

**Feasibility Analysis Report For Conservation
Agreements at the Sathyamangalam Tiger Reserve,
South India**



KEYSTONE FOUNDATION

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ACRONYMS

APPCL: Aadhimalai Pazhangudiyinar Producer Company Ltd.
CA: Conservation Agreement
CI: Conservation International
CSP: Conservation Stewards Program
FD: Forest Department
FRA: Forest Rights Act
HWI: Human-Wildlife Interaction
IFOAM: International Federation of Organic Agriculture Movements
KF: Keystone Foundation
LFE: Last Forest Enterprise
MoEF&CC: Ministry of Environment and Forest & Climate Change
NTCA: National Tiger Conservation Authority
NTFP: Non-Timber Forest Produce
PGS: Participatory Guarantee System
STR: Sathyamangalam Tiger Reserve
ToC: Theory of Change

1.0 INTRODUCTION

This is a feasibility analysis report of the Conservation International's Conservation Stewards Program (CSP). The key objective of the assessments was:

- To determine whether conservation agreements are a feasible tool for ecosystem and biodiversity conservation of Sathyamangalam Tiger Reserve.
- To define the Theory of Change (ToC) that would guide a conservation agreement in STR.

The ecological, social, economic, cultural, political and technological components differ across all the three regions. Although all the three regions are of high biodiversity value and require interventions like conservation agreement, only one landscape would be considered for the feasible analysis report.

A rapid appraisal of the three proposed landscape (See Annex 1), one landscape Sathyamangalam Tiger was selected as the suitable region to undertake a feasibility analysis on Conservation Agreements. The two regions in Kerala, Wayanad and Nilambur are not considered due to geographic fragmentation and cultural heterogeneity. Also, for cost effectiveness to undertake CAs would be higher for all three regions. This does not mean that they are not feasible, but it was important to focus on one geographic area.

Thus, Sathyamangalam Tiger Reserve has been selected for this project as Keystone Foundation (KF) has been working with the communities for some time and has established a connection with the communities and Forest Department (FD).

2.0 STUDY AREA: SATHYAMANGALAM TIGER RESERVE

2.1 Area and Geography

It was only in 2013 that the Sathyamangalam Tiger was declared encompassing Sathyamangalam and Hasanur divisions with district headquarters at Erode. Erode district is one of the few districts in Tamil Nadu which has a large extensive forest covering area (40% of the total district). It covers a total area of 1435 sq. kms approximately and is the largest protected area in the state of Tamil Nadu (See Table 1).

Table 1: Topological Summary of the Sathyamangalam Tiger Reserve Landscape

Division	Sathyamangalam
Location	Erode District - Tamil Nadu
Area	1435 km ²
Status	Territorial Forest Division; Tiger Reserve
Latitude	11°29' - 11°48' N
Longitude	76°50' - 77°27' E
Min. Elevation	280 m
Max. Elevation	1698 m
Highest Peak	Kambatrayan Giri (1698 m)
Min. Rainfall	600 mm
Max. Rainfall	850 mm

It is situated at the southern tip of Deccan plateau, the area lies at the meeting point of the Western and Eastern Ghats (See Figure 1 and 2). In 2008, about 524.3494km² was declared a Wildlife Sanctuary and the area was expanded to 1450km² in 2011 and was declared as a Tiger Reserve. The area is extensively covered with natural forests and extends into the state of Karnataka - parts of Kollegal, Chamrajnagar and Biligiri Rangan Hills and in the south touching the north Nilgiris, broken by the Moyar and the towns of Bhavani Sagar and adjacent agricultural villages.

