

The top half of the image features a background of orange and black tiger stripes. The stripes are dark brown/black on an orange background, running diagonally from the top-left to the bottom-right.

ATREE WWF UK 2023

Guidelines for the
Management of
Religious Tourism
Within **Tiger Reserves**

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Guidelines for the Management of Religious Tourism Within Tiger Reserves

The following Associate organisations contributed to this report



Core Team

ATREE

Dr. M. Soubadra Devy
Dr. T. Ganesh
Dr. R. Ganesan
M. Mathivanan
A. Saravanan
Abhishek Samrat
Dr. K. Seshadri
Dr. Rajkamal Goswami
Allwin Jesudasan
M. B. Prashanth
Jahnvi Pai

Consultant:

Dhee

WWF UK

Chantal Elkin
Sanjay Rattan

Supporting team:

Ovee Thorat
Vikram Aditya
Rathnavel Pandian
Kiran Salagame
Thalavaipandi
Maria Antony
Arunkumar
Pratheep
Imman Rajadurai

Enquires should be addressed to:

e-mail: soubadra@atree.org

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Acknowledgements

The project on Sustainable Green Religious Tourism at Ranthambhore Tiger Reserve (RTR), Rajasthan, was conducted with financial assistance from Ashoka Trust for Research in Ecology and Environment (ATREE) and Alliance on Religions Conservation (ARC). The Forest Department of Kalakad Mundanthurai, Ranthambhore and Corbett Tiger Reserves provided the necessary permissions and assistance for conducting the project inside the reserve.

We wish to express special appreciation to Mr. Ramkumar and Y. K. Sahu, then Field Directors, and Conservators of Forests, Kalakad Mundanthurai Tiger Reserve and Ranthambhore Tiger Reserve for their encouragement and support to initiate a sustainable green religious tourism model.

We express our thanks to His Highness late Shri Murugadoss Theerthapathy, Rajah of Singampatti, Hereditary Temple Trustee of Sorimuthayan Temple, Pundit Sanjay Dadhich, Presiding Trustee, Temple trust of Ranthambhore and other temple priests for their support to the program.

We appreciate their appeals through print and social media for this program.

Very special thanks is owed to Princess Diya Kumari, Ex-MLA of Sawai Madhopur, Rajasthan who extended consistent support to this program once she was convinced of it.

The number of state departments and NGOs and civil society participants who wholeheartedly involved themselves in this effort with our ground partners are too numerous to mention here. This work would not have been accomplished without the support of Tamil Nadu Electricity Board, Tirunelveli District Administration, Hindu Religious and Charitable Endowment Board, Tamil Nadu Police Department, Tamil Nadu State Transport Corporation, Vickiramasasingapuram Municipality, Manimutharu Town Panchayat. Sri Paramakalyani College, Alwarkurichi Department of Plant Science; Department of Environment, Department of Sociology, M. S. University, Jayaraj Annapackiam Nadar College, Nallur, Alangulam, who extended support through their volunteers.

The long-term involvement of ATREE was made possible through funds which came from numerous sources which also included individual contributions – Ramco Cements, Rufford Foundation, RMZ Construction, Lions Clubs, Rotary Clubs of the region.

SWASAM Trust managed and organised the volunteers' action on the ground. Arumbugal Trust, composed and directed street-plays which were critical pre-festival campaigns in various villages from where pilgrims visited the temple. Dr. G. S. Vijayalakshmi, Courtalam, Arunkumar, Tirunelveli and Elango, Alangulam pledged their time year after and were relentless taskmasters whose involvement helped cross many milestones.

The Kani tribal community also extended their support. Scaling the successful model from KMTR was made possible in Ranthambhore by Dr. Dhamendra Khandal, Tiger Watch and Padmini Rathore, patron, Prakratik Society Tiger Watch. This partnership made our operations in Ranthambore proceed smoothly. Dr. Dipanker Ghose, WWF India, supported our activities in Corbett Tiger Reserve.

Nellai Weekend Clickers did the photo documentation of the various events. Nellai Press Club played a very supporting role and carried out responsible media campaigns.

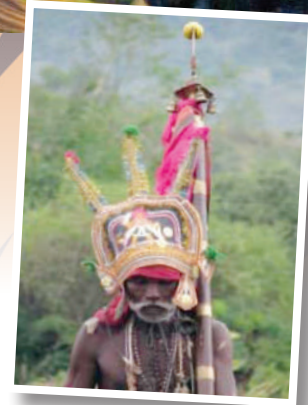
Executive Summary

ATREE initiated its long-term engagement in Kalakad Mundanthurai Tiger Reserve in 2006 (KMTR) to mitigate the impacts of annual religious gatherings during temple festivals. This has served as an exemplar for other reserves. Subsequently, ATREE developed key partnership with Alliance of Religion and Conservation (ARC), which brokered major breakthroughs by catalysing participation of religious institutions in successfully managing religious gatherings in forest areas. Both ATREE and ARC worked in collaboration with the forest departments, local conservation organisations and community NGO partners, and developed this model further. Learnings therein offered a scope to scale up to other tiger reserves - Ranthambore Tiger Reserve and Corbett National Park, representing different cultures and geography.

We present here the first ever comprehensive guidelines that provide concrete suggestions while maintaining a balance between conservation, and religious and cultural considerations, to successfully manage religious tourism inside tiger reserves. The guidelines are specific to the management of large events such as pilgrimages and festivals that take place at holy sites within Protected Areas (PAs). We are hopeful that this can be applied with some local modifications across tiger reserves in the country.

Abbreviations

| | |
|-------|--|
| ATREE | Ashoka Trust for Research in Ecology and the Environment |
| ACCC | Agasthyamalai Community Conservation Centre |
| WWF | World Wildlife Fund |
| FD | Forest Department |
| TNFD | Tamil Nadu Forest Department |
| PA | Protected Area |
| GPM | Green Pilgrimage Management |
| TR | Tiger Reserve |
| RTR | Ranthambore Tiger Reserve |
| KMTR | Kalakad Mundanthurai Tiger Reserve |
| CTR | Corbett Tiger Reserve |
| NGO | Non Governmental Organization |
| NTCA | National Tiger Conservation Authority |
| ARC | Alliance of Religions and Conservation |
| TISS | Tata Institute of Social Sciences |
| HR&CE | The Hindu Religious & Charitable Endowments Departments |
| RSS | Rashtriya Swyamsevak Sangh |
| MSC | Multi-stakeholders Committee |



1. Introduction

Across India, there are many places of worship that overlap with tiger reserves. These religious sites often significantly pre-date the establishment of the tiger reserves and hold considerable meaning for local people of the faith. As such, religious sites and tiger reserves must co-exist. Reconciling the requirements of both may be challenging, however, it is critical to address it.

In recognition of this fact, the National Tiger Conservation Authority (NTCA) 2010, 2020 guidelines for tiger reserves, as directed by Section 38-O of the Wildlife (Protection) Act, 1972, describes the need to address and manage religious tourism. However, at present they do not elaborate the ways in which religious tourism can be managed. We realised the scope to expand on these guidelines for managing religious tourism with more nuanced approaches with pilot projects and testing multiple sites before any guidelines could be developed. ATREE initiated its long term engagement in Kalakad Mundanthurai Tiger Reserve (KMTR) to mitigate the impacts of annual gathering at a temple festival, and this project served as an exemplar. Learnings therein offered

a scope to scale up. Subsequently, we developed a key partnership with Alliance of Religion and Conservation, which helped in major breakthroughs by bringing in active participation of religious institutions into the fold. Soon the model that was developed was scaled up to other tiger reserves representing different cultures and geography.

We present here the first ever guidelines to provide concrete suggestions and to strike a balance between conservation, religious, and cultural considerations. The guidelines are specific to the management of large events such as pilgrimages and festivals that take place at holy sites within Protected Areas (PAs).

These guidelines are based on the research and conservation work that has been conducted by the NGOs ATREE, WWF and ARC in 3 PAs, primarily the Kalakad Mundanthurai Tiger Reserve (KMTR), Ranthambore Tiger Reserve (RTR) and in Corbert Tiger Reserve's (CTR) buffer zone. The main case study used throughout these guidelines is from KMTR, where the project partners have worked on green religious pilgrimage for over 15 years.

1.1. Understanding religious tourism

Visitors to religious sites include traditional pilgrims motivated purely through faith, as well as members of packaged religious tours and other tourists who visit as part of their vacation itinerary (Nolan and Nolan 1989). For simplification purposes, we use the term ‘pilgrims’ to encompass all of these categories of visitors.

Pilgrimage is important for many religious traditions. Pilgrims visit sacred sites in considerable numbers during annual festivals, and on holy days when there are events, celebrations and rituals that take place. One of the largest such pilgrimages inside a PA is to Sabarimala, in Periyar Tiger Reserve, Kerala. An estimated 30 to 50 million pilgrims visit the Lord Ayyappa Temple annually during the three-month festival season (November to January).

There are a myriad of reasons why pilgrims visit holy sites. These include a personal search for spiritual and cultural meaning, and community-based identification with specific sacred sites (Nolan & Nolan, 1989). Festivals are also opportunities for socialising and recreation. They support people’s relationships with their religion, community and also help maintain the relationship these communities

have with the environment and wildlife that surround the pilgrimage sites (ARC Internal TISS Report).

Pilgrimages also produce a range of economic opportunities for local people, to set up businesses such as shops, tours, hotels and restaurants (Felsenstein & Fleischer, 2003). For communities that live in the vicinity of the tiger reserve, the festival is an opportunity to host small shops and earn a substantial amount of money, otherwise hard to come by. To get a perspective of the economic turnover, according to our estimates the camping pilgrims alone in KMTR spent more than ₹ 10 million in 2010.

