform

The Tencent Charity Foundation

Approaches: *In-situ* conservation | Technological innovation | Sustainable use

Targets: Mountain | Mammals | Germplasm resource conservation

CASE INTRODUCTION

The Qinghai-Tibet Plateau, which occupies a quarter of the country's land area, is one of the most precious natural heritage in China. After more than 50 years of development, the Qinghai-Tibet Plateau is still an area with a low population density with a relatively healthy population of wild animals. A large number of plateau pikas (Ochotona curzoniae) act as engineers of grassland ecosystems throughout the year. Tibetan antelopes, wild yaks, Tibetan wild donkeys, Tibetan antelopes, rock goats and other herbivores are facing various threats, they are not yet in danger of extinction. Snow leopards as the top carnivores are still live in many places. It is not only a symbol of wilderness, but also an "indicative species for the health of alpine ecosystems." Not only that, the homeland of snow leopards is also the source of the Yangtze River, Yellow River, Lancang River (Mekong), Yarlung Zangbo River and other major rivers. The change in the population of snow leopards means changes in the health of the mother river’s water conservation. Snow leopards assume the role of "a probe for the stability of the Chinese ecosystem", which has significant tracking and protection value. At present, scientific research on snow leopards is the least, and information on snow leopard distribution and populations is extremely lacking. The global scientific survey area only accounts for 2% of the snow leopard habitat, which is far from the requirements for formulating a global snow leopard protection strategy.

The Qilian Mountains, the fringe mountain system in the northeastern part of the Qinghai-Tibet Plateau, is an important distribution area of snow leopards in China. In April of this year, the Tencent team joined hands with the World-Wide Fund for Nature and a Shenzhen Earth Nature Foundation. Through a field visit in the snow leopard habitat-Qilian Mountain National Park in Gansu province, it was found that the snow leopard pictures from the infrared camera, as the grass-roots managers and guards collected, was extremely difficult to identify. Substantial problems including large and complex data, low efficiency, etc., have seriously affected the progress of scientific data protection programs. The Tencent team independently developed a set of data that includes infrared camera data AI identification and patrol data collaborative management in order to reduce the workload of data collection for grassroots managers and protectors and free the frontline investigators from the tedious work of recording, labeling, and identification. The platform tries to assist scientists and reserve managers to solve the dilemma faced by the snow leopard investigation. This platform system provides AI species identification, data clouding, model building and calculation functions, which can automatically organize and accurately analyze basic data, and assist scientists and professional conservation personnel in

species monitoring and line surveys with higher quality. At the same time, this system can be used to screen a wider range of species after debugging, open up data isolation, and form an effective research report, thereby assisting relevant departments in formulating scientific and effective biodiversity protection measures, and promoting the construction of higher quality of China's ecological civilization. This system will also be shared with other countries where snow leopards are distributed, such as Nepal, Mongolia, Kazakhstan and other countries. It can assist local snow leopards and their related species in the investigation and protection of snow leopards, and establish multinational cooperation to protect biodiversity beyond national boundaries. Cooperation to help build a "Community of Life on Earth" in the field of technology.

Compared with other big cats, the scientific research on snow leopards is the least. Snow leopard distribution and population information is extremely lacking. The global scientific survey area only accounts for 2% of the snow leopard habitat, which is far from the requirements for formulating a global snow leopard protection strategy. 60% of the world's snow leopard habitats are located in China, but the survey area of snow leopard habitats in China is only 1.7%. Snow leopards, as the top predators of alpine ecosystems, need enough prey and also control the number of prey populations. Therefore, snow leopards are an indicator of the health of alpine ecosystems. This set of high-efficiency and accurate data platform led by Tencent's technical team can improve the efficiency of data collection that pilot in China, which promote China to jointly conduct a national snow leopard survey, collect the distribution and population dynamics of snow leopards in China, and formulate protection based on scientific data. The plan and the implementation of protection actions will keep the snow leopard population in China stable and gradually increase, thereby promoting the formulation of a global snow leopard protection strategy.

The Tencent team lowered the threshold for using the data identification and monitoring platform by optimizing the interactive experience, and at the same time provided professional training for primary-level patrol personnel, and assisted front-line staff and other related parties to improve the efficiency of species monitoring data processing and analysis;

Tencent team uses technology to empower patrol work, assists in snow leopard and other species line surveys, data analysis, and helps local governments or animal protection organizations to plan and carry out scientific protection programs, thereby promoting the harmonious development of human and nature in the alpine ecosystem;

The global snow leopard has a potential habitat area of approximately 3.02 million square kilometers, spanning 12 countries in Central Asia and South Asia. The protection of snow leopards, a key species in the alpine ecosystem, is related to the drinking water safety of billions of people in Asia, including China as well as the ecosystem health. This set of data platform products will be shared with other countries where snow leopards are distributed, such as Nepal, Mongolia, Kazakhstan and other countries, to help build a "Community of Life on Earth", which is of great significance to the improvement of global human well-being.

With the continuous increase of recognition data, the effective training of machine learning will continue to optimize the recognition effect. This is a product that is more and more accurate, and is continuously optimized and iterative.

Tencent's "Penguin Loves the Earth" project

Shenzhen Tencent Computer System Co., Ltd.

Approaches: Public participation | Publicity & advocacy | Technological innovation

Targets: Species diversity

CASE INTRODUCTION

Tencent pays great attention to issues related to biodiversity and ecological environment. In 2015, it launched the Penguin Love Earth Project. Under the strategic guidance of sustainable social value innovation, Tencent is committed to using the power of technology and the Internet to promote the harmonious coexistence of man and nature.

Establish a wildlife safety protection system to protect the diversity of wildlife species. In 2015, Penguin Love Earth opened the first direct reporting channel for illegal online wildlife trade, united with the whole society to resist illegal online trade, and gradually formed a closed loop from online cracking to legally assisting law enforcement agencies to carry out offline cracking, successfully assisting the cracking of a major criminal case of illegal trade in wild animals and their products.

Promote the government-enterprise-community cooperation model, and work together to practice the protection of multiple generations. In 2018, under the guidance of relevant departments, Penguin Love Earth established a natural ecological protection advisory group with seven well-known ecological protection organizations to provide scientific guidance and professional support for Tencent and the Internet industry. Tencent has also worked with members of the "Internet Enterprise Alliance to Combat Illegal Trade in Wild Animals and Plants on the Internet" to jointly explore a set of technical specifications to effectively prevent illegal trade in wild animals and plants on the Internet. In 2020, Tencent, together with academic institutions, ecological protection institutions, and related companies, jointly issued the first group standard of "Illegal Wildlife Trade Control Requirements on Online Platforms" on the platform of the Internet Society of China.

Give full play to the power of the Internet and technology, and explore new models for everyone to participate

in birth. During the 99 Public Welfare Day in 2021, under the guidance of the COP15 Executive Committee, Penguin Love the Earth joined hands with the China Environmental Protection Foundation and the Taohuayuan Foundation to carry out the "Connect with Nature with the Power of Science and Technology" to welcome the COP15 biodiversity conservation public welfare activities, relying on WeChat, Tencent's core products such as public welfare carry out popular science education and nature reserve exploration activities. Under the guidance of the COP15 Executive Committee Office in 2020, Penguin Loves the Earth launched the "Wild Animal Protection Joint Moment" public welfare action, which will have a billion-level spread impact. In the Spring Festival of 2021, Penguin Loves the Earth launched an anti-feeding wildlife safety education campaign, covering approximately 65 million people in 14 key cities across the country. On World Environment Day 2021, Penguin Loves the Earth and CCTV4 plan to launch a wild animal protection H5 game, with more than 20 million people participating. In 2020, Penguin Love the Earth and the Taohuayuan Foundation and other non-profit organizations launched the first Tencent Light Charity Innovation Challenge. Nearly 3,000 contestants have developed practical, charitable and technical mini-programs to inject new technological innovations into biodiversity conservation. kinetic energy.

Nature Watch in China-Mainstreaming biodiversity conservation

Shan Shui Conservation Center

Approaches: Policy-making & implementation | Technological innovation | Sustainable use

Targets: Forest | Grassland | Ocean and coastal | Freshwater & wetland | Mammals | Amphibians | Avifauna | Marine creatures | Freshwater creatures | Germplasm resource conservation

CASE INTRODUCTION

Nature Watch Project

Changes in land and ocean use are the primary cause of the loss of global biodiversity today. China has adopted many protection measures, including the establishment of a natural protection area system and the delineation of ecological red lines, which have effectively protected a large number of important ecosystems, wild animal and plant habitats, and genetic resources. However, due to the severe lack and non-transparency of biodiversity information, and the non-mainstreaming of biodiversity protection, there is still a large conservation gap: many important ecosystems and wildlife habitats are still outside the protected areas and have not been effectively protected by laws and regulations. In these areas and even in some protected areas, development and construction projects frequently damage nature, causing the loss of biodiversity and socio-economics, worsening the contradiction between development and nature protection.

Nature Watch Database and Conservation Institute Partnership

Through a comprehensive review of the country's endangered species, ecosystems, and protected areas, and data collection and structuring, a nature watch biodiversity database has been established; Initiated and operate the "Nature Watch Joint Action Platform" and the "China Snow Leopard Conservation Network" to jointly carry out nationwide field surveys to supplement species distribution data; A platform for biodiversity data display and public participation, a nature observation website and a nature observation APP have been launched.

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Biodiversity impact assessment and risk forecast

Through participating in the Yunnan green peafowl case and other biodiversity impact cases, and cross-border dialogue with planning, investment and environmental impact assessment, explore and summarize the application of biodiversity data.

Policy and public advocacy

Continue to pay attention to the fields of legislation, planning, investment and environmental assessment, and advocate the effective integration of biodiversity protection. Many policy recommendations have been submitted for laws and regulations,

the "14th Five-Year Plan", urban planning, and environmental assessment of construction projects.

The 2020 COVID-19 epidemic has triggered in-depth thinking and discussion on wildlife management and the ban on eating wildlife in the whole society. Shan Shui has jointly launched a policy advocacy for the amendment of the Wildlife Protection Law and a series of public propaganda and advocacy with a number of agencies.

Organized the "One Yangtze River" sustainable development forum to carry out cross-field dialogues on biodiversity conservation and finance.

The project collects and aggregates a large amount of baseline data on biodiversity, including distribution data of fauna and flora and protected area data, and establishes a structured database. 1985 species have been recorded, with more than 370,000 distribution data; more than 7 types of protected areas, a total of 1162 digital boundaries. Established a foundation for the application of data on scientific decision-making. The database has been updated through partnerships, covering 20 NGOs, 6 National Parks/Protection Area Administrations, 6 scientific research institutions, as well as companies and individuals.

A large amount of development and construction data has been collected, and 182,000 EIAs of construction projects have been extracted from more than 2.2 million EIA public information of construction projects. It provides a basis for understanding its spatial relationship with biodiversity protection and for early warning of projects that seriously affect biodiversity.

Practice the application of biodiversity data in the fields of planning, investment and environmental impact assessment, and develop data interaction tools to explore solutions for enterprises, governments and the public to recognize, query, and identify biodiversity impact risks.

Integrate data analysis and research, policy analysis and conservation practice, and promote biodiversity mainstreaming through cross-field cooperation and policy improvement in several areas that can play a preventive role in biodiversity loss through the release of research results and policy advocacy.