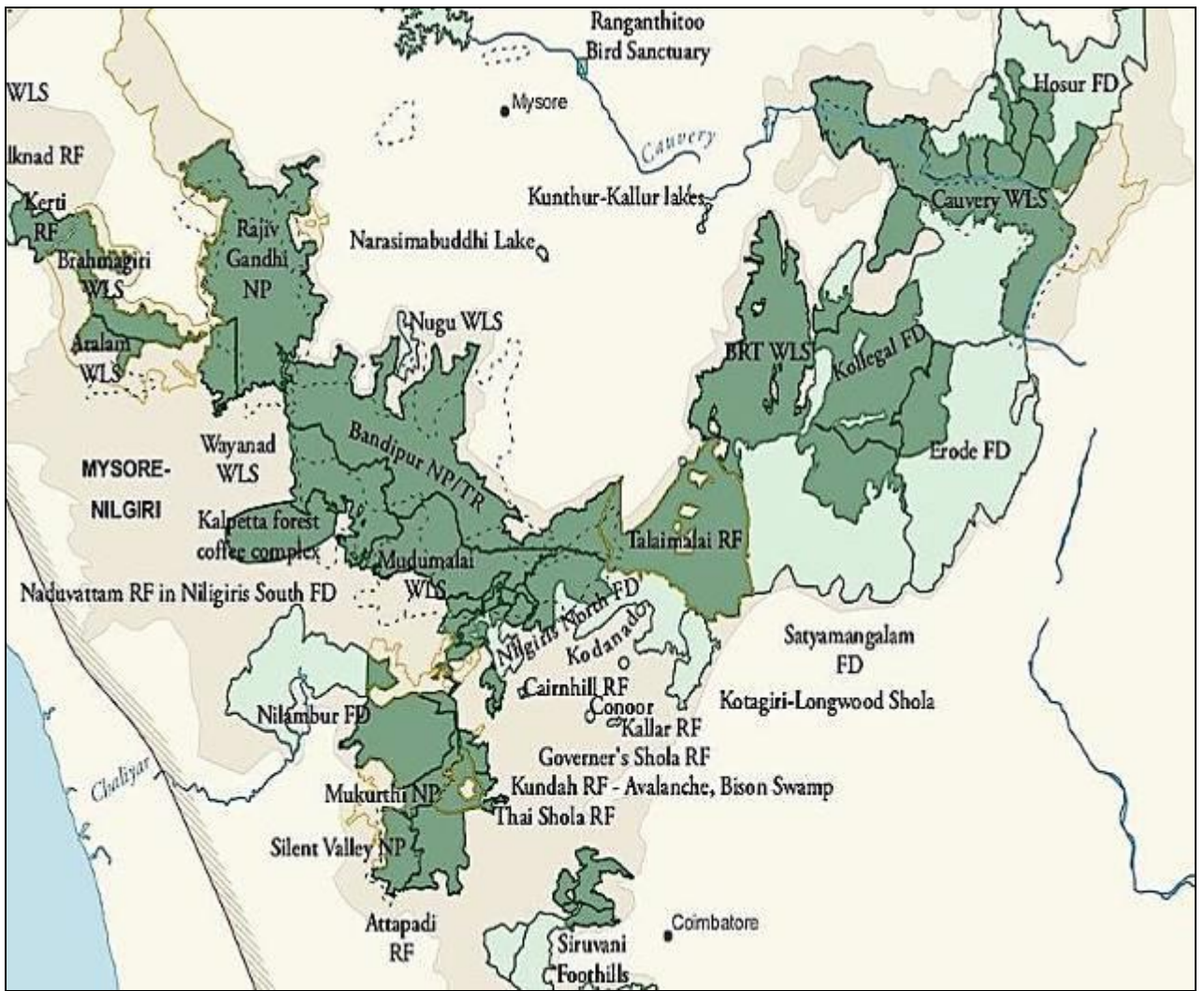


Figure 1: Map of Nilgiri Biosphere Reserve

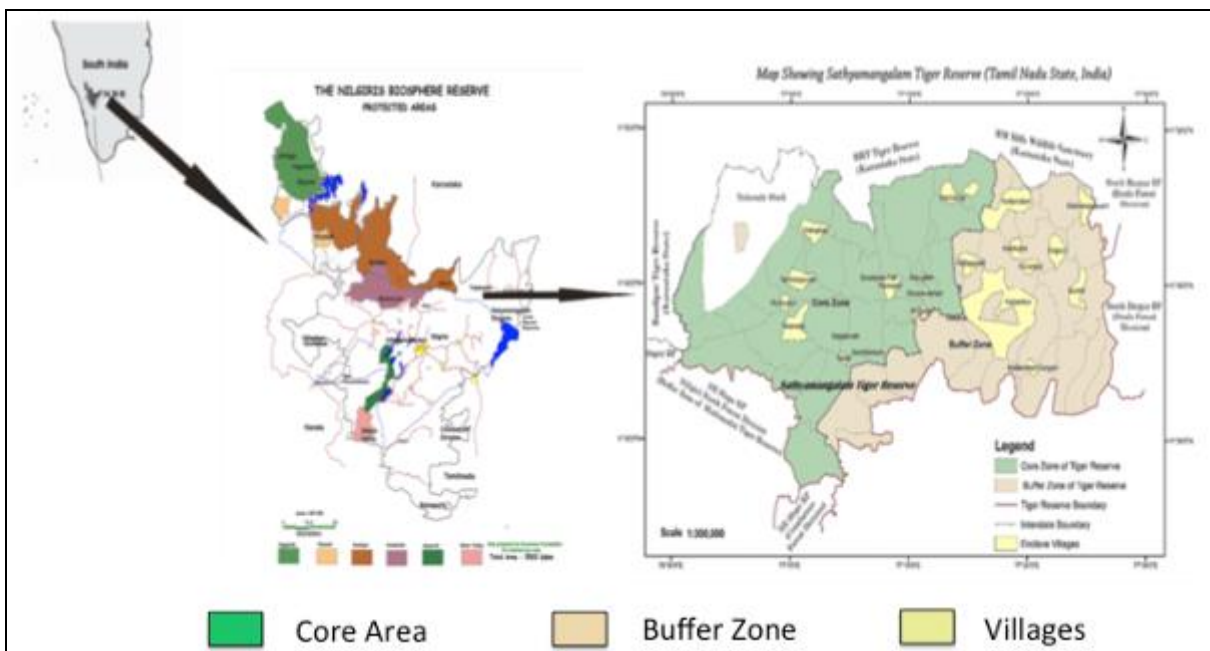


Figure 2: The Location of Sathyamangalam Tiger Reserve in the Nilgiri Biosphere Reserve.

Boundaries of Sathyamangalam Tiger Reserve constitute of reserved forests and National Parks forming a contiguous landscape as mentioned above (See Table 2). About 917.27 km² of the core zone is the reserved forests and tourism is permitted in the buffer zone.

Table 2: Describe boundaries of Sathyamangalam Tiger Reserve

Direction	Boundaries
North (In contiguous with Biligiriranga Swamy Temple Wildlife Sanctuary)	<ul style="list-style-type: none"> • Thalavadi range of Thalamalai forests and Hasanur • T. N. Palayam ranges of Gobichettipalayam taluk of Guliyalathur ranges
South (In contiguous with Mudumalai National Park and Sigur Plateau)	<ul style="list-style-type: none"> • Along the rivers of Moyar and Bhavani
East	<ul style="list-style-type: none"> • Bargur reserved forests in Anthiyur taluk
West	<ul style="list-style-type: none"> • Bandipur National Park

Forests type vary from thorny scrub jungle at the foot hills and extended as dry deciduous, evergreen, moist evergreen and grass lands on up land and the plateau. The forests around Bannari in the plains are very disturbed and scrub vegetation. Up the steep ghats to Dimbam, the vegetation turns to dry deciduous. These forests are naturally sparse and stunted. The forests in the mountain appear to have wide gaps with degraded forests. The forests are dominated by *Anogiessus spp.* and its related species.