In summary the Indian conservation-religion paradigm, religious prayers, chants and mantras, ritual and arrangements surrounding the deity’s celebration during pilgrimage, is as real and necessary to pilgrims and religious stakeholder(s), as is protecting the fragile biodiversity of the forests to the foresters under conservation laws². Understanding both of these perspectives, and identifying and reconciling areas that need to be bridged intelligently, is central to the success of a long-term sustainable religious tourism effort².

1.2. Implication of religious tourism on the environment

Religious tourism, especially religious festivals with large inflow of people, can impact tiger reserves in a multitude of ways.

1.2.1. Non-biodegradable waste

The accumulation of plastic and other non-biodegradable waste is one of the most significant negative repercussions of large festivals. Non-biodegradable waste is hazardous to the environment and the wildlife within the tiger reserve. It litters the forest ecosystems, chokes water bodies and kills wild animals that unsuspectingly consume it. Packaging materials used for food and other camping supplies, disposable plates, cups and

cutlery and single-use polythene bags used to carry the offerings of foods and flowers, make up most of the plastic waste entering the reserve during festival days. In 2016, 260 kilograms of hazardous material like single use, *beedis*, cigarettes, matchboxes, chewing tobacco pouches, etc and 550 kilograms of single-use polythene bags was frisked at RTR main entrance over two days in a green pilgrimage management campaign (GPM) coordinated with the

1 Rattan. S. The Religion–Conservation Paradigm, Lessons for Practitioners in the Indian context, conference paper in Ecology, Environment and Religions: Key Issues and Challenges, Centre for Culture and Development, Vadodara 2018.



Forest Department. Issues of waste accumulation are compounded by littering and the lack of proper waste collection. It is important to ensure, that not only the amount of plastic that enters the tiger

reserve during pilgrimage be restricted and reduced, but also that littering of waste is properly addressed through awareness campaigns and suitable waste disposal systems.



1.2.2 Water pollution



Escherichia coli

Another significant negative consequence during pilgrimage is the pollution of water bodies, specifically rivers that run close to the festival premises inside tiger reserves. Across India, holy sites are typically built in the proximity of rivers where pilgrims often carry out prayer rituals. In many religions and cultures, including Hinduism, many rivers are considered holy and are worshipped. At the Garjiya Mata Temple near Corbett Tiger Reserve, taking a dip in the holy Kosi River is a central ritual of the annual festival. If there are situations when pilgrims stay for a few days, they may also draw water, bathe, use the riverbanks up or downstream for defecation, and in some instances, conduct animal sacrifice. A polluted river system not only affects the environment and wildlife but also local communities living downstream who depend on them as their only source of water. In KMTR, tribal communities that live along the Tamirabarani River have reported dysentery, skin rashes, and food poisoning for months after the festival. These are likely caused by increased levels of *Escherichia coli*.

1.2.3. Disturbance to wildlife and plants

The mass influx of people within the tiger reserve on festival days can significantly affect vulnerable wildlife and ecosystems. The sudden increase in noise and bright artificial lights produced by large crowds camping and thousands of pilgrims walking through core biodiversity areas can have unintentional impacts on the resident fauna.

Roadkill can also significantly increase if heavy traffic movement is permitted during the festival (— Seshadri 2011). Trees and plants can incur damage

due to their use as fuel wood for cooking and warmth. Vegetation also suffers when it is cut and cleared to establish makeshift camps. Particularly sensitive plants such as the rare endemic cactus, *Euphorbia susan-holmesiae* (bottom left), found in KMTR, were severely affected due to increased human movement and camping in 2014-15. Also, the ground which has been cleared here year after year for camping, has left the ground hard and gives very less opportunities for regeneration.



1.3. Need for a green pilgrimage management (GPM) model

Religious tourism has been steadily increasing in India and many tiger reserves receive hundreds of thousands of pilgrims every year. Considering the scale of religious tourism within tiger reserves, its significance to people, and its potential impacts on the environment, it is apparent that tiger reserves need to have robust management strategies for religious tourism.

In order to address these impacts, and to support management of religious festivals in PAs, NGOs like ATREE, ARC and WWF have evolved a multi-stakeholder approach over the years with hands-on piloting using measures that combine conservation,

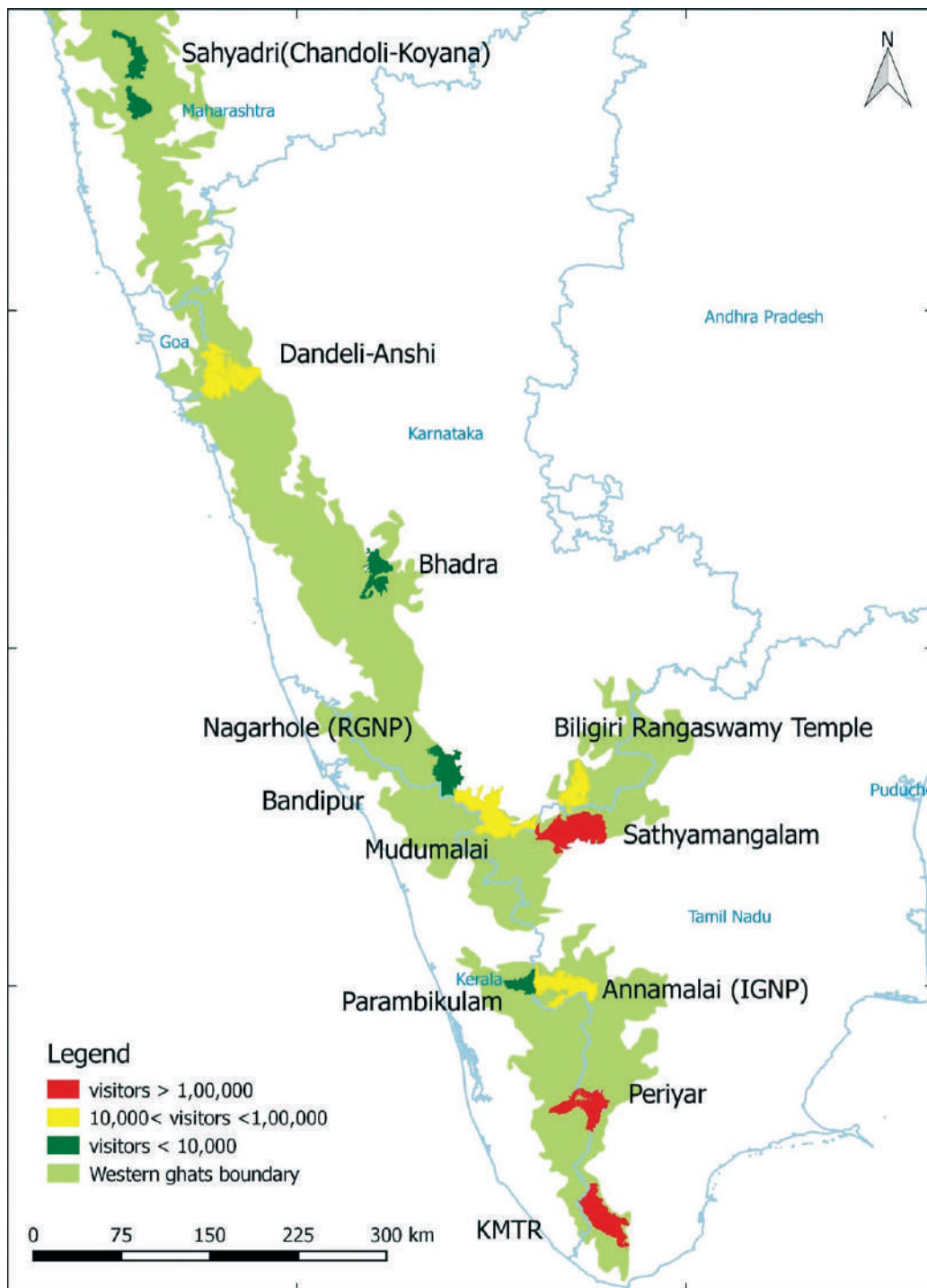
and religious and cultural considerations. These partners have tested a GPM (Green Pilgrimage Management) model in three tiger reserves across India: Kalakad Mundanthurai Tiger Reserve (KMTR) in Tamil Nadu, Ranthambore Tiger Reserve (RTR) in Rajasthan, and Corbett Tiger Reserve (CTR) buffer, Uttarakhand (**Annexure-1**). Experience was also gained from studying pilgrimages at additional sites including Nandhour Wildlife Sanctuary (deemed Tiger Reserve), Uttarakhand; MM Hills Wildlife Sanctuary, Karnataka; Kurumalai Reserve Forest, Tamil Nadu; Tonk Community Reserve Forest, Rajasthan.

It is thought that most, if not all, tiger reserves

and many PAs in India have religious sacred sites within their boundaries. ATREE's research found that in the Western Ghats alone, there are 50 sacred sites located in tiger reserves with large numbers of pilgrims.

To help understand the true scale of religious tourism in tiger reserves, we attach a short form to be filled in **Appendix-1** of these guidelines. This will help us record all the places of worship within tiger reserves.

Tiger Reserves in the Western Ghats



2. Guidelines for Tiger Reserve Managers: Overarching Framework

This section outlines the framework developed by ATREE, ARC and WWF for greening pilgrimages in tiger reserves. The framework is divided into five basic steps involved in developing and launching a multi-stakeholder GPM plan whose aims are to:

- (i) Decrease negative environmental impact of large scale religious pilgrimage in tiger reserves
- (ii) Increase religious support for conservation efforts This framework can be adapted to the context of the specific reserve.