Promote transparency of biodiversity information

Through professional data collection and cross-industry applications, all sectors of society can obtain available biodiversity information, thereby supporting development and construction decision-making, preventing risks, and avoiding conflicts between development and conservation.

Promote and protect cross-industry dialogue and collaboration

By participating in actual practices, holding the “One Yangtze River” sustainable development forum, and conducting corporate training, we enable the biodiversity conservation community to conduct cross-field dialogues with ecological protection authorities, as well as in areas such as planning, investment, and construction, to jointly explore how to effectively incorporate biodiversity protection in related industries and achieve sustainable development.

Promote biodiversity conservation as a norm

By integrating and crystalizing protection events and practical experience, and actively carrying out policy advocacy, we promote the integration of biodiversity protection into policies and regulations in related fields, so as to mainstreaming biodiversity conservation.

100+ 生物多样性保护全球案例

100 Biodiversity Positive Practices and Actions Around the World

08

Sustainable Use

Peking University campus protected area
© Center for Nature and Society, Peking University

Biodiversity Action Plans - Hibiscus in West Africa

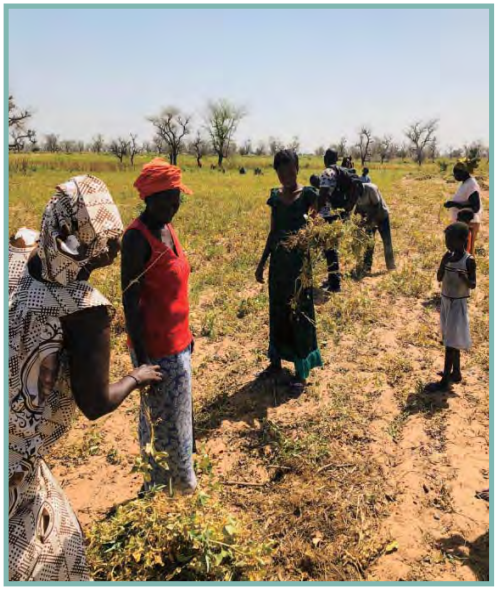
Union for Ethical BioTrade

Approaches: Sustainable use of biodiversity

Targets: Arid and semi-arid land

CASE INTRODUCTION

HIBISCUS IN WEST AFRICA
A Case Study
A Biodiversity Action Plan (BAP) provides guidance in designing and implementing concrete practices on sustainable use and conservation of biodiversity when growing and sourcing natural raw materials.
Hibiscus Hibiscus sabdiriffa var. sabdariffa
The FactsAn annual herbaceous shrub native to tropical and sub-tropical countries
Drought tolerant and able to grow in poor soil
Often cultivated in Nigeria in low-input, labour intensive multi-cropping systems on land previously farmed
Its swollen red calyces are considered a specialty botanical product
Used in the herbal tea and beverage industry
Leaves often used for animal fodder and fibre
Has labour intensive processing
Desertification
In this dry wooded savanna, some native tree species function to stop land degradation induced by human activities. However, non-native trees with an economic value were promoted as part of afforestation programs. These trees adapted easily and are now competing with the native trees.



The local ecological balance is at risk and increased desertification has become the most immediate consequence. Seasonal dry winds blowing from the desert do not face sufficient plant barriers, thereby causing soil erosion by blowing away soil particles and the nutrients that allow it to remain arable. Sand dunes are now visible in non-desert areas.
Goal 1: Improve soil conditions
Possible Actions
Compost or manure application on farms
Organic fertilizers such as compost and manure improve soil physical, chemical and biological properties.
Application of organic fertilizers increases soil organic matter content, a critical component of soil health as it contributes to the infiltration and storage of water, stabilizes soil structure,

improves nutrient cycling, limits soil erosion, and many more vital soil functions.

Natural farming practices

Implementation of intercropping, sometimes with legumes, as well as crop rotation and allowing the land to lie fallow after three years of cultivation, ensures nutrients are reintroduced in the soil.

No heavy machinery is used, ploughing is done with animals to ensure that soil structure and biodiversity are not under pressure.

SUSTAINABLE USE

Hibiscus is a source of income that can be grown in poor soil conditions.

However, desertification is threatening soil quality to the point that soil conditions may no longer be suitable for hibiscus to grow. Actions to improve soil conditions will ensure that soil health is enhanced and that crops are resilient in changing ecological conditions.

Goal 2: Protect biodiversity on and off the farm

Possible Actions

Prevent pests and diseases

Farmers reproduce their own seeds and use them the following year. In this process they take seedbeds sanitation measures to avoid the spread of diseases. An agronomist from the sourcing company supports farmers as needed.

Genetic variety is ensured since it contributes to increase plant resistance to pests and diseases. When one variety is not resilient enough, other varieties will compensate.

Reduce application of pesticides

Pesticides and chemicals are used only as a last resort. Implementation of Integrated Pest Management (IPM) is preferred. This includes prevention of pests and diseases, manual weed control, intercropping and the use of plant varieties adapted to local climatic and soil conditions.

Farmers also increase the presence of beneficial plants and insects by creating habitats for them in and around the farms.

CONSERVATION

Pesticides can damage pollinating insects that have a vital role in ecosystems.

Natural methods of pest control and prevention contribute to rebalance ecosystem structure, composition and function. They also enhance the resilience of smallholder and subsistence farmers, such as hibiscus growers who have limited access to external inputs.

Goal 3: Contribute to reforestation

Possible Actions

Plant native trees

Native tree species are selected for reforestation, which contributes to enhancing local biodiversity and slowing down the spread of non-native vegetation.

Indigenous species are planted on the farm to act as shade trees and to protect the soil from heavy wind and rain. They are also planted outside farms as vegetative barriers near water bodies, roads and forests.

REGENERATION

Native trees function as barriers for seasonal, dry wind coming from the desert and are useful in preventing the soil loss that leads to desertification. Re-planting these trees helps restore this function. Reforestation costs, in terms of land for farmers, are offset by crop resilience due to improved soil.

Coastal Carbon and Biodiversity Corridor (CCBC) program in Indonesia

Yagasu

Approaches: Sustainable Use | Access and benefit-sharing

Targets: Forest | Ocean and coastal | Flora | Mammals | Amphibians | Avifauna | Marine creatures | Mangrove fauna

CASE INTRODUCTION

The Indonesian coastal zone is rich in tropical marine ecosystems such as estuarial beaches, mangroves, coral reefs, seagrass, algal beds and small island ecosystems, as well as richness in species diversity. Spalding et al., 2010 mentioned that mangroves in Indonesia cover 30,000 km2, 21% of the global total mangrove area, and contain 39 species of the world's 75 species of true mangrove. As a result, Indonesia is known as the country possessing the most mangroves, both in terms of area and species biodiversity. Meanwhile, the most Indonesian population coming from various ethnic groups culturally living coastal zone.

The coastal life creatures and communities in Yagasu's program sites are in vulnerable condition due to climate change and sea level rise. The data series from Local Climate Institute was analyzed and showed the air temperature, air humidity, precipitation, length of sun radiation and wind speed in Northern Sumatra coast have significantly changed during the last 35 years. Annual air temperature increases 0.030C or 1.050C during last 35 years. Average precipitation increases 16.33 mm per year in which extreme rain frequently occur during last 8 years. Average wind speed also increases 0.03 m per second in which strong wind frequently coming in unpredictable time. In contrast, annual air humidity decreases 0.04 % and length of sun radiation also decreases 0.12% per year.

The serial data from Maritime Institution showed the average sea-level rise increases 0.71 cm per year or 24.85 cm during last 35 years. The maximum sea level can reach 2,7 m that occur in October - January. The real impact of extreme sea level rise combined with extreme weather caused the sink of community settlements.

The non-climate factors such as land-use change and deforestation in Coastal Green Belt (CGB) affected mangrove ecosystem significantly gone over 30 years. Yagasu's GIS analysis showed the CGB mangrove cover in Aceh province decrease 81% from 170,190Ha to 32,554Ha; in North Sumatra province the decrease is 79% from 286,704Ha to 60,880Ha; and in Riau province the decrease is 68% from 483,988Ha to 163,810Ha.

Combined climate change factors, sea-level rise vulnerability and non-climate factors (land-use change and deforestation) created impacts on the fragility of coastal ecosystem, flora/fauna and human life. This condition affected serious problems on: (1) frequent floods and coastal erosion; (2) loss of natural resources supporting subsistence of local economy; (3) marginalization and displacement of coastal population, food insecurity and loss of job opportunities (1.6 mM people live below poverty line in Northern Sumatra); (4) stress over water resources (saline water intrusion into freshwater aquifers causing the loss of clean water for 3,600 inhabitants; (5) unequal redistribution of income transforming public goods into single-use private resources (intensive aquaculture); and (6) totally

village lost and community settlement sink.

Indonesia is one of the developing countries that are most vulnerable to climate change because of having fewer social-, technological- and financial resources to adapt the climate exposures. People living in vulnerable villages with constant threat of natural disaster now face increased severity and possibly increased frequency of these events with all associated risks to life and livelihoods. The climate disasters result in loss of thousands human life and injured, destroyed settlements and agricultures, and caused people homeless and jobless every year.

Yagasu has developed a long-term program "Coastal Carbon and Biodiversity Corridor (CCBC)". The program sites stretch along the 2.034 km and cross 28 districts/towns in Aceh-, North Sumatra- and Riau province of Sumatra-island. The program is scaled-up to link a CCBC of East Java - Bali - West Nusa Tenggara and Est Nusa Tenggara coastlines.

The goal of program is to increase the management of coastal ecosystem for: (1) biodiversity conservation; (2) climate mitigation through carbon storage and sequestration; (3) natural disaster prevention from sea level rise and unpredictable climate events; and (4) green economic development for community welfare. The long-term target is to ensure the program contributing to the Indonesia coastal ecosystem's future ecological, social and economic development, and to the global GHG emission reduction.

Major activities concerning the practice include to: (1) conduct public engagement and awareness on biodiversity conservation; (2) support local communities in restoring the degraded mangrove ecosystem; (3) mobilize Community Patrolling Unit (CPU) to protect existing mangroves; (4) facilitate village government to set up Village Policy Initiatives (Village Land-use Plan - VLP, Mangrove Protected Area - MPA and Village Regulation - VR); (5) support local communities and women groups on Income Generating Activities (IGAs); (6) conduct various scientific research (carbon accounting, economic valuation of the ecosystem, CCB study and field assessment; and (7) align with Indonesian national policies on CBD, NDC and NPA.

Yagasu conducted >2.000 village- and district meetings and provincial workshops attended to socialize our program and build local commitment for long-term program.

Yagasu conducted 490 awareness and environmental education programs that reach 4,455 men and 6,345 women.

The program is participated by 32.400 local communities (57% women and 43% men).

Yagasu signed long-term agreements with 235 village governments and 298 community groups, and with 15 government institutions at provincial and district level.

Yagasu conducted training and provided capital, equipment and materials for local communities to operate the village business on organic mangrove "batik", mangrove eco-tourism, organic silvio-fishery, Nypa leaf business development, soft-crab farm, shrimp-paste production, mangrove food processing, dried/salted fish and other small village business;

Average income of local community increase 49% from 190 USD per family per month to 283 USD per family per month after 6 years program implementation.

A changing mindset from village "as business as usual" development into climate resilience village approaches that integrate various climate adaptive capacity of ecosystem resilience, social- and economic resilience and local institution development.

The program of CCBC will shift the village development paradigm from abastract concept into concrete actions, from conceptual plan into measureble activities and from macro concept into micro implementation.