Picture 1: Example of forests with different vegetation types in Sathyamangalam Tiger Reserve

The main Non-Timber Forest Product (NTFP) species are Phoenix spp. (Eecham), *Phyllanthus emblica* (Nellikai), *Terminalia chebula* and *Sapindus emarginatus*, *Aegle marmelos* (Vilvam), *Mangifera indica* (Kath manga), *Hemidesmus indicus* (Nannari), *Solanum indicum* (Sundakai). Honey is collected, in large quantities from this area, by

indigenous communities. The area is known for its high collection of NTFPs and is a favoured place of contractors and traders (Samraj, 2003)

2.2 Wildlife

The STR is an important wildlife corridor in the Nilgiri Biosphere Reserve (NBR) connecting the Western and Eastern Ghats, providing a vital link for gene flows between neighbouring and contiguous tiger reserves and other protected areas.



Picture 2: Sathyamangalam Tiger Reserve Landscape

The National Tiger Conservation Authority (NTCA) has estimated that there are about 534 Tigers in the Western Ghats (Jahla *et al.* 2011). Western Ghats landscape holds the largest single meta-population of tigers in the world, within the South Indian states of Karnataka, Tamil Nadu and Kerala. The contiguous protected areas of Wayanad, Nagarhole, Bandipur, Mudumalai, Sigur, Sathyamangalam and Biligiri Rangan comprises a tiger occupied area of over 11,100 km² (4,300 sq. mi) with 382 tigers. It is estimated that the STR has about 46 tigers (Jahla *et al.* 2011). In 2015 Census, it was reported that the tiger numbers may have been increased from 382 to 570 in the Western Ghats and about 55 tigers in STR (media reports).

The contiguity of the forests has resulted in the rich fauna diversity. It is also a home for 800-1000 elephants (2012) and is a part of Nilgiri-Eastern Ghats Elephant Reserve. Recent years have seen increase in negative human-elephant interactions caused by reduced water resources due to failure of monsoons, change in agricultural practices especially near the boundaries of the reserve, degraded forests, increased human population within the reserve and possible loss of corridors¹.

Other animals inhabiting the reserves are leopards, panthers, bear, Gaur, black buck, spotted deer, Bonnet Macaque, Hanuman langur, Wild Boar and also species of rare plants, birds, invertebrates, fishes, amphibians, and reptiles (See Annex 4).

The NTCA also recommends that it is important to design an alternative livelihoods to local people in STR to reduce grazing pressure and encroachments through addressing human-wildlife interface and wildlife protection.

2.3 Biodiversity threats Identified in the STR landscape:

STR has been subjected to many ecological issues even before its declaration. Some of the major issues identified as the threat to the biodiversity are:

- Major Road networks increasing traffic
- Spread of Invasive Species like *Lantana* and *Prosopis*.
- Presence of cattle leading competition and transfer of diseases to other ungulates
- Fire occurrences
- Negative Human-Wildlife Interaction – crop raiding, livestock depredation, human injury or mortality, animal injury or mortality
- Illegal extraction of flora and fauna
- Incidents of fire
- Tourism

Communities living within this reserve also go through difficulties, for example lack of infrastructure. Recently, there has been an increased demand to provide them with better infrastructure facilities like roads, transport, better health system, etc. The status of tiger reserve added to the restrictions already in place to access the forest resource for the people, lowering their secondary income source. Although, the implementation of Forest Rights Act 2006 has ensured land rights of indigenous people both over farmland and community forestlands, there is a lot of negotiations need to be established to create a balance between conservation and livelihoods. (See Section 7.1)

¹ <http://www.thehindu.com/todays-paper/humanelephant-conflicts-intensify-in-sathyamangalam/article4194144.ece>

2.4 Feasible Conservation Goals in Sathyamangalam Tiger Reserve

In depth assessment of the viability of STR to implement conservation agreements indicated many conservation goals. The main conservation objectives identified and prioritised in the STR landscapes are shown in Table 3.

Table 3: Shows the elements considered and the priority conservation outcomes, along with the livelihood outcomes.

Element	Interventions/Actions	Outcome
Core and the Buffer Zone conservation objectives	<ul style="list-style-type: none"> • Alternative fuel wood source (Core zone) • Training and equipment's for the patrol troop/response team <ul style="list-style-type: none"> ○ Wildlife deterrence mechanism ○ Compensation filing 	<ul style="list-style-type: none"> • Better habitat quality (Core zone) • Reduced negative human-wildlife interactions (Buffer zone) • Protocol for wildlife deterrence/ Response Team
Grazing	<ul style="list-style-type: none"> • Grazing map development along with Barefoot ecologists • Grazing map with respect to predation • KF and local community identify and train ecologists and also provide equipment • Monitoring of spaces cleared of invasive species by the FD 	<p>Conservation Outcome</p> <ul style="list-style-type: none"> • Reduce resource competition between livestock and wildlife • Reduce risk of livestock depredation • Natural restoration <p>Livelihood Outcome</p> <ul style="list-style-type: none"> • Employment opportunity • Employment creation through barefoot ecologists
NTFP	<ul style="list-style-type: none"> • Provide training on collections, guideline of NTFP collection • Monitoring through barefoot ecologists • Price incentives for sustainable NTFP • Provide the local communities a linkage to Aadhimalai <ul style="list-style-type: none"> ○ Local procurement 	<p>Conservation Outcome</p> <ul style="list-style-type: none"> • Forest Restoration and regeneration • Forest Stewards <p>Livelihood Outcome</p> <ul style="list-style-type: none"> • Sustainable Practices in NTFP Collection • Better Value Addition