Step 1: Understanding the dynamics of religious tourism in tiger reserves including impacts and threats to biodiversity

- Identify the key threats posed by religious tourism by assessing waste levels, sanitation issues, water quality of water bodies, traffic and road kills, impacts on plants and animals, before and during religious festivals.
- Understand the social dynamics of the pilgrimage through a mix of existing research, interviews with religious figures or scholars, and by conducting socio-economic surveys with pilgrims. Survey the pilgrim demographics; frequency and duration of their visits; length of time spent in core biodiversity areas; weekly / annual pilgrim flow to temples; transport used; fuelwood use; open defecation and toilet use patterns; pilgrim perceptions of pilgrimage and the environment; pilgrim opinions concerning regulations, and the impacts of awareness campaigns.
- Identify the main stakeholders in religious pilgrimage; these often include pilgrims, religious temple authorities and religious organisations and groups; government bodies including Forest Department, district authorities and the associated line departments like local municipality, police, block development officers; village governing bodies, civil society organisations like community-based associations, schools and universities; shop keepers, tourist operators and NGOs, to name a few. It is essential to understand who has what stake in religious pilgrimage events, and to open dialogue with the key groups.
- Identify and prioritise mitigation measures—such as regulating traffic, proper waste disposal and sanitation facilities, preventing entry of non-biodegradable plastics, reducing forest fires, etc.
- Establish a monitoring regime based on environmental and social indicators; identifying measurable key indicators; and using results as feedback for improved management decisions as a part of an adaptive management framework.

Step 2: Make recommendations for improved management of the reserve before, during, and after pilgrimages

- Based on the information collected in Step 1, compile a report outlining the key threats to local biodiversity posed by religious tourism and pilgrimage, making recommendations on ways to mitigate these threats and monitor them over time. Propose strategies for reaching out to and working with religious groups, civil society groups and communities via action plans and awareness campaigns.
- This initial report forms the basis of discussion in a process of dialogue with multiple stakeholders to develop a participatory, multi-stakeholder action plan to manage religious pilgrimages.

Step 3: Support the establishment of multi-stakeholder committees to develop and launch co-management plans for a more conservation friendly pilgrimage

- Establish mechanisms for open dialogue with key stakeholders concerning green pilgrimage. Ideally this open dialogue will result in the creation of a multi-stakeholder committee that reaches an agreement on a green pilgrimage management plan that addresses issues including non-biodegradable plastics, waste, sanitation, biodiversity protection, awareness raising and education.
 - Agree to action plan with defined roles, responsibilities and timelines, to share management responsibility among all actors for different aspects of the plan.
-

Step 4: Launch Co-Management Action Plan, including faith-based awareness campaign

- Carry out initiatives identified in the action plan in order to mitigate threats and monitor them over time.
 - Develop and launch awareness / behaviour change campaigns aimed at pilgrims and in local villages within a radius of 0-60 kilometres, from where many pilgrims come. Provide information on local reserve management regulations.
 - Incorporate into the awareness campaigns positive, faith-based messages linking specific religious beliefs and values, identified in earlier research, to conservation issues. Specific information on reserve regulations, such as a ban on the use of plastic bags, fuelwood cutting, restrictions on littering and open defecation can be highlighted.
 - Communicate messages in ways that are sensitive to, and which reinforce, religious and cultural practices. These may include dramas and street plays, art, folksong, media messaging from religious leaders, education rallies, school outreach, articles in local newspapers and social media, television advertisements, petitions, banners and posters featuring religious messages and icons. This would be best done in collaboration with local religious organisations.
-

Step 5: Monitoring Impacts, Working with Challenges

- Determine environmental indicators that measure negative biodiversity impact and disturbances during the pilgrimage, such as: monitoring density and type of traffic, disturbance to animal movements, wildlife road-kills, pressure on biomass and damage to flora and trees, pollution of nearby water bodies, and generation of non-biodegradable waste.
- Develop socio-religious-economic indicators to evaluate pilgrims' background. Ascertain their behaviour and perceptions on conservation campaign issues like cleanliness and waste, sanitation, awareness non-use of non-biodegradable waste like polythene. Include in these assessments their religious beliefs and practices which predispose them to support or hinder conservation and nature protection.
- Standardize monitoring and evaluation regimes for conservation and socio-cultural indicators to measure progress over time. It is also essential for Forest Department authorities to grant permission to GPM conservation research and social organisations to establish and monitor such research inside the Tiger Reserve. The Tiger Reserve authorities need to participate in, and understand this exercise, to develop their own skills sets and techniques. Rigorous and credible information goes a long way in substantiating administrative and policy changes.
- Establish an information and feedback loop between key decision makers like forest authorities, district government, temple authorities, NGOs to make discreet and overt changes. Provide regular GPM reports, hold stakeholder meetings, establish new procedures and financial allocations for faith-ecology partnerships to enable this. Be sensitive to both conservation concerns of the Tiger Reserve and socio-cultural needs of pilgrims.

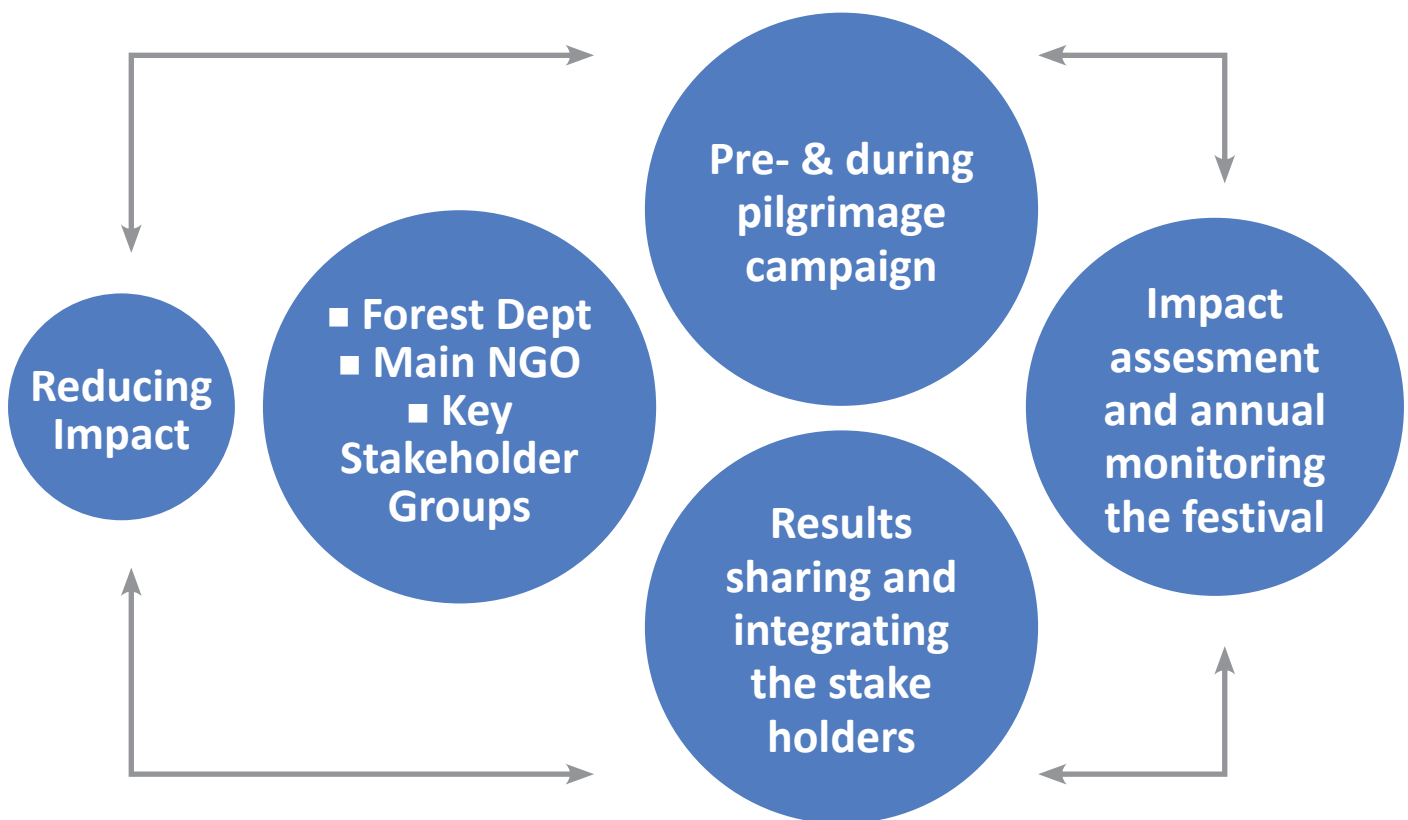
Linking stakeholders for Green Pilgrimage Management

Conservation NGOs, Forest Department, ARC Inputs from Research

MONITORING

Annual Trends in pilgrims population
Traffic flow/Road kills
Plant-animal disturbance
Forest eco system impact

Socio-economics of pilgrimage
Cultural-religious beliefs that support nature
Impact of campaign activities
Changing land-use



STAKEHOLDERS

Forest Department
Temple Trust
Ground NGO
District Administration
Civil Society/Pilgrims
Socio-religious bodies
Panchayats

Educational Institutions
Mela Shopkeepers
Bhandara (free food stalls)
Media
Forest Dependent villager
Folk artists
Police

2014-19 Socio-religious model with Conservation NGOs (ATREE, ARC & WWF) and ground NGOs

2.1. Partner with national and local conservation NGOs for GPM

Green Pilgrimage Management (GPM) involves a different approach to conservation than the Forest Department may be used to. It brings together a range of non-traditional stakeholders and local communities, employs different skill sets like socio-cultural research, awareness and education campaigns, and devising waste and sanitation management programmes. It also entails working with communities living outside the TR, in the wider landscape.

To assist the FD in GPM, it is recommended to partner with a national or local conservation and / or civil society organisation that can help develop and implement the GPM process in the first few years. This allows the TR to monitor, support and develop the pilgrimage model initially with active but modest involvement. Ideally the Forest Department would institutionalise GPM in its TR management plans within 3 to 5 years with the help of these partnerships.