ARK's Voluntary Restricted Zones

Association of Responsible Krill harvesting Companies, ARK

Approaches: Policy making and implementation | Sustainable use of biodiversity | Others

Targets: Ocean and coastal

CASE INTRODUCTION

The Voluntary Restricted Zones (VRZs) represent the main conservation effort from ARK companies to protect critical habitat for krill-dependent predators, manly penguins, during the summer season. The principle is to protect key breeding colonies of Gentoo, Adélie and chinstrap penguins during their most critical period: incubation and chick-rearing.

This voluntary measure is in line with the development of protected areas promoted by CCAMLR.

This measure, launch in July 2018, was proposed to improve the long-term sustainability of the krill fishery. The Commitment was initiated with support from Greenpeace, WWF and The Pew Charitable Trusts as a precautionary action whilst CCAMLR developed spatial management of the krill fishery in Area 48.

This voluntary measure protects the foraging ground of penguins breeding in the Western Antarctic Peninsula.

By precluding from fishing around these colonies during their more critical time of the year, ARK members are allowing for a successful nesting season for all the three penguin species nesting in the area of concern.

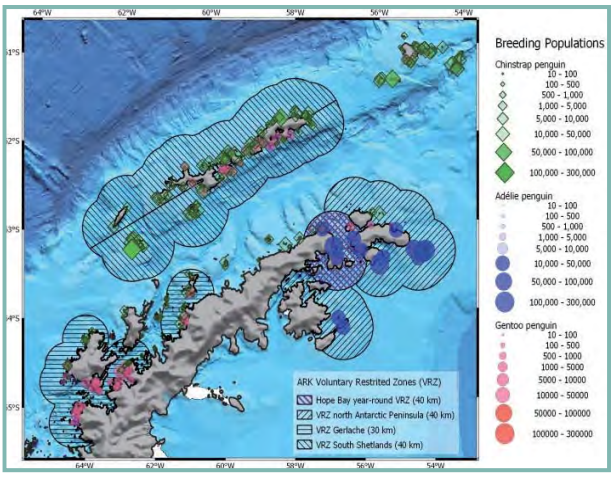
The VRZs protect breeding grounds of:

~50-55% of the breeding population of Adelie penguins,

~75% of the breeding population of chinstrap penguins, including large colonies (>10000 pairs),

Almost all Gentoo penguin breeding colonies, including all colonies greater than 3000 breeding pairs (~52% of the population in the region), in the Antarctic Peninsula area.

This measure also favours other predators during the summer season, such as the Antartic fur seal and whales.

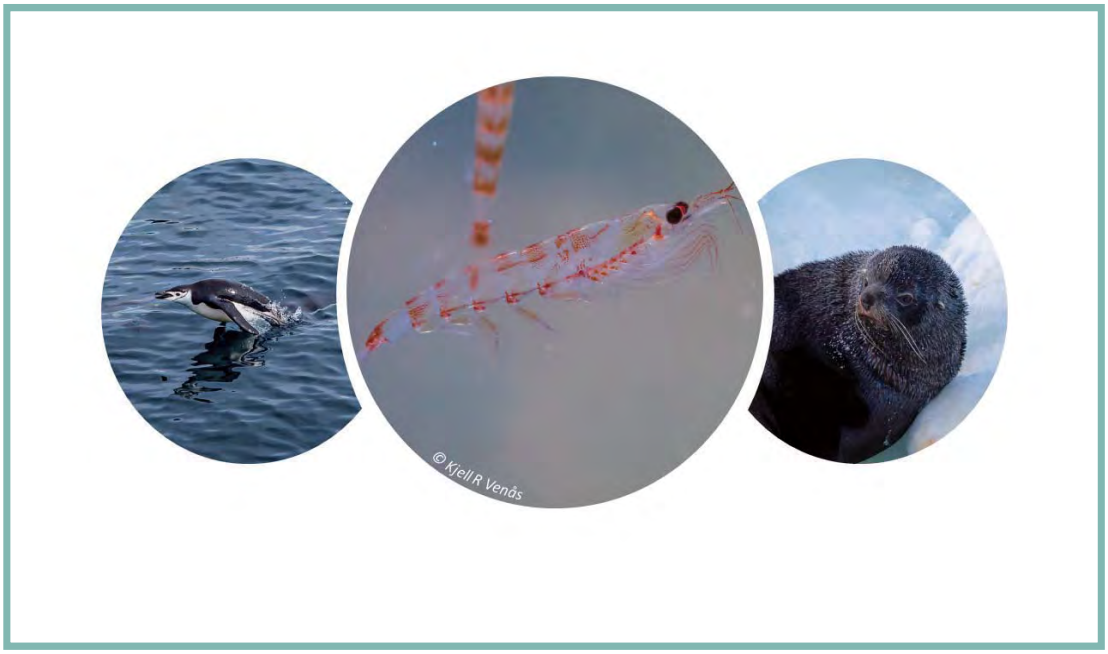


The VRZ is a voluntary measure established by the industry, in consultation with several NGOs operating in the Southern Ocean, to balance the rational use of the Antarctic krill, and the demands of natural predators during the most critical stage of their life history: reproduction.

The measure also provides relief to whales when they arrive to Antarctica, after months of fasting and are the most hungry.

This is the sole conservation measure in the Southern Ocean initiated and maintained by the fishing industry. Although similar regulatory measures had been tried elsewhere, none occur at this large spatial scale. At the same time, the inherent difficulties of bringing together 25+ Members within CCAMLR make this voluntary measure a win-win situation for conservation and the industry.

The VRZs have been notified to CCAMLR, the sole organization in charge of administration marine resources in the Southern Ocean. In addition, the initiative has been reported through social media platforms of Greenpeace, WWF, the PEW, ARK, and the subject of several news notes since its establishment in July 2018.



″Panda Forest Honey" boosts rural green development in the Giant Panda National Park

Beijing Shanshui Partners Co.Ltd

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Financial support mechanisms

Targets: Forest | Freshwater & wetland

CASE INTRODUCTION

Establishing a sustainable community development mechanism and achieving a win-win situation for ecological protection and local development is one of the important tasks in the establishment of the Giant Panda National Park. But in the giant panda habitat, the conflict between community economic development and ecological protection is very prominent. Among the national parks in China, it involves the largest population and the situation is the most complicated. There are many remote mountainous areas in the area, where residents' lives are closely related to and inseparable from forest animals. The current local industrial structure is single, dominated by resource-consuming industries such as mining and water power; the traditional resource utilization methods of community residents such as bamboo cutting, bamboo shoots, medicine picking, and grazing are restricted, and there are limited ways for the people to get rid of poverty. 16 of the 30 counties (cities, districts) were once China's integrated contiguous counties with special difficulties and national-level poverty alleviation and development key counties.

The reason behind difficulties of converting the advantage of biodiversity into ecological value is that at the community level, small farms have scattered production and operation, and their capacity and resources are limited; villagers have low risk resistance

capabilities, and it is difficult to invest in community co-creation when the product market prospects are uncertain. As a result, villagers have not benefited from ecology protection, and their awareness, willingness, and ability to protect are uneven.

In response to the above situation, Shanshui Partners focused on empowerment and linkage, improved the commercial capabilities of local cooperatives, established a mechanism for income support protection, and encouraged participatory protection actions, formed a virtuous circle of "good ecology-good products-good income-good communities-good protection".

1.Empower the Forest Cooperatives.

Empowering business capabilities: natural resources and community background investigation, product planning (panda forest honey, etc.), quality improvement and qualification acquisition, packaging communication, sales planning and sales resource docking.

Nurture the team: Organize trips to learn and exchange, establish a management mechanism, provide small supporting funds during the start-up period, and understand the government and public welfare resources that match the direction of rural development.

2.Accompany the Good Forest Community.

Improve community governance capabilities. 10% of the project's sales revenue will be given back to the community in the form of a "Community Protection and Development Fund", which will be managed by the villagers independently to improve the villagers' awareness, willingness and ability to participate in community public affairs and community conservation.

3.Spread the story of "Forest Kitchen".

Carry out concept advocacy and brand dissemination work for the urban public and consumers, and tell the ecology, community, and ecological protection stories behind the local ecological products.

4.Link "Forest Charity", discover their real needs in community charity and conservation together with protected areas and communities, and connect with urban volunteer resources.

A win-win case of coordinated conservation and development of Chaoyang Village Nature Reserve in Shaanxi

Chaoyang Village Zuoxi River Basin Nature Reserve

Approaches: *In-situ* conservation

Targets: Forest | Freshwater & wetland | Flora | Mammals | Amphibians | Avifauna | Freshwater creatures

CASE INTRODUCTION

Chaoyang Village is adjacent to the Changqing Nature Reserve. Local residents used to rely on agriculture as their main source of income. With the implementation of the national policy of returning farmland to forests, the area of cultivated land has decreased. At the same time, due to the high market price of game, many local villagers began to take hunting kits down the mountain to catch hunt wild boars to make money, while hunting kits often catch other wild animals. In addition, in order to catch wild giant salamanders, many villagers uncontrollably fished poisonous fish, resulting in a sharp drop in the number of giant salamanders and other fish and frogs in the river. With the improvement and implementation of the national protection policy, poaching activities in the village began to decrease. The villagers realized the importance of the ecological environment and independently established a protection center in 2017 to carry out infrared camera monitoring, native fish proliferation and release, bee breeding, nature education and other activities, which have attracted more and more villagers to join in the green industry and improved the cohesion and protection awareness of the community.

Chaoyang Village is located in Maoping Town, Yang County, Shaanxi Province, and is close to the core area and experimental area of Shaanxi Changqing National Nature Reserve. It is one of the

regions with very rich biodiversity in the world. This area is located at the southern foot of the Qinling Mountains, with elevations ranging from 700 to 2,400 meters. It is distributed with subtropical evergreen broad-leaved forests and warm-temperate deciduous broad-leaved forests. The forest vegetation is dense, with rich flora and fauna including Sichuan golden monkeys, giant pandas, Asian black bear, yew, and yew tree and other national key protected wild animal species, so the area has important ecological protection values.

Since Chaoyang Village established a protection center and carried out protection work,local villagers have been attracted to join the green beekeeping industry, and the protection awareness of the community has been gradually strengthened. In addition, the media and teams from outside the society also came to Chaoyang Village for interviews and visits many times to learn about the protection mode of Chaoyang Village, and deepen their understanding of ecological protection and the Chinese bee industry.

The Zuoxi River Basin Nature Conservation Center of Chaoyang Village is the first non-governmental protection organization independently established by villagers in Shaanxi Province. As a community around the reserve, it promotes the expansion of the habitat of giant panda outside the reserve.

Chaoyang Village Conservation Center, relying on its own rich natural resources and Chinese Bee industry, cooperates with multiple organizations to carry out nature education activities to bring continuous resource support and protection work to the community. This protection model can be well extended to better resource protection land.