	<p>collection centres</p> <ul style="list-style-type: none"> ○ Village collectors (can be barefoot ecologists or women) and provide equipment ● Certification through linkage to Aadhimalai and Last Forest Enterprise Ltd through company engagement ● Certification like Fair Wild will be explored (KF could pay and provide training) ● Setting up Nurseries Enterprise Model - Provide training ● Provide training on crafts making – baskets, brooms, carvings ● Provide training on collection, advocacy, partnerships, local governance, decision making 	<ul style="list-style-type: none"> ● Packaging/Processing ● Market Access ● Livelihoods Diversification ● Organized Community structure for NTFP ● Revival of traditional knowledge ● Employment opportunity for women
Agriculture	<ul style="list-style-type: none"> ● To provide training and guideline development ● Strengthening of PGS System ● Training on bio-inputs <p>Agroforestry</p> <ul style="list-style-type: none"> ● Linkage to Aadhimalai <p>Price Premiums</p> <p>Farmers Markets</p> <ul style="list-style-type: none"> ● Linkage to forest authorities and conservation agency for patrol support/response team ● Training and equipment's for the patrol troop/response team ● Barefoot ecologists monitoring of wildlife crop damages 	<p>Conservation Outcome</p> <ul style="list-style-type: none"> ● Wildlife friendly farming practices ● Wetland Conservation <p>Livelihood Outcome</p> <ul style="list-style-type: none"> ● Sustainable Production Systems ● Market access of sustainably produced

3.0 METHODOLOGY

The initial gathering information for all the regions included the in-depth review of literature, visits to the region, informal discussion and exchange of ideas with the local resource network of both indigenous and non-indigenous communities. The local resource persons comprised of farmers, local leaders, other NGOs in the landscape, Forest Department, revenue department. Focus Group Discussions with the user community and rapid forest visits was also carried out. Data was collected from the online resource for basic demographic and landscape information. Also, mapping the three viable study regions in relation to land types, ecological significance and community types.

For Conservation agreements, the in-depth literature reviews and previous working knowledge of Keystone Foundation Personnel was taken into consideration to assess the biological/ecological and ecosystem service status of the sites, the biodiversity threats to the ecosystem, previous and existing conservation efforts and the supporting policies and legislative framework in relation to achieving the conservation goal.

FGD was conducted with the Aadhimalai stakeholders which included the local leaders, farmers, NTFP collectors Aadhimalai CEO and KF personnel. The group consisted of both men and women (See Figure 4)

The feasibility assessment was carried out for all the three regions. However, for the reasons mentioned in the Section 1.0, only one region was selected.

4.0 COMMUNITY OR RESOURCE USERS

STR is home to indigenous communities and other migrant settlers. 27 of the total 77 hamlets within the tiger reserve are of the indigenous communities. The Irulas, Sholigas and Kurumba communities have known to be inhabiting this region for centuries, settlements spread across the forests. They were mainly hunter gatherers. After settling in the villages, they started practising large scale pastoral and subsistence agriculture as an important livelihood source until late 1970's. Major crops cultivated are Ragi (finger millets) Samai (little millet) Tenai (foxtail millet) Kambu (bajra) chollam (sorghum) and Macca (maize) which is also their traditional diet. They also grow pulse, tubers, greens, oilseeds and vegetables to meet out year round food requirements (See Table 4a and 4b).



Picture 3: Community members residing within the Sathymangalam Tiger Reserve

As large scale pastorals, the indigenous cattle rearing (cows and buffaloes) was an important livelihood source. The cattle manure was important for their subsistence agricultural farming. They has a good knowledge on cattle breeds, character of breeds, keeping the breeding in pure line and convert/train these cattle for farming operations. However, the presence of bandit Veerapan and restrictions to enter the forests, resulted in loss of cattle across the landscape as they were able to access the forests for grazing (Person. Communication with communities). Currently, very few own 2 to 4 cattle per family in each village. The livestock are taken for grazing either within the forests by the family or left to graze (See Annex 5)^{2,3}.

² The extent of ranging allowed in STR on rotational basis.

³ Ramasubramanian, S., 2010. Management Plan for Sathyamangalam Wildlife Sanctuary (2010 to 2020). Tamilnadu Forest Department, Government of Tamilnadu.



Picture 4: Presence of livestock within Sathyamangalam Tiger Reserve

A traditional activity, collection of non-timber forest produce (NTFP), is a secondary source of income for these communities. The Sathyamangalam forest division is the largest NTFP's area in the state of Tamilnadu. Currently, the NTFP collection is managed by the Forest Department. Traditional knowledge and methods of collection has evolved over the generations and the whole family is involved in collection. The main commercially harvested NTFPs are Honey⁴, *Terminalia Chebula*, *Phoenix spp.* and *Phyllanthus spp.* A need to revive indigenous cultivation knowledge or the practices evolved locally with appropriate own tools and implements is the key to sustainable harvesting and also conserve the ecosystem.

⁴ About 900 families across the 138 villages within a 5 kilometers radius surrounding the park (2013) collect honey. Kedlaya, Ganashree (9 April 2013). "[Sathyamangalam gets reserve tag](#)". *Deccan Herald*. Retrieved 29 March 2016. https://en.wikipedia.org/wiki/Sathyamangalam_Wildlife_Sanctuary



Picture 5: Indigenous Communities collecting honey from the cliffs, Sathyamangalam Tiger Reserve



*Picture 6: NTFP products like amla collected and processed at the APPCL centre (Above picture).
The collection of grass to make carpets and brooms (Below Picture), in Sathyamangalam Tiger
Reserve*

Subsistence agriculture was important mainly as a food source while the forest products were monetary incomes. However, in recent years, people have started cultivating beans and

millet as secondary source of income. A single family may earn upto Rs 50,000 from sale of semi-processed forest products like leaf of Phoenix spp. or forest fruits of *Phyllanthus* spp.



Picture 7: Subsistence agriculture as the main food source and recently as secondary source of income in Sathyamangalam Tiger Reserve

Apart from the indigenous communities, other migrants like the Malayali, Lingayats, Badagas and Gounders have settled here for many years at the periphery of the forest. There are mostly cattle herders and agriculturists growing sugar cane, industrial corn, etc. These migrants have ancestral lands elsewhere. Large land owners (6 ha on an average) also reside in the periphery of the reserve and practise commercial agriculture, animal husbandry or small scale tourism ventures. Apart from the above mentioned livelihood options, the availability of other options are fairly limited, so is the access to resources and services in the region.