3. Specific Guidance for Step 1: Research

It is vital to conduct research that can inform management strategies that address the threats to the environment posed by religious tourism. For example, extensive research has been conducted in Kalakad Mundanthurai Tiger Reserve (KMTR) over the past 10 years to understand three main components associated with its annual Adi Amavasya festival:

1. The impact the festival has on its environment
2. The attitudes and behaviours of the pilgrims
3. The effectiveness of the interventions that were implemented

The methods used in monitoring these aspects in KMTR have proved useful in adapting management strategies and making them more effective. Based on this, the guidelines recommend the following studies to monitor festivals that take place within tiger reserves.

3.1 Identify & monitor environmental impacts - (environmental impact assessment)

Vehicle monitoring

A vehicular traffic survey can be used as a proxy to estimate the number of pilgrims attending a festival. The data can be used to estimate the extent of pressure that vehicular traffic exerts on the ecosystem through roadkills, noise, and other forms of disturbance to the surrounding environment (see Appendix-11).

Roadkill estimation

An acute increase in the amount of vehicular traffic occurs on days of large-scale pilgrimage. If vehicles are allowed into the TR during the festival period, there can be an increase in the amount of roadkill



of the reserve's fauna. The amount of roadkill that occurs during the festival days or during any average day of the year can be estimated (see Appendix-10).

Wildlife biodiversity assessment

Several studies indicate that wild mammals respond to human disturbance by migrating away from the area of human activity. A study of animal occupancy can be conducted to understand the extent of impact an event can have on the animal population in its vicinity. Conducting animal occupancy before, during and after the festival can provide an accurate understanding of the impact the festival has on the mammal populations in the region (see Appendix-9).

Plastics quantification

A plastic quantification survey while frisking pilgrims can be conducted at the Forest Department checkpoints, to monitor how much plastic is being brought into and out of the reserve, and what it is used for. This information can later help in creating good management strategies to reduce the inflow of plastic into the tiger reserves (see Appendix-6).

Vulnerable plant species

Festivals, and the drastic increase in the number of humans moving and camping in the forest, can have an impact on sensitive species of flora. Through systematically collected photographic data, the damage incurred on specific vulnerable plant species can be monitored. Photographs can be taken before and after the festival of the same plant specimen and compared to understand the impact the festival has had on the specific species. Appendix-12 provides an example of such a study conducted on the plant *E. susanholmesiae* in KMTR in 2016.

3.2 Identify and monitor the social dynamics of religious pilgrimages

Identifying and monitoring environmental threats related to mass pilgrimage is essential, but recognising and understanding the dynamics of religious pilgrimage through social research helps tailor more effective management responses. To gain an initial perspective, we recommend a pre-pilgrimage social survey of communities living in nearby villages / town from the temple and TR (0 - 60 km radius), before commencing the first year of GPM (Rattan S., Vijayalakshmi G.S., 2019, Executive summary - Sustainable Green Religious Tourism – Kalakad Mundanthurai Tiger Reserve, Tamil Nadu, India).

3.2.1 Identify and monitor the social dynamics of religious pilgrimages

This element can be daunting for tiger reserve managers without adequate training in social science. The research should ideally be designed and implemented with help from sociologists or cultural specialists. It is advised that a partnership is formed with a civil society organisation that can help evolve the social science dimension of a green pilgrimage initiative. These can be universities or religious / cultural NGOs with expertise in research and community outreach. Appendix-2 details how pre-pilgrimage social surveys are carried out.

Pre-Pilgrimage Social survey and research in Ranthambhore Tiger Reserve (RTR) – 2014

A social survey of RTR, its pilgrimage township of Sawai Madhopur, and several surrounding villages was commissioned through the faculty and students of Tata Institute of Social Sciences (TISS) in 2014. The survey team of sociology students and ATREE researchers were supported in the RTR region by the NGO, Tiger Watch.

The report sourced secondary literature of the State Empowered Committee on Forests & Wildlife Management (2005) and expert opinion of the temple trustees and FD officials to determine a footfall of about 4 lakhs pilgrims during the main 3-4 days of *Ganesh Chaturthi* celebration. Pilgrims came in large village clans and joint family groups. Only once a year on the night preceding Ganesh Chaturthi festival when pilgrims wait to see the moon are they allowed to stay overnight, singing devotional songs. Otherwise, there is a 6 am to 6 pm time limit for all visitors to the TR and temple.

The approximately 1300-year-old temple is deeply revered by local people and considered a special Ganesha in his *Trinetra* or three-eyed form. Devotees regularly visit to pray and seek blessings on holy days and also when undertaking important activities, like offering the first grains of a harvest, a daughter's wedding, building or buying a new house, etc.

Traffic surveys showed the temple had a high local footfall on Wednesdays, on monthly *chauthurthi* where local pilgrims did a parikrama. A 10-15 lakh footfall through the year was cited in literature. Questionnaire surveys found local pilgrims to be the most predominant group visiting the temple. The priest confirmed that during *Ganesh Chaturthi* most pilgrims come from the home district of Sawai Madhopur and adjoining south-west districts of Rajasthan called the Hadoti region. A few came from northeast Rajasthan and some from adjacent districts of Madhya Pradesh.

Devotees were mainly from rural semi-rural regions comprising rural farmers, farm labourers, privately employed people or self-employed residents of small towns. They had a modest income range (1-2 lakhs and 2-5 lakhs). Some affluent visitors from adjoining states visited in private transport or taxis during weekends. Most pilgrims belonged to Rajput clan, farming and trading communities like Gujjar and Mali, and Schedule Tribes like Meena. A few Brahmins and Marwaris also visited the temple.

Our surveys showed that pilgrims, especially the younger generation, realised the menace of polythene bags during pilgrimage. Devotees acknowledged the problems of garbage, sanitation and cooking in the forest during the pilgrimage and a lack of adequate systems to manage the negative impact. They felt the temple management / FD must provide some basic facilities like toilets and drinking water. Main stakeholders felt a clear lack of coordination between the FD, temple and fort authorities (Archaeological Survey of India); each resisted the other's proposals for improvements due to jurisdiction disputes.

During the pilgrimage, devotees felt they shared the forest with animals and didn't consider themselves to be overtly disturbing them for these few days in a year. However, surrounding communities had a problem with wild animals foraging their crops and lifting domestic livestock. They have an uneasy relationship with the Forest Department on this and other issues. Most stakeholders were open to participating in the GPM approach and the report gave some suggestions of the need to have multi-stakeholder cooperation and some restrictions to reduce overall negative environmental impact during temple visits.

The report was studied by ATREE, Tiger Reserve Forest department and the lead NGOs to devise an approach and framework for the initial year of GPM.



Devotees answering survey questionnaires at KMTR.

3.2.2 Socio-economic-religious surveys

Ascertaining pilgrim numbers, demographics and motives during pilgrimage help to understand the reality of demographics and behaviour patterns of visiting pilgrims. Surveys reveal the profiles of pilgrims to show whether a pilgrimage is patronised by any particular community(s), castes or sub castes. They also reveal attitudes of the pilgrims, their behaviour, perceptions and motives on conservation and religious priorities. This information can be an important management tool that aids TR managers. For example, questions on pilgrim's attitude and behaviour on waste disposal in the initial year of the awareness campaign can be analysed to determine whether pilgrims utilize dustbins and use polythene carry bags. In the successive years, we can assess whether awareness campaigns are changing their behaviour on waste issues. Whether temple authorities and the local government installing more dustbins are enforcing bans on plastics will be clear,

as also if they are providing alternatives to single-use polythene bags.

One day pilgrimage questionnaires

Many pilgrimages in Tiger Reserves are undertaken during the main auspicious day of the festival or, the night before to ring in the auspicious day. This was the case in RTR and Corbett buffer zone. There is no extended stay-over or camping in tents by pilgrims. After, *darshan* i.e., viewing and offering prayers to the temple deity, some devotional singing and partaking of food offered to all, the pilgrims disperse and leave within 24 hours.

Camping questionnaires

In certain pilgrimages like KMTR, some pilgrims stay over and camp for varying periods of time. This poses a major concern for conservationists harm to the local biodiversity. Surveys can reveal the motivations

and behaviours behind camping during the festival, and ascertain whether this is increasing the negative impact on the Tiger Reserve environment. Information is also collected on parameters such as the number of camps present; family size in tents; number of days of stay-over in the temple area, mode of transport used by the campers, uses of fuelwood or LPG for cooking by campers, their activities during multiple days of stay, feedback on facilities provided in camp area like water, sanitation, etc.

In both kinds of surveys, reflections from pilgrims on issues such as reasons for pilgrimage, how people relate to the specific deity associated with the area, what their experience is near the sacred area and

their feelings around pilgrimage, can be collected. This provides some insight as to how working with these diverse narratives around nature can contribute to conservation.

Information from survey analysis of a pilgrimage provides inputs for administrative and policy interventions on conservation and cultural priorities. Temple managers and the Forest Department can also use the information in their decisions for better pilgrimage management.

Appendix-2 gives a sample questionnaire for pilgrimages where camping takes place, and one for single day pilgrimage. It also explains how a socio-economic-religious survey is designed.

3.3 Identifying key stakeholders

Stakeholder engagement is considered a central feature when formulating a robust management strategy. It is particularly relevant as management of religious tourism within tiger reserves inherently involves a varied range of stakeholders. Stakeholders are individuals, groups of individuals or institutions that affect or get affected by a decision or project (Reed, 2008). This includes not only primary stakeholders who are directly involved or affected by a project e.g., temple or forest department, but also secondary stakeholders who are impacted indirectly, like local civil society or transport operators. It is important to involve primary stakeholders responsible for the management strategy, production and implementation, but equally to also consider the wider range of other stakeholders who get affected by these strategies.

The process of stakeholder engagement requires us to identify all stakeholders associated with the religious festival that takes place in a given tiger reserve. It is useful to categorise stakeholders into broad groups according to their roles and functions, in order to tailor methods of stakeholder engagement appropriate to each category.