12 years of practice and exploration of the “Two Mountains Theory” in Guanba Village, the hometown of panda

Guanba Watershed Conservation Center in Pingwu County

Approaches: *In-situ* conservation | Sustainable use

Targets: Forest

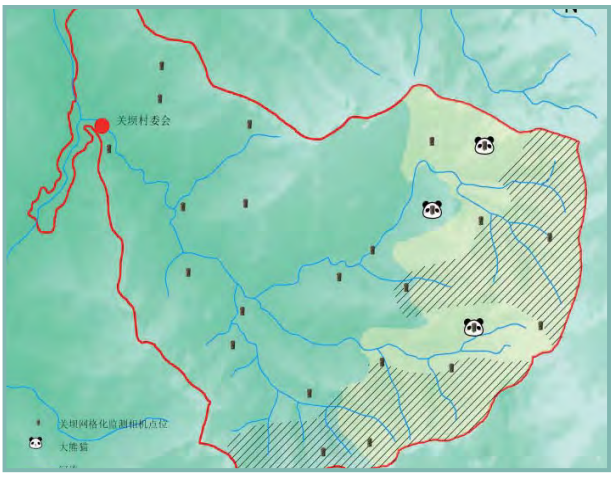
CASE INTRODUCTION

The village of Guanba is located in Pingwu County, which has the most wild pandas and is itself a corridor of several protected areas. Historically, it is because of the large number of pandas and the state of harmonious symbiosis with pandas that the aboriginal Baima people took the area centered on Guanba and deified the panda totem by calling it – the Great Tribe of the White Bear (the local name for panda) (literature available).

With the economy development, the phenomenon of human advancing and animal retreating has occurred worldwide, and the ancient reliance on mountain’s resources for survival has evolved into reliance on mountain’s resources for money. The number of wildlife has declined sharply, with large carnivores at the top of the food chain directly extinct, and the number of pandas, affected by habitat destruction, has not escaped the fate of continued decline.

Things started to change in 2009 when Shan Shui Conservation Center, through field research, started to use the "alternative economy" approach and supported the village to set up a beekeeping cooperative. The external support in terms of technology and branding helped villagers to benefit from an environmentally friendly industry. In 2009, Guanba

raised about 1,000 sheep, 100 head of cattle and 100 boxes of bees. As of 2013, beekeeping in Guanba has increased to about 1,000 boxes, sheep farming has decreased to only two families with more than 100 sheep, and there are less than 10 cattles; some local youths who have served in the military and worked outside and have seen the world started to return to their hometowns, and their gradual return has ensured the endogenous power of Guanba's sustainable development.



Subsequently, the conservation work reached from the cooperative to the village committees, and in 2016 the conservation center was established, and Guanba became the first autonomous reserve in Sichuan Province, while the village also set up corresponding cooperatives, to work on walnut and tourism.

In 2017 the Guanba Watershed Nature Reserve and the neighboring conservation unit, Laohegou, started the first joint patrol anti-poaching activities and through bumpy ordeals successfully completed the task. This activity has developed to become a large-scale activity of joint anti-poaching in Minshan region of two provinces and three counties, and the participating units include the surrounding national, provincial and county nature reserves as well as the village nature reserves around Guanba.

In 2018, Guanba became the first ant forest conservation area “without tree planting”. With the recognition of its conservation achievements, Guanba thought about how it could benefit from conservation - exploring nature education and beginning to practice it.

Angsai Nature observation Eco-tourism Pilot Project

Poverty Alleviation Ecotourism Cooperative in Niandu Village, Angsai Township, Zaduo County

Approaches: *In-situ* conservation

Targets: Mammals

CASE INTRODUCTION

In 2018, under the support of Ansai Management and Protection Station of Lancangyuan Park in Sanjiangyuan National Park, a wildlife-based tourism project called "nature observation" was launched. In this activity, herders act as natural experience guides, drivers and host families, leading natural experiencers to observation natural and cultural landscapes and experience pastoral life in Ansai Township. The project aims to celebrate and share the unique nature of Angsai valley and arouse the awareness of respecting and protecting nature to visitors from around the world. The project integrates natural protection with social development, so that local herdsmen can get real income, and intuitively realize that protecting a landscape in their hometown and caring for wild animals in the mountains will benefit the development of families and communities.

Beginning in 2018, the cooperative has cooperated with Shan Shui Conservation Center to carry out 5 comprehensive guide trainings for the selected 21 nature observation host families, and established a community management system, as well as project products including a distribution map of wildlife resources, and information on nature

observation host families, and designed the website: “valleyofthecats.org.cn” for the promotion and reservation of Angsai nature observation.

In March 2019, after an initial pilot phase, this project was approved by Sanjiangyuan National Park Administration and awarded the first ever community-based wildlife-observing tourism franchise inside a national park in China.

In the same year, four community members were elected as coordinators of the project. They are responsible for coordinating the nature observation project within the community. This step strengthened empowerment of the community and increased the effectiveness of the community management.

Importantly, 100% of the revenue from the wildlife tourism stays in the community. The revenue is distributed as follows: 45% to the host family, 45% to a community fund, and 10% to community-based conservation projects within the community.

By the end of 2020, 133 groups, 408 individuals had visited, raising 1,360,000 CNY in total for the community, 480,000CNY of which went to the community fund.

Shanshui assists the local community within Sanjiangyuan National park to operate the franchised nature observation project through capacity-building and support. At the same time, the community has been able to contribute to, and participate in, the establishment of the National park system in China. Meanwhile, community herdsmen establish direct cooperation with national parks, assist in establishing and perfecting the franchise system, and explore the optimal franchise system under the national park system.

Community marine conservation and restoration

Community of Arran Seabed Trust

Approaches: *In-situ* conservation | Law-related approaches | Public participation | Publicity and advocacy | sustainable use of biodiversity | Traditional knowledge

Targets: Ocean and coastal

CASE INTRODUCTION

The Firth of Clyde, on the west Coast of Scotland, was once one of the most productive fishing grounds in Europe. However, successive decades of poor management and overfishing led to a dramatic loss of biodiversity and the collapse of finfish fisheries.

In response, concerned local residents on the Isle of Arran, which lies in the middle of the Clyde, formed the Community of Arran Seabed Trust - COAST - in 1995.

COAST has always had a strong foundation in biological and ecological information. The data generated through citizen science and academic studies over the years has been key to empowering COAST and the Arran community to call for the establishment of the NTZ and the MPA and fisheries management measures.

After 13 years' campaigning, a small (2.67km^2) area in Lamlash Bay became Scotland's first no-take zone (NTZ) in 2008. This remains the only NTZ in Scotland and one of only four highly protected marine areas in the UK.

Further lobbying by COAST led to the 2014 designation of a much larger Marine Protected Area (MPA, 280km^2) around the southern half of Arran which also encompasses the NTZ. Continued lobbying by COAST led to much of the South Arran MPA being

protected from certain fisheries impacts in 2016. These fisheries management measures prohibit scallop dredging across the whole of the MPA, and trawling in all but three outer areas (which permit demersal prawn trawling). In addition, passive fishing gear (including nets, pots and lines) is prohibited in four areas to protect particularly sensitive habitats.

Evidence of seabed recovery from Lamlash Bay has supported the development of stronger protection for Scotland's MPAs, and COAST's conservation success has inspired other local communities around the UK, and further afield, to take the destiny of their coastal waters into their own hands.

COAST's purposes are:

To recover the health and biodiversity of the seas around Arran and the Firth of Clyde and to improve Scotland's marine environment.

To continue to work with the local community on the island of Arran and people of all ages and backgrounds to increase awareness of environmental issues, and press for effective management and recovery of Arran's coastal waters.

To build relationships with other communities and organisations at regional, national and international levels, to create a unified and stronger voice in support of promoting healthier and more productive oceans.

Our current work programmes are:

Marine Protected Area

South Arran MPA including NTZ - developing and implementing a community-led management plan.

Research - recovery of the NTZ and MPA, survey and monitoring of the MPA and NTZ, addressing the decline of fish in the Clyde.

Campaigns - effective MPA management, sustainable inshore fishing, salmon farming reform, climate change.

Consultation - responding to consultations on: MPA designation, national fisheries policy, marine and coastal planning issues, marine pen fish farming and other aquaculture applications.

Education and Outreach

Marine Discovery Centre: connecting people with the hidden marine world around Arran and further afield in Scotland. A wide-ranging awareness raising programme that includes activities and events for residents and island visitors. Visits from school groups and Arran Outdoor Education Centre groups.

Wider programme of education and outreach - work with Arran's community and schools, work with universities and marine organisations, production of marine education resources, promotion through local, national and international media.

Locally Managed Marine Areas in the Western Indian Ocean

CORDIO East Africa

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Policy-making
Financial support mechanisms | Sustainable Use | Traditional Knowledge |
Ocean and coastal

Targets: Marine creatures

CASE INTRODUCTION

A lot of our livelihoods and global economy comes from the sea, that we are a lot more conscious of that now as there is increasing pressure on land. In the 20 plus years since the Kuruwitu case study began operating, there have been improvements for the community and the marine ecosystem surrounding them. While significant, these improvements have been gradual and are reflective of the difficulties in incentivizing restoration of marine ecosystems which require long term interventions for crucial efforts to materialize into tangible progress. Some of the key impacts of CBNRM include improved fishery and tourism income, and coral reef health; greater community resilience due to improved social and economic assets; and a shift from community stakeholders to 'shareholders' who are able to derive primary assets and greater economic value from their fisheries.

Success factors have included co-management legislation and fisheries policy, for which government buy in and support are essential. Local ownership, facilitated by leadership and dialogue, has also been effective towards successful outcomes, and to long-term commitment. Sustainable revenue from primary assets has given communities greater incentive towards marine conservation as it enhances their livelihoods as well. Securing the initial capital investment needed to make the initiative viable was also essential, given that inadequate capital can be prohibitive to the off-take of small-scale projects of this kind. Finally, external interest from other communities and the recognition entailed in being a 'flagship' that can lend to scalable impact across small scale fisheries in Africa.

In the last 15 years, efforts to scale up have been successful where underpinned by capacity development, multi-level network building among community-based groups into local, sub-national and national fora, ecosystem approaches to fisheries, and embedding responses to climate change vulnerability for resilience. Besides the success factors at project level, scale up has also entailed inclusive leadership, training and capacity building among local communities to ensure sustainable fishing that foster controlled catches and coral reef health, participatory research which improves fishing methods for sustainability and climate resilience, and building learning networks for knowledge exchange.

Spillover of fish from the no-take zones into the fished areas, improving fish populations overall and consequently improving livelihoods.

Recovery (at least partial) of the coral reef fishery.

Restoration of biodiversity and reef health in protection and management zones, and including of peripheral areas such as turtles and nests.

Reduced dependence on subsistence fishing

promotes learning on community-based marine resource management for other

coastal areas.

Attracts other collaborators and partners such as civil society, government institutions to learn about the marine initiative.

Additional welfare and community support projects, improving community access to clean water, education and health facilities.

Increased revenue through alternative income generating enterprises and training, taking the pressure off the marine resource (e.g. fish selling/marketing, farming, tourism, locally made products and outlets).

Initiation of related projects like aquaculture and coral restoration

Potential for community loan scheme, potentially including e.g. dividend schemes from a percentage of profits from enterprise.

Promotion of income generating Women's groups

A change in gender attitudes in the community, as sitting together on a gender-balanced board is reported as having a broader significant impact.

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oDirect support of the rights of fisherfolk and the communities.

oFormation of a democratic system for marine governance that empowers communities to govern the use of their marine and coastal resources independently.

oOpportunities for improving value chains in market centers (e.g. nearby town Mombasa, Nairobi) who pay higher prices for fish caught sustainably.

oGender and marginalized groups strengthened through governance structures.

oFormation of a 29 ha NTZ and an inspiration to other BMUs who have subsequently established NTZs following this example.

oSolid foundation following an ecosystem-based approach using our 4 pillars (ecological, economic, social, governance) has led to the creation of the Co-managed area.