Table 4a: Showing the uses of key natural resources

NATURAL RESOURCE USES
Direct Uses
Subsistence/Cultural
Market/Income to collectors
Small scale value addition
Indirect Uses
Ayurveda medicine
Health Foods

Table 4b: Showing the uses of key natural resources and the stakeholder that rely on the key natural resources

STAKEHOLDERS
Within STR
Adivasis/organised as VFCs
Forest department
Traders
NGO - KF/TAMS/MYRADA
Aadhimalai
Outside STR
Ayurveda industry
Organic markets - LAST Forest
Micro/small scale industries
Traditional medicine healers/practitioners
Researchers/Conservation Groups

4.1 Proposed working village to initiate conservation agreements

The heterogeneity and complexity of the community structure in the STR landscape pose a challenge to initiate conservation agreements across the different sections of the society because of conflict of interest between the communities and also differ in land-use rights, access to the forests produce, etc. Thus we are focusing on working on individual level and those villages that already have members working the APPCL. The following is a list of possible villages that we have shortlisted to start the conservation agreements and expand to other parts of the STR landscape (See Annex 3; Figure 3).

Annex 7 gives information about Reserved Forests that are in proximity to these villages. Except for Akkurinjeri Reserve Forests, all the other Reserve Forests are located inside the Sathyamangalam Tiger Reserve. The Akkurinjeri Reserve Forests falls within the Talavadi Range and are in close proximity to the Periphery Villages.

There are about 138 village settlements abutting the tiger reserve and three enclaves within the reserve⁵. In Erode district, the STR villages fall under mostly two Panchayat unions, the Talavadi Panchayat Union and the Sathyamangalam Panchayat Union (See Table 5).

The conservation agreements would be initially focused on the APPCL shareholders residing in the villages of STR and would eventually be expanded to other individuals in those villages and also to other villages.

Table 5: Total Scheduled Castes⁶ and Scheduled Tribe⁷ in Talavadi Panchayat Union and Sathyamangalam Panchayat Union⁸.

District/ Panchayat Union	Population of Scheduled Castes			Population of Schedule Tribe		
	Total	Men	Women	Total	Men	Women
Erode District	216689	108344	108345	19084	9567	9517
Talavadi Panchayat Union	12444	6103	6341	5900	2907	2993
Sathyamangalam Panchayat Union	20097	10002	10095	7455	3757	3698

⁵ <http://str-tn.org/wp-content/uploads/2014/07/Management-Plan-of-STR.pdf>

⁶ Scheduled Castes: Socially, economically and culturally disadvantaged of group of people based on the historical practice of untouchability. Article 341 (1) of the constitution of India defined scheduled castes "...specify the castes, races or tribes or parts of or groups within castes, races or tribes which shall for the purposes of this Constitution be deemed to be Scheduled Castes".

⁷ Scheduled Tribe: Socially and economically disadvantaged indigenous people. Article 366 (25) of the Constitution of India defined scheduled tribes as "such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this constitution".

⁸ http://www.tnrd.gov.in/databases/census_of_india_2011TN/pdf/11-Erode.pdf

4.2 Governance System in the STR

The governance in STR is under two administrative divisions, **Revenue Department** and **the Forest Department**. Before STR received the ‘Tiger Reserve’ status, the Sathyamangalam Wildlife Sanctuary was mostly a revenue land. Most of the administrative work was under the Revenue Department. Revenue Department is responsible for land survey and records, administration, reforms, providing land rights to the people. The local administrative unit is the **Village Panchayat**, a local self-government (See Annex 8)⁹

In 2011, the ‘Tiger Reserve’ status increased the role of Forest Department in the STR. This introduced the Joint Forest Management (JFM) to the landscape, where forest committees like **Village Forest Committee (VFC)** and **Eco Development Committee (EDC)** were constituted to work in coordination. This is a system where the State Forest Department supports the local communities (forest residents or fringe residents) depending on the NTFPs and agriculture, to protect and manage forests and shares the costs and benefits from the forests with them.