The stakeholders may be categorised into five broad groups:

1. Government Bodies
2. Religious Stakeholders
3. Local Residents and their groups
4. NGOs and private bodies
5. Private organisations / business

Appendix-3 provides a list of stakeholders that we have found as relevant for religious tourism but you may add others applicable to your site.

3.3.1 Specific Guidance on Religious Stakeholders

Approaching and engaging religious stakeholders requires its own set of strategies. Much like other institutions, religious institutions have their own hierarchical structures, processes and procedures through which they operate. Hinduism is the primary religion with which we have engaged during our work in KMTR, Corbett TR buffer, Ranthambore TR and pilgrimages in other PAs. It is important to understand the primary and secondary religious stakeholders involved in Hindu pilgrimage sites. These can include:

Primary Religious Stakeholders:

- 1) *The Temple Deity*: Be acquainted with the specific religious tradition of the pilgrimage i.e., Shaivite,

Vaishnavite, Divine Goddess, Ganesha, Hanuman, saint / prophet, etc.). Understand the religious and historical context of the temple to the landscape, including degree and type of powers the deity is ascribed to possesses which attracts pilgrims to the sacred site.

2) Official guardians of The Temple Deity: Most often these are temple trustees who are community-appointed, or hereditary trustees who owned the temple or whose families have looked after it through generations. In some tiger reserves, special government departments are entrusted with managing religious endowments (temples) as in South India's KMTR; in some cases such temples have a hereditary trustee who also weighs in on decision-making. The Rajah, the head of the temple in KMTR, was a hereditary trustee and temple head, a person of significance whose words and opinions were taken seriously by the local people, the vendors, and the official temple administration.

In RTR Rajasthan, the temple trust was a private trust. Many religious temple trusts, private or community-based, are closely held. Often official guardians of the temple have important political and societal patronage.

3) Priests: The main temple priests and other priests perform worship, conduct rituals and organise other activities such as performing specific prayers for devotees, distributing food (*prasad*), etc.

4) Pilgrims: These are individuals, families, clan and village groups coming from different locations. In KMTR during pilgrimage over 90% pilgrims come from within 1-100 km distance and mostly from the same district (1-60 km). In the case of RTR and Corbett buffer zone, about 30% of devotees came from areas further away i.e., from a different district or an adjoining state. Both these Tiger Reserves had borders close to other states.

Secondary religious stakeholders:

5) Temple administrative staff: These staff work under the guidance and supervision of the main temple management authority who look after administrative affairs. They are helpful for coordination of GPM campaign preparations and to implement its activities. In KMTR, they coordinated arrangements of food, stay, implementing changes in sanitation and waste measures, and non-use of polythene by shopkeepers.

6) Festival Shopkeepers: These shops often have formal approval or certain arrangements with the local temple to operate during the pilgrimage, or form part of an association of shopkeepers. Local shops are often a major source of waste generated by pilgrims. Plastic wraps and polythene bags, food containers, disposable, cups plates, and food waste, food wrappings and packaging (ice cream, chips, bottles), religious offering i.e., flowers, *prasad* packets, cloth *chunnis*, etc. It is therefore important to build good relations with shopkeepers to ensure their involvement and endorsement of any conservation work or campaigns. The Corbett buffer waste management plan was largely planned and run by the temple shop keepers' associations.

7) Religious civil society: Respected and influential elders associated with socio-religious hierarchy of the landscape often patronise and contribute to these temples and support the pilgrimage. These can also be religious persons, prominent members of surrounding ashrams or mutts, which help in the festivity and pilgrim arrangements. Sometimes religious civic societies or socio-cultural groups in the vicinity of the temple may also become active when mobilised. Some NGOs working with religious stakeholders can also be important allies.

2 (Rattan S., 2019. Sustainable Religious Pilgrimage at Sorimuthu Aayannar Temple, in Kalakad Mundanthurai Tiger Reserve (KMTR), Tamil Nadu during Aadi Amavasya pilgrimage. Bangalore, unpublished ARC Report)

Influential Religious Stakeholders

Often specific people or specific stakeholders in the religious landscape hold significant power and capacity to influence the local people. These are identified with time. There are also clear hierarchical structures within Hindu temples through which the priest and devotees at a local temple can also be associated with larger associations (*mutts*). Mutt leaders are influential. In some southern states, like Tamil Nadu, government-level organizations such as the Hindu Religious & Charitable Endowments Departments (HR&CE) have executive and administrative influence in religious affairs of the pilgrims visiting the temple. In many others states of India, religious political associations such as the RSS or “Rashtriya Swyamsevak Sangh”, established in 1926, exert influence in spheres of religious, cultural, and national identity related to Hinduism.

The relative influence of each of these religious stakeholders in a specific temple of a TR can vary. In Ranthambore Tiger Reserve, the RSS and its affiliates hold a significant amount of influence with the local people as well as with the private religious trust of *Trinetra Ganesh* temple. In KMTR, it was the Rajah of Singampatti, the hereditary trustee and head of *Sorimuthu Ayyanar* temple, who had the larger direct influence on the pilgrims and on decisions of the HR&CE temple administration. Recognising the different systems of power and influence helped GPM to prioritise efforts better and adapt to different management strategies in RTR and KMTR. In Ranthambore, we worked closely with the RSS-affiliated social organisation in taking forward a “Green Ganesha - Clean Ganesha” campaign with local pilgrims. In KMTR we asked the Rajah to announce restrictions on plastic sale and use during pilgrimage to shops and pilgrims.

3.3.2 Understanding religion and culture

To understand and work with religious stakeholders it is essential to understand the framework within which they operate, in terms of the hierarchical and social structures as well as the philosophical framework. Even within Hinduism (79.8% of the India’s population identify themselves as Hindu (National Census of India 2011), there is considerable variation across the country in terms of the particular belief system that people adhere to. Pre-pilgrimage social surveys by NGOs (**Appendix 2**) can provide considerable insight into to these issues when it

focuses on the particular religious belief system and festival that the Tiger Reserve is working with.

We offer a set of 12 questions in **Annexure 9** that can help the FD understand the specific religious system present in a landscape. Ideally a short reference document could be written from this to summarise the dynamics of the specific religious tradition and the festival’s significance and its main religious stakeholders.

Appendix-4 also gives a small synopsis of the **KMTR religious system**.

4. Specific Guidance for Step 2: Report

Step 2: Make recommendations for improved management of the reserve before, during, and after pilgrimages

Based on the information collected in Step 1, the next step is to compile a report outlining the key threats to local biodiversity posed by religious tourism and pilgrimage, which includes recommendations on ways to mitigate any negative impacts of the same, and lays out guidelines to monitor threats over time. Understand that **this initial report forms the basis of discussion in a process of dialogue with multiple stakeholders to further develop a participatory, multi-stakeholder action plan to manage religious pilgrimage.** A typical template used for GPM to generate these reports in tiger reserves is given in **Appendix-4.**

5. Specific Guidance for Step 3: Multi-Stakeholder Committees

Step 3: Support the establishment of multi-stakeholder committees to develop and launch co-management plans for a conservation-friendly pilgrimage

- Establish mechanisms for open dialogue with key stakeholders concerning green pilgrimage. In the GPM model for all three tiger reserves, open dialogue resulted in the creation of a multi-stakeholder committee.
- Agree to an action plan with defined roles, responsibilities and timelines for different aspects of the Plan. Multi-stakeholder committees reached an agreement on a green pilgrimage management plan that addressed issues including waste, single-use plastics, sanitation, biodiversity protection, awareness raising and education, and shared management responsibility among all actors.

5.1 Establishing Multi-stakeholder Committees

Prior to a pilgrimage event, a multi-stakeholder committee (MSC) is ideally formed by the Forest Department and conservation NGOs, to ensure a conservation compliant pilgrimage. The aim of the MSC is for key stakeholders to sit down and plan together for a Green Pilgrim Management (GPM) framework and action plan with clearly defined roles and responsibilities. Tiger reserve officials recognise that many GPM events require specialised expertise and additional manpower that can be provided by different stakeholders.

A distinction must be made between similar official departmental committee meetings of official Forest Department and District authorities that take place to oversee arrangements of the pilgrimage. Several rounds of official meetings are held annually, separately as well as jointly by the District administration and the tiger reserve authorities. As apex authorities they have important executive decision-making authority to finalise and streamline pilgrimage arrangements before the main event. Here, executive departments such as District Collectors and administrative officers, Forest Department officers, PWD, Health Department, Block Development officers, Municipalities, Police, Transport Department, etc., determine their roles and resources to be employed during pilgrimage.

These necessary meetings are separate and cannot serve as a substitute for GPM multi-stakeholder

committee meetings. The latter work with the TR for community involvement and participation to meet specific conservation goals.

Co-management can only be achieved when TR managers and religious and civil society groups communicate in ways that are respectful and culturally sensitive. Effective communication between government, religious and civil society actors is not always easy to achieve; each stakeholder group has multiple perspectives and views which demands consensus-building and reconciliation towards a joint management plan. The formation of multi-stakeholder committees, with a sensitive facilitator, can serve as an effective bridge in communication as trust and relationships grow. This path for step-by-step creation and establishment of a multi-stakeholder committee and the role of the members is given in **Appendix-3**.



RTR-FD meeting key stakeholders, ground NGOs and ATREE-ARC.