Initial capital investment: initial investment through varied sources, particularly donor funding is essential during the challenging scoping and establishment phases, and at levels adequate to maintain key functions such as patrolling and monitoring. However, this must be replaced by long term financial sustainability and viability, which is challenging to develop.

Sustainable livelihood development for the poor communities in the buffer zone of Phoutaxan Provincial Protection Forest

Lao Biodiversity Association

Approaches: *In-situ* conservation | Public participation | Traditional Knowledge

Targets: Forest | Flora | Mammals | Amphibians | Avifauna

CASE INTRODUCTION

This project was funded by Bread for the World from 2017 to 2019 in Nhnot Ou District, Phongsaly province in the northernmost of Lao PDR. LBA believed that to promote forest and wildlife conservation. The project was majorly consisting of two components: forest and wildlife conservation and livelihood promotion. For forest and wildlife conservation, LBA supported local communities to make forest management regulations such as patrolling plan, restoration strategy in each village. For livelihood promotion, LBA cooperated with District of Industry and Commerce Office (DOIC) to produce bamboo furniture in Tang village as the One District One Product (ODOP). This bamboo furniture is sold in the district, in the province and is exported to Chinese market. LBA also provided saplings, planting techniques and access to the market of cardamom for 185 households in 6 target villages and increased local families' income from LAK 30,000 per kilo to LAK 50,000 with an average income from cardamom of LAK 20,000,000 per year.

In the Ghot Ou District, there are 79 villages with 10 ethnic groups. The main group is Leu (35%), followed by Emien (16%) and Akha (17%). Around 8 villages, 240 households, total up to 1,148 women and 1,150 men participated in this project. LBA cooperated with District of Industry and Commerce Office (DOIC) to produce bamboo furniture in Tang village as the One District One Product (ODOP). This bamboo furniture is sold in the district, in the province and is exported to Chinese market. LBA also provided saplings, planting techniques and access to the market of cardamom and increased local families' income from LAK 30,000 per kilo to LAK 50,000 with an average income from cardamom of LAK 20,000,000 per year.

1.Classify grade and price of cardamoms, tea, bamboo shoots in accordance with the standard needed by buyers and.

2.Establish committee for goods price management to secure the goods price in accordance with thestandard set out.

3.Develop system for management of wildlife, forest and others via application (mobile, tablet) forconcerned work units at village and district levels.

4.Study rare wild vegetables and red mushroom with nutrition and medicinal value and encourage people to plant/grow in home garden for food security and conservation of wild vegetables.

Trella 100 Million Tree Initiative

Trella Urban Forestry Technology, LLC

Approaches: Public participation

Targets: Forest | Urban | Mountain | Arid and semi-arid land

CASE INTRODUCTION

To support a cleaner, healthier climate in China and globally, Trella will plant 100 million trees in China, beginning in the northeastern province of Jilin. Trella is partnered with the Forestry Bureau of Fusong County in Jilin Province to launch this ambitious project. From Jilin, Trella will expand the project to additional provinces, planting native species suited for the local climates.

Reforestation with native-only, site-adapted tree species used in mixed species forests, trees used on the project are local-native, grown from seed, used in mixed stands, and planted to match site requirements. Sites are planted with both conifer and deciduous species mixes to ensure a healthier soil ecosystem - microbiome of the root, mycorrhizae diversity, and health, resulting in stronger, healthier, more resilient growth and increased site carbon sequestration. All these features contribute to the biodiversity of the local forest and population.

Forest management methods favor development of a robust and diverse layer of small non-tree species to maximize forest resiliency, species diversity, and carbon sequestration. Forests growing with many species are healthier because diverse species

support greater numbers of soil dwelling species such as mycorrhizae, which help capture and distribute nitrogen to the trees.

Measurement of project site condition prior to planting to support a 'do no damage' policy to the existing forest, as well as the design of a robust planted forest restoration. Trees planted in restoration are all native to the area. Population density is managed for long-term survival and to follow the natural transition from pioneer species to late successional species over the course of decades. A self-replicating forest will result. The forest will not be harvested and will support an agroforestry system of Traditional Chinese Medicine (TCM).

Existing natural stand forests are supported through local-native planted forests. The soil ecology of the restored sites will more closely match that of natural forests than other agricultural systems. Greater numbers will live in the restored forest soil in greater volumes. Restored forests, with healthier soils, will sequester more carbon than single species plantation forests.

Seed-grown, local-native tree species are used. These trees support populations of native shrubs and small plants which in turn feed native insects and small animals. This cycle, supported by a healthy forest, supports the larger fauna of the southern Jilin's Changbai area, such as Eurasian lynx, Siberian tigers, and various species of bears. Managed to move the forest through its stages of succession, these trees are planted in mixed species stands, with TCM and other other diverse shrub and forb species growing in the sublayer.

Pingwu County, Sichuan- Use Biological Resources to Drive Ecological Poverty Alleviation

Chinese Research Academy of Environmental Sciences

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Policy-making & implementation | Financial support mechanisms | Sustainable use | Access and benefit-sharing

Targets: Forest | Flora | Germplasm resource conservation

CASE INTRODUCTION

Pingwu County is located in the northwestern part of the Sichuan Basin and belongs to Mianyang City, Sichuan Province. It is located in the upper reaches of the Fujiang River. It is extremely rich in forest resources, with a forest coverage rate of 74.58%. It belongs to the Sichuan-Yunnan forest and biodiversity ecological function area, and is an important ecological barrier area in the upper reaches of the Yangtze River. Pingwu County is extremely rich in biological resources. It is located in the priority area for biodiversity conservation in the northern section of Minshan-Hengduan Mountains. It is one of the top 25 biodiversity hotspots in the world. The county has two national nature reserves, Wanglang and Xuebaoding, and Xiaohegou provincial nature reserves and three other types of nature reserves. The total area of the protected area is 1,460km2, accounting for 24% of the county's area. The county covers an area of 5974km2, governs 7 towns, 13 townships, and 248 villages. There are 20 ethnic groups including Han, Tibetan, Qiang and Hui, with a total population of 186,000. Pingwu County is a poverty-stricken county where the Qinba Mountains are concentrated in contiguous and extremely poor areas, the "5•12" Wenchuan earthquake extremely hard-hit area, minority areas, old revolutionary areas, remote mountainous areas and national key ecological function areas "six districts in one" impoverished county.

Due to the superposition of factors such as remoteness, frequent natural disasters,

and lagging development, Pingwu County has been facing special difficulties such as poor infrastructure, slow industrial development, weak livelihood security, and few income-increasing channels. It is a typical poor county with many disasters, poor conditions, weak foundation, and underdeveloped county. In July 2011, it was included in the key counties for poverty alleviation and development in the concentrated contiguous areas of Qinba Mountain. In 2014, the county identified 6896 poor households with 19,543 people, and 73 poor villages, with a poverty incidence rate of 12.8%.

Based on the high proportion of its nature reserves, Pingwu County actively innovated green development approaches, gathered multiple efforts, and cooperated with the TNC Sichuan and Alibaba to explore an ecological public welfare poverty alleviation model. At the same time, relying on the advantages of giant pandas, Pingwu County has expanded its brand, developed ecological products such as panda honey, increased farmers' incomes, and built a panda town with folk custom features, which promoted tourism-based economic development and achieved a win-win situation between biodiversity conservation and green development, leading local people on the road to poverty alleviation.

In terms of biodiversity protection, through bee farming, things like herbicides, fertilizers, chemical pesticides, etc. are forced to withdraw from agricultural production and non-point source pollution curbed in rural areas

Take the Guanba Nature Reserve as an example. After the implementation of the project, the number of rare animals such as golden snub-nosed monkeys and takins has increased significantly, and species resources have been enriched. The number of cattle and sheep has dropped by 83%, and environmental quality and ecological functions have been improved. Through e-commerce platforms and other new technologies in the Internet era, the public can understand the rich products and natural resources in Pingwu, so that every consumer has the opportunity to participate in ecological governance and protection, thereby improving the effectiveness of ecological environment protection. The development of eco-agriculture and eco-tourism reduces the interference of economic activities on the ecological environment. In particular, the "Pingwu Zhongfeng+" poverty alleviation model can not only effectively use the natural resources in the nature reserve, but also promote the formation of seed plant species diversity in the natural ecosystem, the protection of rare plants, the maintenance of ecological balance, and the ecosystem Recovery.

Conservation and Sustainable Utilization of Biodiversity in Qiandao Luneng Resort

Hangzhou Qiandao Lake Travel Company of China Green Development Group (CGDG)

Approaches: Sustainable use

Targets: Freshwater & wetland

CASE INTRODUCTION

Social and cultural background: As the practice base of "Two Mountains Theory" and the first ecological special zone in Zhejiang Province, Chun'an County aims to build on the characteristics of its own, strengthen ecological functions, and strive to achieve the overall goal of enriching people and common prosperity through the development and upgrading of deep green industries. ; Chun'an County has many mountains, vast open waters, beautiful natural environment, and has traditional genes for hosting bicycles, marathons and other events. The 2022 Hangzhou Asian Games Chun'an Asian Games Sub-Village is located in the Qiandao Luneng Resort of Jinshanping Block, which is expected to take advantage of the Asian Games. Opportunity to create an international leisure and holiday tourism destination, and promote the transformation and upgrading of the tourism industry in the Southwest Lake District.

Natural geographical background: The project site is located on the Jieshou archipelago, which extends into the lake as a whole in a finger shape. The lakes and islands are alternately arranged, the harbors are intricate, the shoreline is tortuous, the unique spatial texture of the islands, including mountain forests, mountain bays, island chains, inner lakes, peninsulas and other spatial elements, has excellent landscape environmental resources; The water quality in the area is excellent, reaching the national Class I surface

water standard; The native vegetation in the area grows well, the economic fruit forest is relatively rich, the soil is red sandy soil, which is relatively acidic, easy to weather, and there is some bare land, which requires a certain degree of ecological restoration; The daily observable animal and plant species in the base are still abundant, especially birds and fish.

The way to solve the problem: follow the ecological survey consultation report of the Institute of Zoology, Chinese Academy of Sciences and the Protected Area Friendship System Research Group, take the two-mountain theory as the guiding ideology, and follow the principle of "protection first and ecological development" to fully assess the ecological carrying capacity On the basis of restorative green development, establish an ecological Wuyou Township in the way of "symbiosis-connection-sharing", and propose seven ecological improvement plans: seed plan, color plan, ecological interconnection plan, sponge plan, integrated habitat construction plan, animal restoration and conservation plan, and ecological operation plan. Landscape restoration, water system management, biodiversity protection, ecological operation and other dimensions, to systematically optimize and sustainably use the ecological resources in the base, as to build ecological restoration display bases, nature education practice bases, etc., and implement the concept of green development in an entertaining way.

The land area and water area of the Qiandao Luneng Resort Project are 6,300 mu(~420 hectares) each, retaining the relatively complete ecological value system of the Jieshou Islands in the Southwest Lake District. Qiandao Lake is the most important strategic water source in East China, providing high-quality drinking water for the East China region, and an important leisure tourist destination and a source of organic fish for the people of the whole country and the world.

The project is located within the 25th area (Huangshan-Huaiyu Mountain) of the priority area for biodiversity conservation in the "China Biodiversity Strategy and Action Plan" (2011-2030), which has important ecological protection value; As an important habitat, there are currently 179 species of birds recorded; at the same time, it is an important freshwater fish base in Zhejiang Province, with 114 species of fish resources recorded in various forms. The species resources of birds and insects are abundant. The black-eared kite, a Class-II national protected animal, is extremely common in the region.