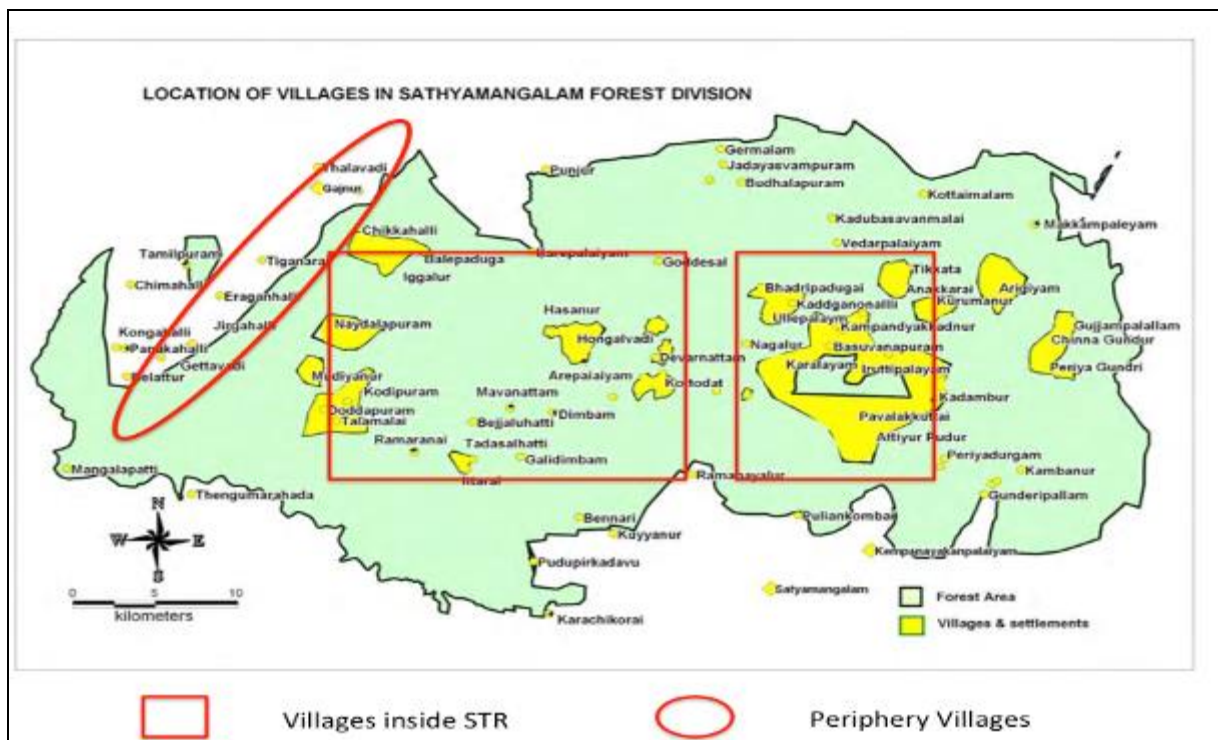


Figure 3: Location of short listed villages in relation to Sathyamangalam Tiger Reserved (STR) (Reference map from Tamilnadu Forest Department, 2010).

⁹ https://en.wikipedia.org/wiki/Gram_panchayat

5.0 STAKE HOLDER ANALYSIS (SEE ANNEX 9)

Sathyamangalam Tiger Reserve landscape has many actors that shape the land use and land management. Forest Department play an important role in managing the forests. Indigenous communities are given limited access rights by the FD to ensure sustainable use of NTFP. The landscape have various actors comprising of strong active cultural social networks, Panchayat and agricultural department who are involved in development programmes planning, NGOs which focus on environment, food security and livelihood issues, traders who buy NTFPs. Although there is no centralised group within these stakeholders, there is a presence of community leadership across the villages in the landscape.

Interviews with farmers and focus group discussion suggested that communities would be willing to make changes in their practices for better value added prices to their products in return to their conservation activities. One of the issues would be that all the members of the communities may not agree initially, and it would require initiating conservation agreements with willing participants and expand to the other members. The communities are comprised of both indigenous groups and non-indigenous groups.



Picture 8: Focus Group Discussions with the shareholders of the APPCL at their Hasanur Processing Centre.

6.0 PROFILE OF THE IMPLEMENTER

Keystone Foundation¹⁰ is a registered Trust working in the field of eco-development in the Nilgiri Biosphere Reserve. In its two decades of work Keystone has developed the field of eco-development from concept to implementation – looking at natural resources ecology, social organizations, development of producer and enterprise groups, ecological monitoring of the health of the ecosystem.

¹⁰ For more information: <http://keystone-foundation.org>

To improve the livelihoods of the indigenous communities, Keystone has successfully developed from scratch a producer owned private company¹¹ that supports over 1500 indigenous producers (forest and farm produce) from the region and has a turnover of nearly INR 94 Lakhs. To support such initiatives a separate marketing company has been developed and hived off¹² which has a turnover of more than INR 1.8 Crore. A membership based society was formed in the year 2010 called Nilgiri Natural History Society¹³ to involve the civil society in conservation activities (See Annex 10).

KF has worked with different stakeholders and in various capacities like implementation of Forest Rights Act (FRA) in the NBR, helping Joint Forest Management Committees with value addition capacities, urban water management, sanitation and pollution mitigation, climate change and advocacy, biodiversity management and restoration, etc.

6.1 Conservation Programme at Keystone Foundation

Conservation programme¹⁴ at Keystone Foundation focuses on ecology and management of endemic and economically valuable species, vulnerable habitats and species in the NBR. Conservation team works with indigenous communities, decision makers and other stakeholders through the barefoot ecology programme, exploring payment for ecosystem services, understanding pollinators in agro-ecosystems and human-wildlife interactions. The group focuses on exploring the cross-linkages (like water resources, health and community wellness, environmental governance) at KF to achieve effective conservation action. The approach comprises of applied research, restoration efforts, and outreach and knowledge networks with communities, academia and voluntary agencies (See Annex 11).

6.1.1 Biodiversity Research

Various studies have been carried out across the years to understand the ecosystem services and linkages between ecosystems, traditional use and indigenous perspectives, and markets and trade.

- *Biodiversity and resilience*
- *Ecological Monitoring with Village Naturalists*
- *Human Wildlife Interaction*
- *Payment for Ecosystem Services*
- *Conservation Education*

¹¹ <http://aadhimalai.in>

¹² <http://lastforest.in>

¹³ www.nmhs.in

¹⁴For more information on Conservation activities and publications please visit the link: <http://keystone-foundation.org/programmes/conservation/>

This range gives us an edge in policy discussions and frame new guidelines with the Forest Department on how to analyse co-existence in a dynamic setting, what steps to take, what changes to internalize and learn from.

7.0 POLICY AND LEGAL CONTEXT

Since the initiation, the ‘Project Tiger’ in 1973 by the Government of India, there are about 47 tiger reserves spread across India’s 18 tiger range states (2.08% of the total geographic area of India). The tiger reserves are constituted on a core and buffer strategy. The core area has the legal status of a national park or a sanctuary whereas the buffer areas comprise a mix of forest and non-forest land, managed as a multiple use area. The aim of the Project Tiger was to focus on the area as an exclusive tiger area while considering the people’s interest in the buffer area.

In STR (See Figure 3), we have two zones, the core and buffer area (See Annex 2):

- Core Zone: Contiguous forest areas with neighbouring states and has a rich wildlife
- Buffer Zone: suffers from encroachment and overgrazing.

The proposed villages to undertake CAs constitute both core and buffer areas of STR. However, the conservation objectives differ between the two areas. In the buffer zone, the conservation action is to encourage human-wildlife coexistence. In the core areas, it is to improve the habitat quality and develop better livelihood options to communities living within the core area.