Case study: Division of responsibilities in multi-stakeholder management in KMTR

Joint efforts by NGOs ATREE and ARC, coordinating with key GPM stakeholders like the Forest Department, District Government, the Temple trust, and civil society groups, resulted in a division of responsibilities. The following measures were agreed upon in a multi-stakeholder committee action plan for KMTR's pilgrimage management:

- Clean-up teams at bottlenecks along pilgrimage routes and riverbanks would be the responsibility of Forest Department and district agencies. At the temple area and along its approach, volunteers were organised by ATREE and ARC.
- Tightening of restrictions on waste collection and pilgrim transport were to be handled by Municipalities, Temple Trust, ARC and local NGOs.
- Streamlining and restrictions of pilgrim transport to be done by district agencies and Forest Department.
- Ban on plastics / alcohol / cigarettes, etc; frisking pilgrims and tourists for these at checkpoints to be done by the Forest Department. College volunteers and civil society groups to assist FD.
- Replacement of single-use polythene bags by alternate bags like cloth bags sewn by local women's cooperatives or supplied by business groups, ATREE and ARC volunteers, women's groups, with Forest Department staff distributing cloth bags where necessary.
- Shopkeepers and stalls were asked to use dustbins and distribute non-polythene bags, including cloth bags while ARC 'market watch' volunteers and temple administrative staff regulated the use of plastics.
- Infrastructure provided for toilets / dustbins / sacrificial pits for collection animal waste with involvement of ARC, ATREE, Forest Department, temple authorities, municipality.
- Training and upgrading skills of temple administration and staff on waste and sanitation management was done by ARC and a local NGO, HUT.
- Temple area waste management program for cleaning and disposal, managing temporary toilets, improving cleaning and sanitization standards for pilgrims was done by ARC, HUT, temple and the municipality.
- Providing and displaying banners with faith-based messages on waste, sanitation and implementing ban on plastics was handled by the temple administration, ARC and HUT.
- Media / social media campaign was overseen by the temple administration, religious and civil society groups and ARC.
- On-ground awareness campaigns using faith-based, cultural, and conservation messages were carried out by ARC, HUT, ATREE, schools/ university volunteers, Forest Department and civil society groups.

5.2 Maintaining stakeholder relationships through the committees

Prior to a pilgrimage event, a multi-stakeholder committee (MSC) is ideally formed by the Forest Department and conservation NGOs, to ensure a conservation compliant pilgrimage. The aim of the MSC is for key stakeholders to sit down and plan together for a Green Pilgrim Management (GPM) framework and action plan with clearly defined roles and responsibilities. Tiger reserve officials recognise that many GPM events require specialised expertise and additional manpower that can be provided by different stakeholders.

A distinction must be made between similar official departmental committee meetings of official Forest Department and district authorities that take place to oversee arrangements of the pilgrimage. Several rounds of official meetings are held annually, separately as well as jointly by the district administration and the tiger reserve authorities. As apex authorities, they have important executive decision-making authority to finalise and streamline pilgrimage arrangements before the main event. Here, executive departments such as District Collectors and administrative officers, Forest Department officers, PWD, Health Department, Block Development Officers, Municipalities, Police, Transport Department, etc., determine their roles and resources to be employed during pilgrimage.

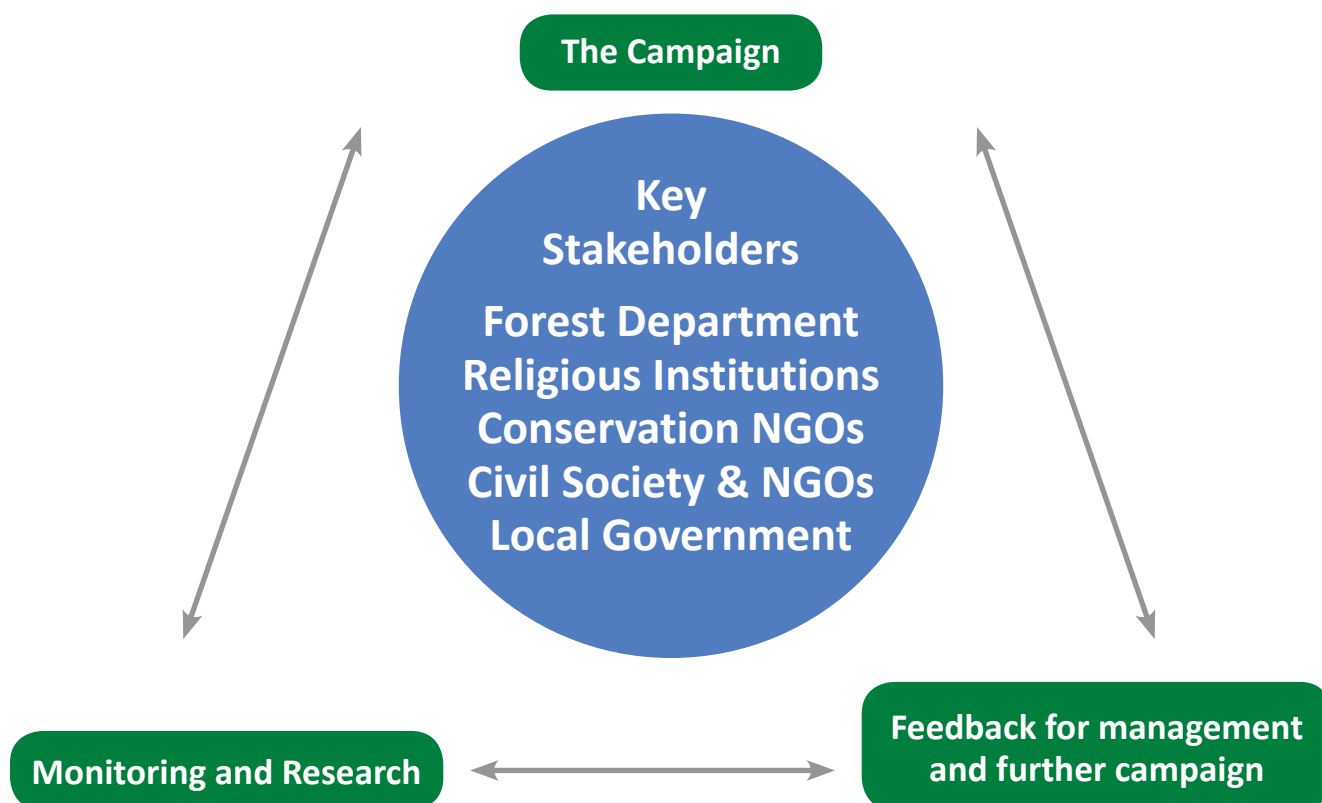
The period of time for which external organisations such as ATREE or WWF can be the on-ground coordinators for a project is often for a limited number of years. It is therefore important to set up procedures and spaces for engagement that can be carried forward even after external organisations are no longer involved. **Appendix-4** provides recommendations for maintaining stakeholder engagement during GPM. The onus falls on the FD and the conservation NGOs (local and national) to coordinate with GPM stakeholders and district government officials and maintain relations.



Ranthambhore Tiger Reserve - 2017 Felicitation of volunteers - Mela Magistrate (SDM), Municipal Chairperson Maam, Civil Society chair for GG-CG & ATREE.

As GPM requires the coming together of different stakeholders, it is very helpful to have a central and neutral organisation that is capable of co-ordinating between various stakeholders and maintaining the relationships between them. Local conservation and community NGOs along with the FD have the potential to take on the role of coordinators. They have the motivation and interest in conserving the environment as well the capacity to network and negotiate between the different stakeholder groups. The project can transition from external national / state level organisations to local organisations taking ownership with the concerned TR in a time frame of 3-5 years.

The Model to Reconcile Religion and Conservation



In each project site, socio-religious groups like ARC work with conservation partners to reduce negative ecological impact inside the forest due to religious pilgrimage. They aim to create a successful campaign process with key stakeholder participation, and monitor and evaluate progress over time.

6. Specific Guidance for Step 4: Launch Action Plans

Step 4: Launch Co-Management Action Plan, including faith-based awareness campaign.

6.1 Elements of a co-management action plan

- Carry out initiatives training temple staff to manage waste and sanitation hygiene, to mitigate threats and monitor them over time.
- Identify impactful behaviour and plan behaviour change campaigns aimed at visiting pilgrims. Provide information on local reserve management regulations.
- Map the flow of pilgrims from local villages within a radius of 0-60 kilometres so as to target outreach in an effective way by addressing locations where the flow is most.
- Using research, incorporate into awareness campaigns positive, faith-based messages linking specific religious beliefs and values research to conservation.
- Specific information on reserve regulations, such as a ban on the use of plastic bags, fuelwood collection, restrictions on littering and open defecation, can be highlighted.

Communicate messages in ways that are sensitive to religious and cultural practices.

Highlights

The following sections describe different kinds of interventions undertaken in KMTR, RTR and CTR. These can be used and adapted for management strategies in other tiger reserves. However, appropriate interventions for any TR or PA should be determined through collaboration and consultations with local stakeholders. The management plan should be linked to the level of impact and cannot be uniform. This was realised from our experience in various reserves.

6.2.1 Waste reduction

One of the most actionable interventions is assistance in the collection and disposal of waste from the premises of the religious centres and the bottlenecks along pilgrimage routes and riverbanks. There are measures that can reduce the inflow of waste, create effective disposal and cleanup systems, and create awareness among pilgrims. This can be done through a regulatory approach, such as ban of plastic in the park by providing more waste bins, sub-collection garbage dumps, toilets and separate areas for animal sacrifice. These actions can be supported by awareness campaigns that link religious beliefs with waste management messages, by clean-up drives that provide a tangible platform for the collaboration of various stakeholders such as FD, religious institutions, educational institutions and other enthusiastic stakeholders. **Appendix-5** provides the steps and processes required to design and implement a waste management plan.

Regulations

Interventions such as waste campaigns and clean-up drives can contribute significantly to the management of waste during festivals. They set examples to those who unthinkingly generate litter and waste. However, they might not be sufficient in addressing the inflow of plastic and other non-biodegradable materials into TRs. Restrictions and regulation imposed by like the Forest Department and district administration can play an important role in restricting negative impact on the environment of the Tiger Reserve.



Replacing polythene with alternatives by the women’s team at Corbett Tiger Reserve.