100+ 生物多样性保护全球案例

100 Biodiversity Positive Practices and Actions Around the World

09

Genetic resources and benefits sharing

Protection and restoration of water sources in the middle South-North water diversion route
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Conservation and utilization of biodiversity and traditional ecological culture of Naxi nationality in Jinsha river watershed

Nanning Green poverty Alleviation Service Center

Approaches: *In-situ* conservation | Sustainable use | Access and benefit-sharing | Traditional knowledge

Targets: Germplasm resource conservation | Fair and equitable sharing of the benefits arising out of the utilization of genetic resources

CASE INTRODUCTION

Located between Qinghai-Tibet plateau and Yunnan-Guizhou plateau, the mountainous area of northwest Yunnan is the most abundant area with landscape ecosystem and biological culture in the world. Jinsha River basin in northwest Yunnan is not only a hotspot area of biodiversity, but a gathering place of multi-ethnic cultures. Naxi people, who settled and farmed along the dry-hot valley of the Jinsha River in Lijiang, Yunnan province, have created a remarkably efficient mountain farming system lasting for thousands of years. They enjoy the unique Dongba culture and belief tenacity and creative vitality of the mountain farming system.

However, according to the result of the baseline survey on agricultural biodiversity conduced by Stone City Village and nearby villages of Yulong township, Lijiang, Yunnan province in 2013, the number of traditional crops and farm species planted by local farmers has gradually declined over the past twenty years. Also, the number of varieties that farmers used to save and replace by themselves is gradually reducing, and the shortage of crop varieties makes agricultural production and farmers' livelihoods vulnerable to climate shocks such as drought and delayed rainy season. Other Naxi villages in Jinsha river

basin also face the similar problems.

Earlier in 2014, Stone City Village set up the seed selection team with farmer participation. With female as the main force, the village intended to play their active role in the protection and utilization of seed and food diversity. It also relies on the inheritance of traditional ecological culture by the elderly in the community to call for more youngsters to return home to join in the activity. Assisted by Kunming Institute of Botany, Chinese Academy of Sciences, Guangxi Academy of Agricultural Sciences, Yunnan Agricultural University and Nanning Green Poverty Alleviation Service Center, the seed selection team with farmer participation cooperates with breeders in the area of seed selection and production. Besides, they have increased the diversity of seeds available in village by way of the establishment of community seed bank, seed field, participated breeding and seed resource registration.

The protection and utilization of agricultural biodiversity and traditional ecological and cultural knowledge in Jinsha River Basin stems from Stone City Village and has been gradually expanded to Wumu village, Labo village and Youmi village in the same basin. They started from seed protection and utilization, and gradually extend to include agricultural biodiversity protection and sustainable utilization of traditional ecological and cultural knowledge protection and the inheritance of Naxi Dongba cultural conservation, etc. In 2016, the villager communication platform named "Naxi mountain community network in Jinsha river basin" was founded for the purpose of sharing experience and knowledge on the conservation and utilization of agricultural biodiversity and traditional ecological culture.

China Ecological Smallholder Alliance Wolong Project

Shenzhen Yantian District Laotu rural ecological and cultural service

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Traditional knowledge

Targets: Forest | Farmland

CASE INTRODUCTION

Wolong National Nature Reserve is home to over 50 kinds of animals, 300 kinds of birds and 4,000 kinds of plants, also home to over 5,000 residents from nationalities of Tibet, Qiang, Hui and Han from generation to generation. The majority of the local residents in the area are not well educated, and more than 90% of the locals still live a traditional life of farming and herding.

Wolong attracts a large number of eco-tourists per year thanks to its outstanding natural resources and world-famous brand "giant panda". There are many high-end activities such as bird appreciation and study visit. Since local residents lack awareness of local resources and fail to realize their real ecological value, there is almost no opportunity to participate in such high-end activities with high ecological value. They can only provide basic services like cheap accommodation and catering. The main operators are external in terms of the kinds of activities including giant panda and bird-watching in Woolong. Therefore, local residents do not have many opportunities to obtain ecological benefits, and they are not enthusiastic to participate in the protection.

China Ecological Smallholder Alliance Wolong Project focuses on the Wolong National Nature Reserve, combining environment, culture, education and economy and balancing the conflict between protection and development. It thus helpful to alleviate the loss of

Chinese local and national culture. So, we call for more community residents in cities and rural areas to join in the protection of biodiversity.

In fact, we aim to support farmers in the surrounding communities of Wolong National Nature Reserve to try organic ecological agriculture, promote the influence of local culture highlighting music, enhance the advantages of local ecological tourism, culture, agriculture and tourism resources, and introduce high-quality resources at home and abroad to meet diversified consumer demands. Besides, we will foster local kids to gain cultural self-confidence and recognition, as well as realize the importance of participating in the protection of local biodiversity by compiling local textbooks.

Since September 2018, the practice has been conducted in Wolong Nature Reserve in the form of sharing meetings and field research to explore the possibility of designing a set of ecological agriculture practices and promotion methods based on local conditions. Meanwhile, courses and other product lines, operated in the mode of social enterprises, offer opportunities for preliminary research of projects so that villagers can obtain more direct benefits. Since 2019, the project group has been in Wolong community. They visited villages and fields, and co-worked with grass-roots government staff to comprehensively surveyed the agricultural problems confronting villagers in various aspects, such as the development of local agriculture, the market trend of traditional crops, diseases, insect pests and agricultural products. They improved the existing official reports and research content by field investigation, sorted out the old varieties of traditional characteristic crops, exchanged views with agricultural experts, and set up the blueprint of ecological agriculture in Wolong.

The exploration on sustainable use of natural resource as cordyceps sinensis in three-river source region—practice in Tuanjie village, Malai county, Qinghai province

Beijing Fuqun Social Service Center

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Policy-making & implementation | Sustainable use | Traditional knowledge

Targets: Grassland

CASE INTRODUCTION

Crowned as "China's water tower", the three-river source region is the hot spot area with biodiversity in plateau worldwide. It is located in Bagan township, Qumalai county, Yushu prefecture. Besides, it is China's main water source and an important ecological security barrier, also the production area of Cordyceps sinensis, one of the unique rare species in Qinghai-Tibet Plateau.

Over the past two decades, excessive unscientific cordyceps harvesting has damaged the alpine meadow ecosystem, while the number of cordyceps has dropped significantly. Over 75% of the average income of herdsmen comes from cordyceps. As soon as cordyceps resources are exhausted, the livelihood of herdsmen will be seriously affected in the future.

A large number of foreign cordyceps harvesters, within a short period of time, destroy vegetation, disturb wildlife and their habitats, and bring an increase in non-degradable plastic waste. Local cattle and sheep often eat garbage which causes disease and death, and part of the garbage are burned in open area, bringing harm to people's health. Part of the garbage are directly poured into the river, which would harm aquatic life and water

safety.

Since 2016, Fuqun has started to build the model of natural protection and sustainable development with local community and government centering on the natural resource of cordyceps, which is closely related to the benefits of local residents.

1. Balance the stakeholders and build the partnership among three parties

Conduct basic research on the resource of cordyceps teaming up with the scientific research group from Chinese Academy of Sciences and support local government to manage the basis of cordyceps along with herdsmen in communities;

Form the three-party mechanism of communication, cooperation, monitoring and motivation among community, government and experts.

2.Respect and highlight the major status of native residents and local communities and safeguard the balance between protection and development

Convene the seminar on the sustainability of cordyceps and alternative livelihood among herdsmen in Qumalai county and help community reach the consensus on how to improve the cordyceps management policy and advance the scientific digging;

Make flexible use of local cordyceps management policy and limit foreign personnel in digging cordyceps

3.Develop sustainable alternative livelihoods to reduce herdsmen's over-dependence on cordyceps resources

Fuqun has gradually set up the mechanism suitable for the sustainable development of community by helping improving the local ecological experience

CHANDO Grass planting in Himalayas

JALA Corporation

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Financial support mechanisms | Technological innovation | Sustainable use

Targets: Forest | Grassland | Mountain | Dry and sub-humid land | Flora | Germplasm resource conservation

CASE INTRODUCTION

CHANDO, a naturalistic brand from the Himalayas, is the core brand of Jala Group. Adhering to the original intention of the brand charity of "take from nature and give back to nature", CHANDO has always regarded protecting the ecological environment as an important corporate social responsibility. The "CHANDO Grass Planting Himalaya" public welfare activity has been carried out for five years, turning 3.66 million square meters of desert land into oasis, which has played a positive role in promoting the sustainable development of the region, and has received attention and affirmation from all walks of life. Since 2009, the Jala group R&D center has been conducting sustainable scientific research on water, plants, microorganisms, minerals, colors, and breath in the Himalayas. Up to now, 836 natural products, 524 new strains of bacteria in the Himalayas have been investigated and studied, a tissue culture system for 6 medicinal plants has been established, and an information database of Himalayan resources has been established to develop Himalayan resources and develop regional biology. Diversity protection provides a scientific reference.

Around this purpose, since 2017, the CHANDO Himalaya Environmental Protection

Fund has continued to carry out the "Grass Planting in the Himalayas" activity, assisting the control and prevention of desertification in Tibet through grass planting. With the guidance and liaison help of the Environmental Protection Department of the Tibet Autonomous Region, the first project of the CHANDO Himalaya Environmental Fund was launched in Yadong County, Xigaze City, Tibet Autonomous Region. As of August 2021, the CHANDO Himalaya Environmental Fund has donated a total of 20 million yuan to support the planting of 3.66 million square meters of grass in Yadong County, Nanmulin County, and Lazi County, Xigaze City, Tibet Autonomous Region. In addition, CHANDO has also successively carried out public welfare projects such as plant diversity protection and poverty alleviation in the local area to help the region's prosperity and development.

Facilitate desertified land governance. Prior to the start of grass planting, the public welfare lands were all desert lands. After CHANDO started grass planting, 2.66 million square meters of desert land has been turned into green grass, which can play the role of windbreak and sand fixation, water conservation, and restoration of some desertified areas

Increased agricultural land area. Grass is beneficial to the field, turning the roots of grass into the soil can increase soil fertility and improve soil structure, thereby turning wasteland into arable land. In 2019, CHANDO planted 1 million square meters of grass in the east of Aima Township, Nanmulin County, which brought significant green manure effects to the land. After the green is harvested in 2019, the land will be replanted with potatoes in 2020 and successfully converted into arable land, further improving the economic benefits of the land.