Wildlife (Protection), Act 1972, Section 38 V (4)(i) says that the core or critical habitat areas of national parks and sanctuaries shall be kept as “inviolable” for tiger conservation. This was based on scientific studies, however it also says that the before stated should be done “without affecting the rights” of the Scheduled Tribes and other such forest dwellers.

The Forest Rights Act (FRA)¹⁵ gives them the option to either continue living or move out of tiger habitats “voluntarily”.^{16,17,18}

¹⁵ The act claims that people who have occupied the forests for generations, and whose livelihood traditionally has been depending thereupon, shall have the right to maintain their use of forest. The act however states that any use of the forest must take place with responsibility regards to the often very fragile ecological systems. Scheduled Tribes and other forest dwellers are thereby given the rights to food security and livelihood, but it comes with an obligation to use the land in an eco-friendly way.

¹⁶ <http://zeenews.india.com/environment/core-areas-of-tiger-reserves-may-soon-become-human-habitation-free-1996641.html>

¹⁷ <http://newsclick.in/withdraw-order-fra-brinda>

¹⁸ <http://www.downtoearth.org.in/news/community-forest-rights-in-critical-habitats-face-hurdle-due-to-lack-of-legal-roadmap-57602>

The Forest Rights Act is still yet to be implemented in many villages closer to the forests including some within the forests. The MoEF & CC NTCA notification does not modify the rights of the tribal community to access the forest resources, but it denies complete access.

8.0 AGRICULTURAL AND FOREST-BASED ENTERPRISES

NTFPs and agriculture is the major economy and plays an important role in food security, income generation and possible creation of employment. Establishments like Aadhimalai Pazhangudiyinar Producer Company Ltd. (APPCL) and Last Forest Enterprises (LFE) have been providing market access to the products procured especially from the indigenous communities. APPCL has been actively working with indigenous communities of NBR including STR landscape. We would be initiating the conservation agreements with the willing participants of the APPCL shareholder members of STR landscapes.

8.1 Aadhimalai Pazhangudiyinar Producer Company Ltd. (APPCL; See Annex 14)

One of its kind at a national level, **Aadhimalai Pazhangudiyinar Producer Company Ltd.** (APPCL) was initiated to encourage indigenous communities to practice traditional organic farming, handicrafts, livestock rearing, sustainable harvest of forest produce, conservation of natural resources, thereby securing the well-being of the landscape, value addition of harvests and trading.

This collective of tribal producers was created to provide opportunity to market their farm and forest harvest through processing, value adding, and human resource developments and with fair trade principles. A company wholly owned by the indigenous communities, has 1609 shareholders (See Table 6) in the Nilgiri Biosphere Reserve. APPCL procures both forest produce and also agri-produce throughout the year (See Annex 12) and has over 50 different varieties of products.

Table 6: Shows the number of shareholder from different regions

Area	Total Members	Men	Women
Konavakkarai	178	100	78
Arakode	328	163	165
Coonoor	253	128	125
Pillur	199	97	102
Sigur	2	1	1
Hasanur	649	345	304
Total	1609	834	775

8.1.1 Participatory Guarantee System (PGS)

The PGS targets local and small national markets and involve small farmers and agro-processors, traders and consumers in the certification process. The quality assurance of the products is based on social conformity supported by participatory norms, procedures and conventions. These procedures and standards are usually based on IFOAM or national regulations. Keystone Foundation is an active member of IFOAM and has a group of farmers who have incorporated PGS for better value of their produce like millet

The produce under the PGS is procured by the APPCL, which ensures the best value for the farmer's produce.

8.1.2 Processing Centres

APPCL has several processing centres across the NBR (See Figure 4), where various products are procured and also where the value addition takes place. Over time an important activity that these resource centres performed were related production and value addition of NTFPs and farm produce.

In **Sathyamangalam Tiger Reserve**, the Hasanur centre was started in 2005-2006. Another initiative, Thumbithakadu (meaning Prosperous), was created with the combined efforts from the three institutions namely Keystone Foundation, Minor Forest Collector's Association and local NGO-TAMS (Talavadi Adivasi Munetra Sangam). It is governed by the Presidents of Village Forest Council (VFC) from Sathyamangalam forest division. In this centre, women participation has been active and they have quickly learned the value addition skill and also are involved in selling. The centre is known for its production of millet and value. There are over 600 shareholder members in the Hasanur region.



Figure 4: Map showing the locations of APPCL Processing Centres across the NBR

8.2 Last Forest Enterprise (LFE; See Annex 15)

Last Forest, registered in the year 2010, is a profit-hybrid institution incubated by an NGO – Keystone Foundation – that provides marketing solutions to primary producer groups and communities that are working on forest and agriculture produce which are natural, wild and local. Based in Kotagiri in the heart of Nilgiris Mountains, it is a marketing platform for fair trade principles, sustainable harvesting, and biodiversity.

LFE cater to the entire supply chain of procurement, quality check, branding, promote, and sell organic, fair trade, and indigenous products. Its portfolio consists of varieties of honey, a range of beeswax products such as candles, soaps, and lip balms, spices, herbs, millet, coffee, essential oils and many more. They also have exchange programs within India in the NTFP (Non-Timber Forest Produce) sector to encourage collaboration with other similar entities.

They procure our produce from 28 producer groups across the country and sell through 67 outlets including three retail shops in the Nilgiris that are owned by them. For this LFE work with more than 150 villages impacting thousands of people. They help indigenous communities sustain themselves by empowering their skill sets and bringing economic growth for all families. By reinvesting 40% of the profit in community development, LFE

ensure improvement of health and education and generate pride, dignity, and sustainable income for producers.

As the name suggests, LFE are an entirely nature-conscious, socially oriented entity. Modest in their beginnings, they believe that the spirit of the forest is about thriving yet sustaining balance.

9.0 THEORY OF CHANGE

The Theory of Change (ToC) concept is applied to attempt to provide a comprehensive inquiry into the understanding of possible behavioral changes that may occur on the part of the resource users as a result of the conservation agreements within the communities of Sathyamangalam Tiger Reserve.