Waste Infrastructure

Setting up of temporary infrastructures such as toilets and sacrificial pits in KMTR was required to address issues associated with human and animal waste. Due to open defecation and animal sacrifice, both conducted near the water bodies and river systems next to the festival premises in some Tiger Reserves, these water bodies often endure unwanted pollution. In order to curb these behaviours and reduce the impact on water bodies, alternative temporary infrastructure such as toilets and sacrificial pits should be provided by the FD and temple administration,



Confiscated polythene bags with volunteers at RTR 2015

often with assistance of the district administration. Although new permanent infrastructure within TRs is not permissible under NTCA guidelines, temple authorities, district administration and the forest department can be collaborators in upgrading the existing sanitation system. The Public Works Department can be involved and help in the responsibility of maintaining the toilets alongwith templestaff, once a GPM project hands over charge. **Appendix-6** outlines what it takes to achieve sanitation cleanliness hygiene in TR pilgrimages.

6.2.2 Road Access / Transportation

In KMTR the access roads leading up to the festival premises often witnessed a significant surge in traffic and consequently caused wildlife road kills during the days of the festival. Policy level interventions can restrict private vehicles from entering the tiger reserves during specific times or days of the festival. In KMTR, where one has to travel 14 km by road inside the TR to reach the temple, research indicated significant road kills during the main pilgrimage period. A change in policies in 2015 resulted in restricting all vehicular movement after dark when the number of road kills increases significantly due to low visibility and blinding headlights. In 2017 all private vehicles were banned during the main days of pilgrimage. This was combined with the provision of public buses arranged by the district administration to ferry pilgrims to and from the festival. This helped reduced disturbance to wildlife and brought down the number of roadkills during the festival period.

Caveats

The decision in 2017 to streamline transportation in KMTR to reduce the impact on biodiversity may have had unintended consequences. Social research shows pilgrims come in big family groups of anywhere between 6-25 individuals, travelling in pre-hired private transport from their villages. They bring along camping gear, several days of provisions, and sacrificial animals like goats and chicken. They stay in the reserve to observe their cultural-religious rituals for several days. Changes brought in the new transportation policy does not allow for such extended stay and created dissonance among pilgrims and temple authorities.

Social research further revealed that camping pilgrims consequently come much earlier to the pilgrimage site and leave later to avoid the private transport ban on main pilgrimage days, as a result of which pilgrims are now staying longer than before the regulations set in. It is important to organise transport so that conservation and religious-cultural concerns can be met. Taking cognizance of the feedback from the social survey, FD has started operating their transport services in the subsequent year which improved the situation manifold, thereby reducing the traffic congestion and also likely impact of road kill. The forest department also provided a special transport for differently abled pilgrims.



Local women making cloth bags in Ranthambore Tiger Reserve.

6.2.3 Faith-based Awareness Campaigns

Awareness campaigns are effective for educating targeted groups of people to bring about changes in their attitudes and behaviours. Our socio-religious research strongly suggests that pilgrims and religious groups attending festivals inside PAs are predisposed to supporting conservation goals (Internal KMTR 2017 & 2018 Reports and Corbett 2017 report). Their cultural and religious beliefs support a view that the biodiversity surrounding these temples is protected by the temple deities. They do not disturb the forest area and wildlife deliberately². Drawing upon these beliefs and values in awareness campaigns can be effective in shifting behaviours.

Recognising the contributions that sacred sites can make to protected area management objectives (Oviedo 2005; Verma et al. 2017) requires the implementation of strategies linking awareness of protected area management regulations to religious beliefs and values.



Green Ganesha - Clean Ganesh campaign poster

The few weeks leading up to the festival can be used to conduct on-site faith-conservation-based awareness campaigns in villages from where local pilgrims arrive, as well as the main satellite town around the tiger reserve. Meanwhile, print media and social media awareness campaigns can be organised to reach out to the pilgrims that visit from far away. The 'Green Ganesha - Clean Ganesh' campaign conducted in RTR, where popular folklore and religious imagery were used to convey conservation messages, effectively conveys how such a campaign can be successfully implemented. A typical religious folklore was used in street plays in RTR.

*'Every God loves Nature and loves Natural things within his own boundaries,
He protects them, maintaining his responsible authority.
He wants to be surrounded by green trees, and plants, and water,
He wants animals and Birds to receive shelter'*

– Rajasthani folk song

2. Chantal Elkin, Sanjay Rattan, Soubadra Devy, and Ganesh Thyagarajan, Managing religious pilgrimage to sacred sites in Indian protected areas; (ed) Bas Verschuuren, Steve Brown, Cultural and Spiritual Significance of Nature in Protected Areas - Governance, Management and Policy (2018). Routledge



Faith based conservation rally conducted by ATREE at Male Mahadeshwara Hills in Karnataka.



Faith based awareness campaign at the water front in Tamil Nadu.



Street plays during pilgrimage at Kurumali Forest Reserve.



Street play in Ranthambore Tiger Reserve that endorsed cloth bags instead of polythene.



Another street play in Ranthambore Tiger Reserve.

In KMTR, the Rajah was of the opinion that the annual pilgrimage was also an opportunity to reinforce religious beliefs on the sanctity of nature amongst pilgrims, especially for connecting the younger generations to nature. In all PAs and TRs where we worked, there was a strong religious belief that the presiding deity protects the forests and wildlife in the vicinity of the temple. Pilgrims mindful of this would receive merit from the deity; willful disregard would deny blessings. In all three tiger reserves, the awareness and education campaign used several media vehicles to gain the attention of pilgrims on this aspect of protection during and before the pilgrimage:

- A team of volunteers with banners and placards displaying images and messages on key faith and conservation themes dispersed over the main festival areas. Camping zones, temple areas, river waterfront, festival market places were covered several times a day.
- A separate team of volunteers kept a vigilant 'market watch' on shopkeepers and pilgrims near the market and temples on the use of plastics and use of dustbins.
- Attractive audio jingles on key conservation themes were created and played periodically over loudspeakers in the temple and surrounding marketplace. Regular audio jingles were found to be more effective in reminding pilgrims to change behaviour. The forest department also reminded pilgrims of dos and don'ts through loudspeaker messages.
- Street plays and folklore before and during pilgrimage were used to convey the anguish of plants and animals by negligent human behaviours. A favourite theme was the death of an animal that ingested discarded polythene.
- Rallies were carried out in the close-by towns by youth, religious citizens and schoolchildren before
- the pilgrimage.
- The GPM ensured media coverage in newspapers during the build-up to the festival and sent key messages to pilgrims.

Appendix-7 gives guidance on how the Forest Department can carry out a faith-based awareness campaign.

The socio-cultural and religious connections to the local deity in TRs should be acknowledged and supported while devising any conservation action plan in the reserve. This also helps engage effectively with religious stakeholders. Normally, a deeper study into understanding the importance of religious and cultural customs and beliefs practised during the annual pilgrimage can add insight into how traditional beliefs can be supported to conserve the natural biodiversity of tiger reserves.

The table below gives an indicative idea of how an awareness-education-response campaign runs. It is not necessary to use all techniques, but to implement those that will impact stakeholders.

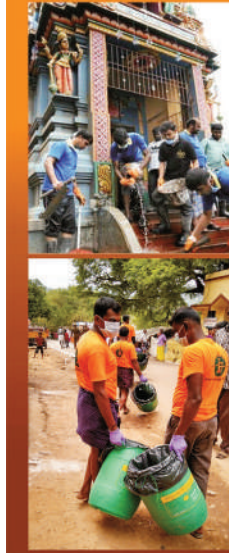


Conservation-faith based messages by the Temple Head (KMTR) and former Rajah of the area urging pilgrims to reduce negative environmental impact.



Animals venerated as forest spirits have a small altar of their own and are worshipped inside Sorimuthu Ayyanar temple in Tamil Nadu.

கோயிலை தூய்மையாக வைத்திருக்க உதவுங்கள்



Admission
Gate closed during
festival

भक्तजनों से निवेदन

- ❖ पॉलिथीन का उपयोग ना करें। प्रसाद के लिए कागज या कपड़े के थैले का इस्तेमाल करें।
- ❖ गणेश धाम गेट से मन्दिर परिसर तक प्लास्टिक या प्लास्टिक से बनी हुई वस्तु का उपयोग ना करें।
- ❖ इस पुन्य क्षेत्र में पाप ना करें। मन्दिर परिसर, वन एवं पर्यावरण को स्वच्छ बनाये रखें।



महन्त संजय दाधीच

Mandir appeal at Ranthambore Tiger Reserve and a sign board at Kalakad Mundanthurai Tiger Reserve requesting people to keep temple areas clean.



Linking waste with faith: Holy cows feeding on waste near the Ganesh festival area just outside Ranthambore Tiger Reserve.



2016 Awareness campaign at Ranthambore Tiger Reserve.



Rally by school children in the main pilgrimage town (SWM) outside Ranthambore Tiger Reserve in 2014.