Recognizing indigenous people rights to ensure the effective conservation of the biodiversity hotspot in Veun Sai Siem Pang National Park

Non-Timber Forest Product (NTFP)

Approaches: *In-situ* conservation | Public participation | Access and benefit-sharing | Traditional Knowledge

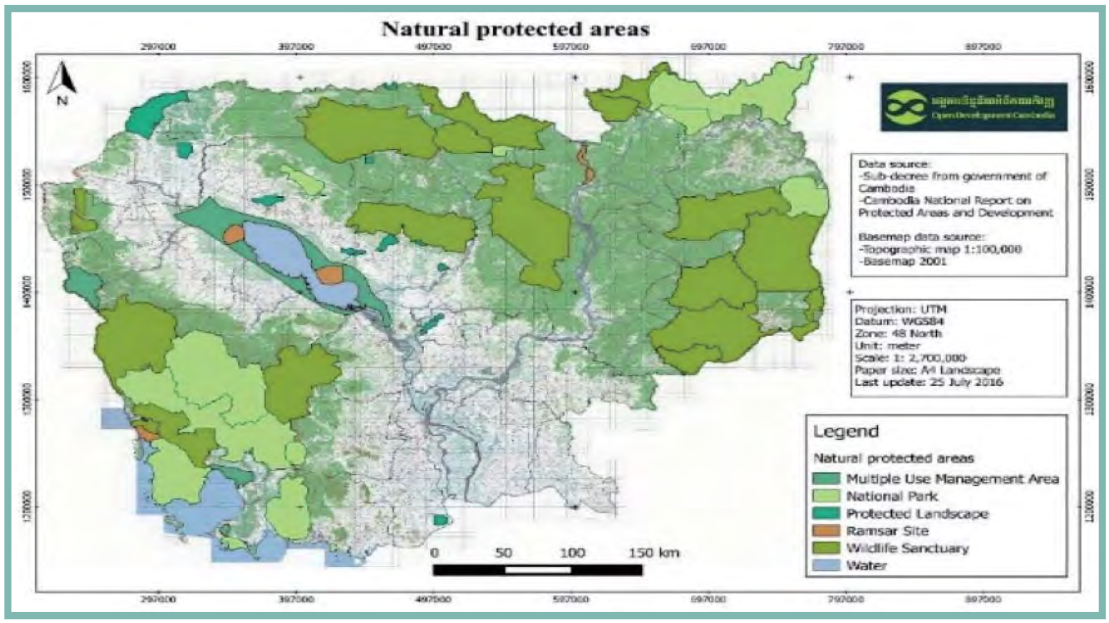
Targets: Forest | Flora | Mammals | Amphibians | Avifauna | Others

CASE INTRODUCTION

Annamites Mountains is located at the border of Cambodia, Laos and Vietnam and is one of the largest intact block in Southeast Asia. However, this area receives very little attention from the international conservation parties.

The forest in this region has undergone a continuous assault of predation for 25 years including illegal logging, poaching, wildlife trafficking and population pressures. Unsustainable demand for high-value rosewoods and wildlife were a major driver of forest and biodiversity loss. Ecosystem services have declined in the whole region in particular the forest products on which the Indigenous People depend on their food security have become scarce. This project took place in Veun Sai Siem Pang (VSSP) National Park in northeast Cambodia bordering Laos and Vietnam. The VSSP National Park is 57,469 hectares and 84.3% of the area is evergreen forest. It buffers the Virachey National Park (3,325 km2) and Western Siem Pang National Park (1,320 km2) and these three national parks form a forest block stretching over 5,220 km2 in Cambodia and continuous to protected areas in Laos (Xe Pian, 2,400 km2) and Vietnam (Chu Mom Ray National Park, 566 km2), which is one of the largest blocks of intact forest in Southeast Asia.

The VSSP National Park is home to more than 10 Critically Endangered Species, 250

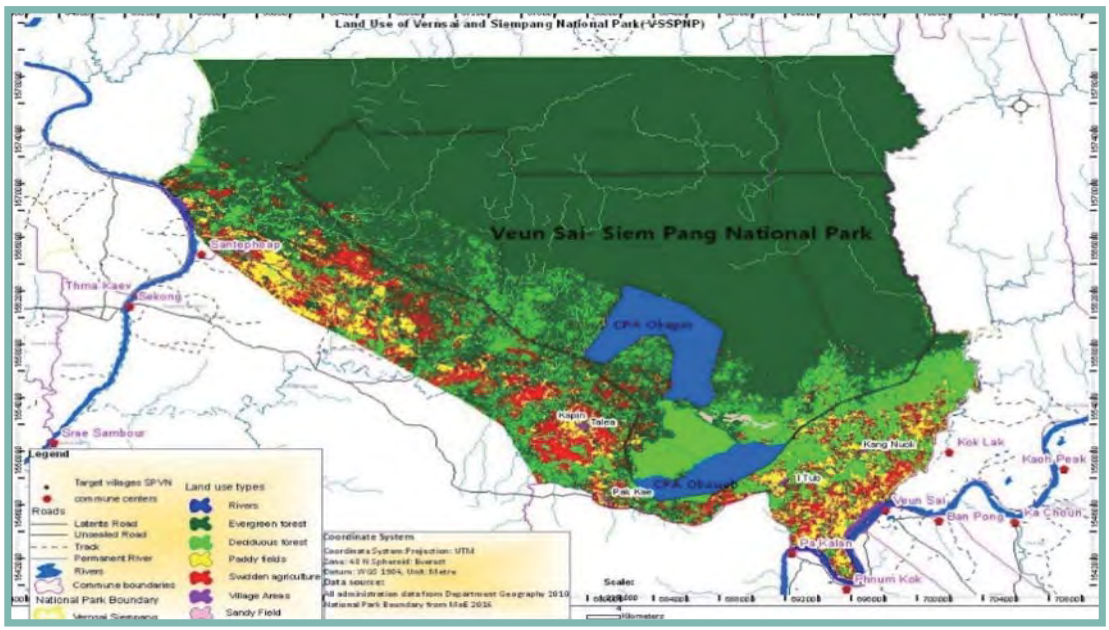


species of mammals, reptiles, amphibians and birds. The Non-Timber Forest Products (NTFP) is the only conservation NGO based in the Northeast Cambodia and the head office is located just 45 km from the VSSP National Park and indigenous villages. NTFP initiated conservation at VSSP forests through community engagement and environmental education. Its strategy is to address the isolation and vulnerability of the VSSP National Park by engaging Indigenous Peoples in forest resource management. The project obtains official recognition of community protection for VSSP National Park with the establishment of two Community Protected Area and collaboration between local communities, and contributed to reduce illegal forestry and maintain gibbon population in VSSP forest.

This project helped to officially establish VSSP National Park in 2016, consisting of 84.3% of evergreen forest and 13% of deciduous and bamboo forest and extensive upland savannahs.

NTFP also mapped Spirit Forests/ Sacred Sites of the 5 indigenous village with a total area inside VSSP National Park and in the buffer zone of 18.567 ha. 75% of the VSSP National Park was managed by local rangers from the 5 indigenous village.

The Montagnards Lao (2 villages, Backae and Itub), their villages are very old, their ethnic group is also found in Laos. They trade with the outside since at least the 19th century because they are very close to the inhabitants of the chief town of Veun Sai, mainly inhabited by a Chinese community since 1880. The wealthiest people in these two villages have been heavily involved in illegal logging and wildlife trade, through their connections with district and province-wide traders and businesses.



100+ 生物多样性保护全球案例

100 Biodiversity Positive Practices and Actions Around the World

10

Traditional Knowledge

Protection and utilization of biodiversity and traditional ecological culture of Naxi community in Jinsha River Basin
© Nanning Green Seed Poverty Alleviation Service Center

Local actions of Nyanpo Yutse biodiversity conservation

Nyanpo Yutse Conservation Association

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Technological innovation | Sustainable use | Traditional knowledge

Targets: Flora | Mammals | Amphibians | Avifauna

CASE INTRODUCTION

1. Biodiversity survey and monitoring: Over the years, the association has led local herders to survey and monitor the distribution and changes of wildlife species, wetlands, rivers, lakes, glaciers and snow-capped mountains within more than 2,000 square kilometers of Nyanpo Yutse. There are at least 620 plant species, 300 fungal species, 42 animal species, 180 bird species, 220 insect species, 9 amphibian species, 1 reptile species, and 5 fish species in the various habitats of Nyanpo Yutse.

2. Local conservation of endangered species: Nyanpo Yutse, located on the eastern edge of the Qinghai-Tibetan Plateau, is home to many rare and endangered wildlife species, including the national Grade I protected animal snow leopard, the Grade II protected animal otter, the endemic species of the Tibetan Plateau Tibetan bunting, and the plant Meconopsis barbiseta, which is found only in Nyanpo Yutse. The association works with scientists to investigate the survival of these endangered species, mobilize local herders, and establish species protection plots.

3. Nature Education: the association combines traditional culture and scientific knowledge, and works with monasteries, schools and conservation organizations to provide targeted nature education activities for nearly 2,000 local students and ordinary people in Nyanpo Yutse each year. The main activities include taking elementary school students from Baiyu Township to participate in the "Children of Flowers" program every summer, inviting

nature conservation experts to give lectures, and holding dialogues and forums between scientists and Buddhist monks to spread the concept of nature conservation to the outside world.

4. Collection, collation and conservation of traditional culture: In cooperation with monks and scholars familiar with traditional Tibetan culture, the association has organized the collection and collation of traditional culture related to nature conservation, and has officially published "Landscape Culture of the Tibetan Plateau (Nyanpo Yutse Chronicles)", an encyclopedia of the bio-cultural diversity of the Nyanpo Yutse region.

5. The association trains local herders how to use the camera, filming from the perspective of local people to record the environmental and cultural changes that are taking place. Nearly 50 documentaries have been produced, including "Yak Dung", "Tibetan Bunting", "My Himalayan Vulture", etc. It has greatly promoted the public's understanding of the concept of nature conservation in Tibetan areas, while increasing the pride of the local people and promoting their more active participation in protecting the sacred mountains and lakes in their hometown.

6. Nature conservation capacity building: With the association's support, more than 20 nature conservation groups have been incubated and developed in Nyanpo Yutse and its surrounding areas, such as the From Our Eyes Filming Group, the Black-necked Crane Women Conservationists Group, and the Meconopsis barbiseta Conservation Group. The association has provided capacity building training for these groups to help them improve their professional conservation skills and gain more outside support and assistance.

China water source Protection Plan

Qinghai Sanjiangyuan (the Source of the Three Rivers) Environmental Protection Association (SEPA)

Approaches: *In-situ* conservation | Public participation | Publicity & advocacy | Financial support mechanisms | Sustainable use

Targets: Grassland | Freshwater & wetland

CASE INTRODUCTION

The Qinghai-Tibet Plateau is home to the Yellow River, the Yangtze River, the Lancang-Mekong, the Ganges, the Indus and other famous rivers running through the six countries. These great rivers are the source of life for billions of people in China and Asia. The sanjiangyuan region is densely populated with rivers, lakes, swamps, snow mountains and glaciers. It is the region with the highest altitude, the largest area and the most abundant wetland types in the world. The water resources in sanjiangyuan affect the fresh water resources of nearly 2.1 billion people in Asia. Due to climate change and garbage pollution, the sanjiangyuan region is facing serious problems such as glacier and wetland retreat, water source drying up, land desertification and soil erosion, posing serious threats to ecological security. Sustainable water source protection is of vital importance.

Association took the scheme of "local nomadic rural community water comprehensive protection", to do research and analysis, to participate in the community discussion, to establish water resources co-management mechanism, to set up water protection fund, development of ecological service of community economy and community community innovation education for the contents of the comprehensive protection scheme, covering monitoring collection, public participation, livelihood development, community education aspects, Form water source protection with high comprehensive degree, high participation

and sustainability.

(1)Comprehensive investigation of community water natural resources. Since 2016, the association has investigated the water sources of the Yellow River, The Yangtze River and the Lancang River. It has investigated a total of 10,000 water sources and collected 6,670 water source information, which is the only large-scale water source investigation of the three rivers so far. According to the survey, more than 940 water sources and 30 small lakes dried up, the thickness of the snow mountain decreased by 6 meters and the snow line rose by 72 meters. A total of 120 water source stories were collected. 2330 people participated in water source protection, and more than 40 people collected water source information.