This is important, as the ToC inquiry will evaluate the project’s effectiveness of in addressing both the threats to the biodiversity and improvement in the community’s livelihoods by becoming partners to the initiative. We are proposing a Conservation Business Model, to identify the conservation goals through conservation agreement. Based on this goal, the conservation outcomes in form of results to be achieved have been stated.

The main threats to the conservation goal and the causes of these threats have been listed. We have also listed the actions for each of the specific threats and drivers and achievable the conservation outcomes.

The basic interactive relationship among these elements will then be considered by KF as the “Conservation Agreements” Theory of Change (See Annex 6)

The temporal perspective for undertaking conservation agreements in Sathyamangalam Tiger Reserve is for 3 years.

10.0 PROJECT COSTS

S.No	Budget Heads	Year 1	Year 2	Year 3	TOTAL
1	Salaries	21,15,000	23,02,000	24,89,000	69,06,000
2	Professional Service		2,50,000		2,50,000
3	Travel	1,58,000	1,88,000	1,53,000	4,99,000
4	Furniture and Equipment	1,50,000			1,50,000
5	CONSERVATION AGREEMENTS (Incentive Package)				
5.1	Conservation Agreements - Core Zone				
	NTFP GATHERERS				

Monitoring Cost	23,04,000	28,18,800	34,09,200	85,32,000
Monitoring Equipment	6,24,000	83,400	89,340	7,96,740
Training for Monitors	28,000	33,600	40,000	1,01,600
Accident and Life Insurance to gatherers	4,00,000	5,28,000	8,20,000	17,48,000
Conservation Incentives for sustainable harvest				
Honey	1,00,000	1,35,000	1,60,000	3,95,000
Beeswax	2,500	3,000	3,000	8,500
Gooseberry	15,000	16,800	18,200	50,000
Black Plum	5,000	4,800	4,900	14,700
Phoenix Grass	5,000	5,400	5,600	16,000
Storage Facilities	1,90,000	1,20,000	1,50,000	4,60,000
Household level tools for gathering	8,00,000	80,000	1,20,000	10,00,000
	44,73,500	38,28,800	48,20,240	1,31,22,540
FARMERS				
PGS Certification for farmers				
Trainings	1,00,000	1,65,000	1,81,500	4,46,500
Conservation Incentives for organic farming				
Millets	15,000	24,000	35,000	74,000
Vegetables	2,500	4,500	7,000	14,000
Crop Protection		7,50,000	8,75,000	16,25,000
	1,17,500	9,43,500	10,98,500	21,59,500
Conservation incentives for restricitive grazing				
Fodder Supplement and Veterinary support	2,40,000	3,60,000	8,75,000	14,75,000
Total 5.1	48,31,000	51,32,300	67,93,740	1,67,57,040
5.2	Conservation Agreements - Buffer Zone			
Monitoring of Human Wildlife Interactions	4,80,000	6,48,000	8,40,000	19,68,000
Monitoring Equipment	3,90,000	83,400	89,340	5,62,740
Total 5.2	8,70,000	7,31,400	9,29,340	25,30,740

	TOTAL COST FOR CONSERVATION AGREEMENTS (5.1+5.2)	57,01,000	58,63,700	77,23,080	1,92,87,780
	TOTAL PROJECT COST (1+2+3+4+5)	81,24,000	83,53,700	1,03,65,080	2,68,42,780
6	Overheads @ 7%	5,68,680	5,84,759	7,25,556	18,78,995
	TOTAL PROJECT COST (INR)	86,92,680	89,38,459	1,10,90,636	2,87,21,774.60
	TOTAL PROJECT COST (USD)	1,33,734	1,37,515	1,70,625	4,41,873.46

11.0 CONCLUSIONS

After considerations of the core variables of feasibility analysis in Table, Sathyamangalam Tiger Reserve is a suitable site for implementation of conservation agreements. At this stage, the implementer should be aware of the potential problems that could arise to attain the goal of biodiversity conservation and sustainable livelihood of communities. It is important to note that not all the community members and/or stakeholders would be interested in participating in the conservations agreements due to different interests which implicate that if there is lack of efforts by certain section of the communities, there would be leakages in conservation agreement resulting in non-attainment of conservation goals. The FD may not recognise the role of community management and decision making, especially with regards to the biodiversity conservation.

With regards to the policy and legal framework, the recent notification of converting all tiger reserves in the country into protected areas may hinder the implementation of the conservation agreement. This MoEF notification goes against the Forest Rights Act (2006), drafted by the Government of India for the forest rights of indigenous people.

Presence of linkage institutions like Aadhimalai and Last Forest in the STR landscape and also prior knowledge of the landscape gives the implementer an advantage to engage with the local communities to establish agreements with conservation goal with social objectives. It was identified that the already existent PGS has been ensuring indigenous farmers with better value for their agricultural produce. However, better monitoring system in the PGS would check on the compliance of the farmers to conditions of PGS and eventually ensure better

quality products that would give them better value for their produce. One of the constraints identified was that the Aadhimalai as an institution has been working with the indigenous communities mainly and so are the shareholders, it is important to establish a agricultural enterprise for the non-indigenous communities agricultural produce to be able to engage with them on conservation agreements. The key is to invest in programmes aimed at strengthening market linkages between both indigenous and non-indigenous communities and the traders including but not limited to provision of basic market infrastructure and information and its promotion.

Non-crop enterprises like livestock is on limited scale, especially in the recent years. However, there is a potential to develop a small and medium-sized enterprises and also to support the farming enterprises through provisions of dung manure.

NTFPs are defined as “all biological materials, other than timber, which are extracted from forests for human use”. These include rattan and other materials for craft making, forest fruits, resins, gums, medicinal plants and honey. Working with communities towards an optimal use and management of NTFP resources, not only supports basic livelihoods, but also can provide a strong incentive for involvement in forest conservation (See Annex 13).