(2)Water resources protection with community as the main body. 8 communities in the three-river source area have set up more than 60 public welfare water resources protection, and have formed a joint management committee, natural resources in the five community established water conservation fund, total amount of about 500000. Community members shared commitment to fund the water source of revenue for each regular cleaning rubbish, cleaning water each year about 285000 mu in 460 tons of garbage.

(3) Sustainable water conservation with a balance between development and conservation. Water protection culture education and water quality monitoring training were conducted in the communities of water supply areas, and 48 important water sources were restored with cultural restoration methods conducive to water source protection. On the basis of following the ecological protection, the local water protection culture will be transmitted, the achievements of water resources protection will be displayed, and the development of tourism and handicrafts will improve the livelihood of local communities.

Practical actions for the protection of biodiversity in the natural sanctuary in the source area of the Yellow River

Yuanshangcao Nature Conservation Center, Qinghai Province

Approaches: *In-situ* conservation | Public participation | Sustainable use | Traditional knowledge

Targets: Grassland | Freshwater & wetland | Mammals

CASE INTRODUCTION

In 2016, since the foundation of Yuanshangcao Nature Conservation Center, we have made it a work strategy to bring the concept of "cultural landscapes" (IUCN-UNESCO, 2008) and "natural sanctuary" to the source area of the Yellow River in Qinghai. Based on the educational background of the core members of the organization, we started from two dimensions: scientific ecological monitoring and traditional ecological culture. Relying on the cultural system established by the Tibetan herders who have lived in the area for generations, and through scientific research, public advocacy, and community empowerment, we are working to achieve the goal of protecting the flora and fauna of the Yellow River Source natural ecosystem and its ecological service functions. The special geographical location makes the Tibetan Plateau a hotspot for monitoring the global ecological balance. Our organization not only pays attention to the special ecological status of the Tibetan Plateau, but also incorporates the unique culture of this region into our conservation practice, trying to establish a harmonious relationship between people and the natural environment, people and wildlife, and among people, using native culture as a link.

1. We have cultivated five local environmental communities through public education and community empowerment. We have been jointly and independently carrying out snow leopard population monitoring and measurement for many years, filling the gap of flagship species background survey in the Yellow River Source Area. We have been working with domestic research institutions to conduct physical and DNA individual identification of populations in the region, and to grasp more detailed information about the snow leopard population and its associated species in the region. In 2019, we began to focus on another endangered wildlife on the plateau, the Alpine musk deer (Moschus chrysogaster), by mapping the temporal dynamics of the species' population in the community, providing relevant nature education to children and youth to deepen their understanding of the species, training villagers to conduct occasional poaching prevention patrols on the Alpine musk deer, etc. We have removed a large number of poaching wire sets to promote the transformation of the community to a species conservation community.

From 2018 to 2019, we conducted a survey on the sacred mountains and water sources of the Yellow River Source, and clarified the distribution of the natural sanctuary and water network in the area; in 2019, the villagers have independently planned and carried out two annual water source protection day activities. They have also organized the litter cleaning activities of sacred mountains and lakes from time to time every year, monitored the retreat of the Amne Machin glacier for 4 consecutive years, and carried out the survey of plant species in the natural sanctuary.

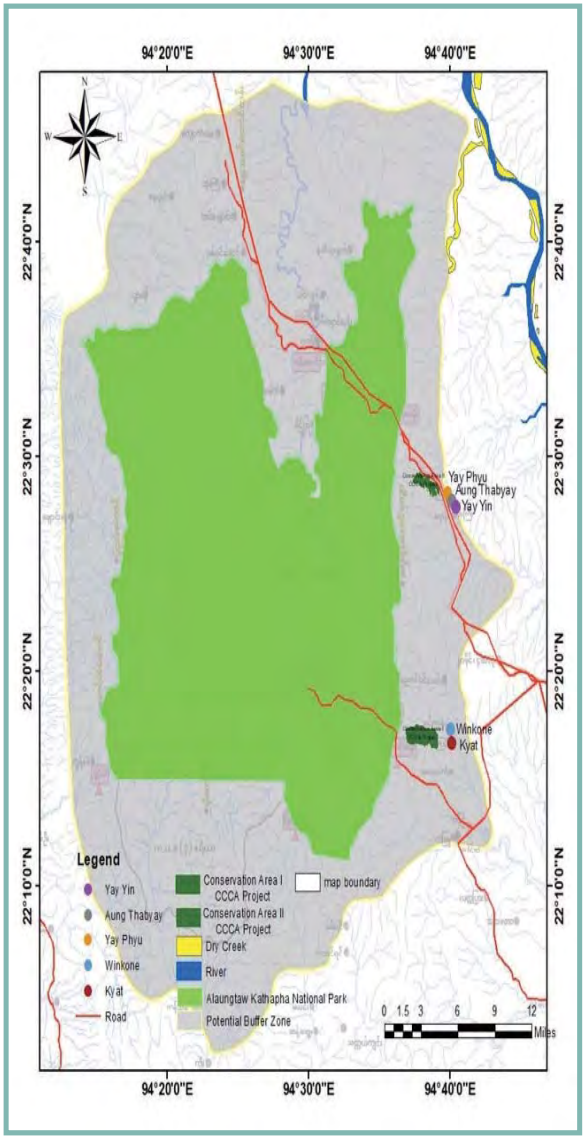
Ecological (Biodiversity) Conservation and Community Development Project around Alaungdaw Kathapha National Park

Myanmar Environment Institute (MEI)

Approaches: *In-situ* conservation | Public participation | Traditional Knowledge

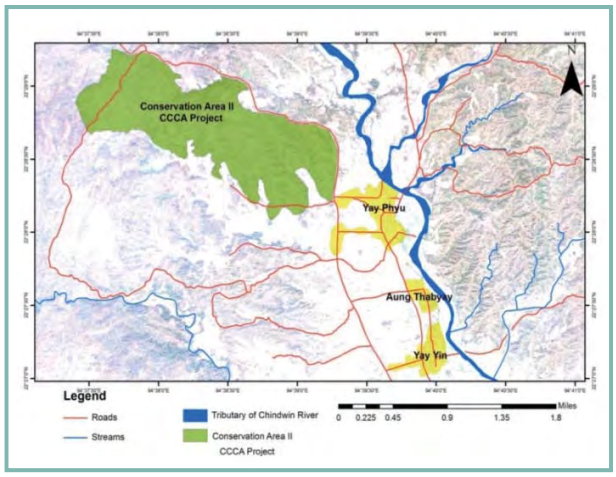
Targets: Flora | Amphibians | Avifauna | Others

CASE INTRODUCTION



The areas of the proposed project are located at the periphery reserved forest area (potential buffer zone area of Alaungdaw Kathapha National Park) of the Alaungdaw Kathapha National Park in Sagaing Region, Myanmar. Alaungdaw Kathapha National Park is one of the Key Biodiversity Areas (KBAs) in Myanmar. Alaungdaw kathapha National park contains a great wealth of flora with estimated 1720 plant species. It has a rich variety of wild fauna including wild elephant (Elephus maximus), tiger (Panthera tigris), Clouded leopard, black bear (Serlenarclos thibetanus), gauer (Bos gaurus), banteng (Bos bangteng), sambar (Cervus unicolor), serow (Naemorhedus sumatraen), wild boar (Sus scrofer), wild dog (Cuon alpinus), takin (Budorcas taxicolor), barking deer (Muntiacus muntjac), Monkey species (Macaca spp.) and large number of bird species. Known threats for the national park include loss of habitat and hunting for bush meat consumption, medicinal products and the pet trade. Meanwhile, the village people living in the peripheral zone (potential buffer zone) and near the area rely on the agriculture particularly pulse and bean production, and some generate the family income by extracting the forest resources. Five village communities, Winkone village, Kyat Village, Yay Yin village, Aung Thabyay village and Yay

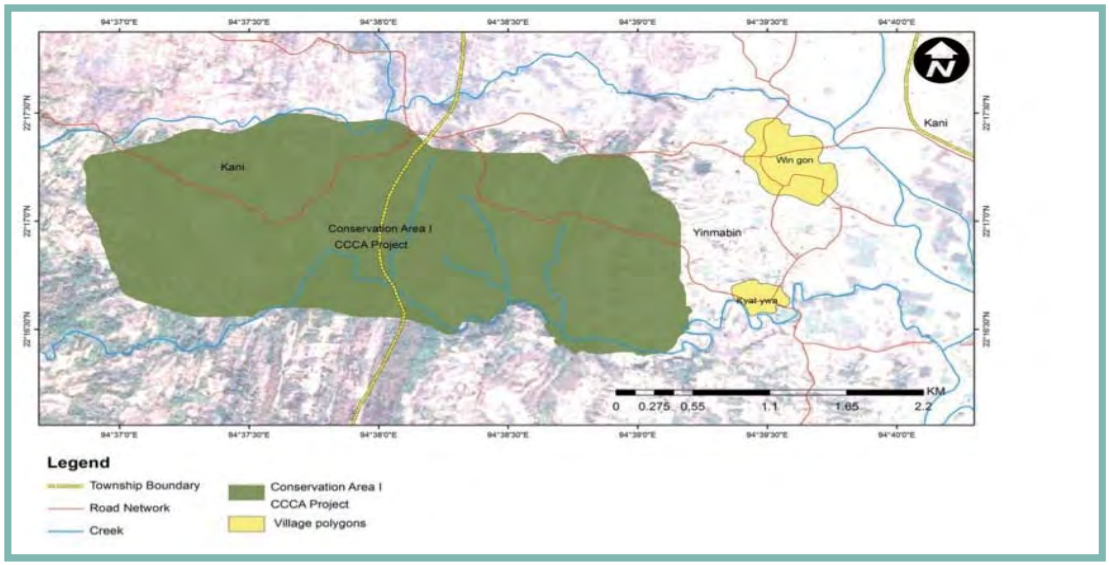
Phyu village, are included in the proposed project. Winkone and Kyat villages are located in Yinmarbin Township. Aung Thabyay village, Yay Yin village and Yay Phyu village are located in Kani Twonship, and all villages are close to Alaungdaw Kathapha National park.



Map showing the two community conservation areas and village communities

The project approach is to conserve the ecosystem and biodiversity using Community Conservation Concession Agreement (CCCA) model, where, communities will get the benefits by conserving the ecosystem and biodiversity. The CCCA model was introduced to Myanmar by Global Environmental Institute (GEI), aiming to eliminate major threats to Myanmar's diverse ecosystems including biodiversity by mainstreaming local communities' participation in conservation, while developing sustainable alternative livelihoods. Livelihood supports were provided for pig farming and pulse and bean cultivation. Investments for pig farming and cultivation were provided and technical training and supports were given. Energy efficient stoves were also provided to the communities.

A total of 900 hectares of the two community conservation areas were established, where the communities patrolled and monitored with ecosystem and biodiversity conservation aspect. Due to the trainings for wildlife and plant monitoring, SMART patrolling, and conservation awareness talks and workshops, the communities received the efficient ecosystem and biodiversity conservation skill. Due to planting activities in the communities and conservation areas and reducing in illegal cutting, animal trafficking and poaching with signed agreements among communities and local administrative authorities, the forest condition within the conservation areas of reserved forest were improved and the ecosystem and biodiversity were restored.



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Ecological Civilization-Building a Shared Future for All Life on Earth

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