Media to be used

1. Key conservation & Faith messages to be used in all media vehicles

Before main pilgrim event

Conceptualize and finalize, engage artists, design, print record. Prepare all end point material

During main pilgrim event**VISUAL**

1. Cloth Banners

Key places on pilgrim path, at the pilgrimage temple area 1-2 days before main event

At key vantage points – Frisking area, Temple area, festival market area), safeguard against pilferage during event

2. Placards carried by students and volunteers with innovative group display

During pre-festival rallies in pilgrimage town

Awareness programs in places where pilgrims are congregated, near shops, temple, camps

3. Dress code of main volunteers for high visibility of campaign work. Eg, T-shirts which combine religious and conservation messages

During pre-festival rallies

On all assigned main campaign tasks

4. Print Media

Give timely feed to local / national newspapers on events occurring. Have concerned stakeholders covered

Give timely feed to local / national newspapers on success and feed backs. Also give campaign write up post event

AUDIO

1. Jingles on loudspeakers

During pre-festival rallies Village street plays

Periodically in festival market, main pilgrim camp, temple areas

2. Songs which are appealing for local community on conservation-faith

During pre-festival rallies Village street plays

Periodically during event

AUDIO VISUAL

1. Rallies, by youth and school children

Pre-festival rallies

during start of event if possible Village street plays main pilgrim

2. Street plays for local community on conservation-faith

Pre-festival in pilgrimage town, key villages

A few times during pilgrimage event

3. Volunteer teams with placards for awareness

During pre-festival rallies

During main event, every day periodically, where pilgrims congregate

4. Short video capturing key events / messages by project or local cable operators

Broadcasting in local for cable TV (years 2 to 5) for relay through good offices of community or Tiger Reserve / District Government

Give to local news channels feed (years 1 to 5) through good offices of community or Tiger Reserve / District Government

7. Step 5: Monitoring the impacts and working with challenges

7.1 Monitoring the impacts of GPM through indicators

Biodiversity and environment

In KMTR, we were able to demonstrate on the reduction of road kills by many fold with the ban on night traffic. This was correlated with the vehicular traffic reduction through public transport and special arrangements for differently-abled people. Mammal occupancy level could serve as key indicator during festivals.

Also, in partnership with the local college, the *E. coli* monitoring served as an indicator of water quality. This clearly demonstrates that a sustained effort and long-term management is critical to bring about a change.

Social

Direct or indirect indications of social change in GPM are measured on issues like: perceptions and behaviour responses to waste and littering, sanitation and open defecation; awareness and impact of conservation messages; effectiveness of using religious beliefs in conservation, etc. The impact of any cultural practice, for instance, of pilgrims staying overnight during pilgrimage was also analysed, evaluated and compiled by GPM's socio-religious team / conservation team. **Annexure-11** quantifies some of these social impacts and indicates whether GPM is moving towards achieving its goals. Over time they help assess the level of progress towards achieving the intended outcomes of GPM.

7.2 Working with Challenges

Green Pilgrimage Management is still an evolving model. Experience shows that action plans evolve over the years. In three TRs where we worked, we were able to nudge management to become adaptive from year to year, based on the indicators which measured the impact of the interventions.

In maintaining GPM partnerships, overcoming resistance and reconciling differences amongst stakeholders is key to evolving the multi-stakeholder engagement over time. In many cases, temples may not have the knowledge about environmental impacts of pilgrimage and they may just view it as resistance to access. Often, religious institutions are stigmatized as perpetrators of the impacts. Through our experience we were able to demonstrate that involving them in talks made a remarkable impact also including pilgrim cooperation.

Moving into a GPM framework also requires multidisciplinary skills for evaluating campaign modules on waste and sanitation management, awareness and education, communication skills, training volunteers in conducting social surveys, to name a few. It is important to work with partners who have these expertise. Evidence shows this multi-disciplinary approach has worked in the three Tiger Reserves when the project was implemented.

Lastly, resources have to be set aside by key stakeholders to make GPM sustainable. A long-term engagement at each TR-temple pilgrimage site is needed to establish multi-stakeholder models over time. In KMTR, for example, the Forest Department is making some GPM concerns a part of their annual management plans. Government and temples are providing funds to support aspects of GPM that need redressal. Conservation NGOs like ATREE and WWF have supported this work in India as well as in other pilgrimage sites in other PAs over the world. It is important to pay attention to all the above aspects to make GPM a success in the Indian context to effectively address NTCA concerns on religious tourism in tiger reserves.

7.3. Judiciary support

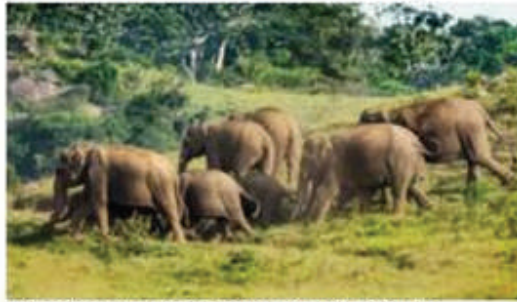
Recognising the Green Pilgrimage model in KMTR proposed by ATREE and based on the principles of adaptive management, the Madurai bench of Madras High Court gave an order to Tamil Nadu Forest Department and district administration. The order outlines strict adherence to ATREE's recommendations by authorities to achieve mitigation of impacts associated with religious tourism. This was an outcome of citizenry stewardship and carefully crafted outreach, based on which a public interest litigation was filed by a citizen when there was a setback in the implementation of GPM guidelines. Judiciary support can strengthen the hands of authorities to refuse undue demands of pilgrims. For example, banning night traffic and reducing private vehicles (**Appendix-13**).

'Consider representation to implement measures in KMTR'

STAFF REPORTER
MADURAI

The Madurai bench of the Madras High Court has directed the State Forest Department and Tirunelveli district administration to consider a representation seeking implementation of various measures, including regulating vehicular movement, inside Kalakad Mundanthurai Tiger Reserve.

The court was hearing a public interest litigation petition filed in 2015 by advocate B. Danasekaran of Tirunelveli. He had sought a direction to the authorities to take action to prevent vehicular movement inside Kalakad Mundanthurai Tiger Re-



Elephants at Kalakad Mundanthurai Tiger Reserve in Tirunelveli district. ■ FILE PHOTO

serve, particularly, through Papanasam check-post from 6 p.m. to 6 a.m.

He said the authorities should prevent the parking of vehicles in the forest area

and make arrangements for vehicles to drop tourists and leave the reserve. Speed breakers should be installed

at regular intervals from Papanasam to Karaiyar to slow

the vehicle speed. Vehicles convoy should be introduced to minimise roadkills.

Further, he said the authorities should prevent sounding horns inside the forest area. Steps should be taken to prevent any form of camping inside the tiger reserve area. There should be thorough monitoring and shopkeepers and public should be directed to deposit the litter in proper collection points before vacating the place. The authorities should continue the check and fine system against carrying plastic and liquor, he said.

A research in this regard was conducted by the envi-

ronmental organisation, Ashoka Trust for Research in Ecology and the Environment (ATREE).

The petitioner, after making a study of the research carried out by ATREE, made a representation to the authorities for protecting the tiger reserve.

A Division Bench of Justices R. Mahadevan and J. Sathya Narayana Prasad directed the State Forest Department and Tirunelveli district administration to consider the representation made by the petitioner and the research conducted by ATREE and pass orders on merits and in accordance with law. The petition was disposed of.

Conclusion

Achieving a balance between protecting vulnerable biodiversity during religious pilgrimage, and respecting religious rights to access sacred sites, has proved to be a challenge in India. The Green Pilgrimage Model offers the first comprehensive approach that addresses these challenges to achieve this balance. While this document provides a range of strategies and measures for monitoring, engaging and managing stakeholders through interventions, it does not prescribe a generic model that will work in all tiger reserves across India. It presents potential strategies, based on the three projects conducted in KMTR, RTR, CTR buffer, and four other PA-based pilgrimage from which relevant ideas can be adapted for upcoming projects. The guidelines highlight the importance of the Forest Department in engaging all the stakeholders, especially the pilgrims and other religious stakeholders, in the management of conservation interventions related to religious tourism. Management strategies that gain consensus across stakeholders will have the greatest success, according to our experience. The success of the projects until now demonstrates how religious tourism and conservation can co-exist and gives hope that the same is possible in other tiger reserves and PAs across India.



DFO discusses solutions with ARC, NGOs, shopkeepers onsite at Garijya Mandir on 10th September, 2016.

Appendix-1

Form for countywide data on religious tourism within tiger reserves

Name of Tiger Reserve:

Date:

Number of religious spaces within Tiger Reserve:

Core -

Buffer -

1.

Name of religious space:

Core or Buffer:

GPS location:

Size of premises:

Associated religion(s) / communities:

Number of visitors last year:

Associated Festivals

| Name of festival | No. of days | No. of visitors | No. of campers | Remarks |
|------------------|-------------|-----------------|----------------|---------|
| | | | | |
| | | | | |

2.

Name of religious space:

Core or Buffer:

GPS location:

Size of premises:

Associated religion(s) / communities:

Number of visitors last year:

Associated Festivals

| Name of festival | No. of days | No. of visitors | No. of campers | Remarks |
|------------------|-------------|-----------------|----------------|---------|
| | | | | |
| | | | | |

Appendix-2

How to carry out a pre-pilgrimage social survey

1. Rationale for a socio-religious survey:

A pre-pilgrimage survey provides the Tiger Reserves Forest Department with a better understanding of surrounding pilgrimage communities and their perceptions, priorities and habits, that negatively or positively, impact the Tiger Reserve during pilgrimage and temple visits. The survey report will help formulate a GPM strategy inclusive of these concerns and improves the chances for a more conservation friendly pilgrimage.

1.1 Who should do this? The pre-pilgrimage survey should be done a consultant/social institute / university with some background in sociology / anthropology. The survey will be in coordination with the lead Conservation NGO to ensure the goals / deliverables of the report are in line with GPM objectives. The lead consultant could be a university researcher or from a local social NGO. A team of volunteers / field researchers will be required to carry out surveys, and could include senior university students with a background in sociology.

1.2 When should it be done: At nine months before the next annual pilgrimage. The study and report can take 3-6 months to deliver.

Methodology to be used: A variety of basic social tools are utilized to obtain first hand and secondary information for the pre-pilgrimage social survey report. These include:

- Structured questionnaires to pilgrims
- Semi structured questionnaires to pilgrims and stakeholders
- Vehicle movement sheet
- Focussed group discussions (FGD) with surrounding communities
- Expert opinion of key stakeholders of the landscape
- Secondary research from literature, reports, previous studies
- Observation and interpretations by lead sociologist

Obtaining information on Key issues in the Pre-pilgrimage Social Report

2. The Temple/ pilgrimage: significance to pilgrims and surrounding communities.

The following facts need to be found out and presented concisely

- Temple history: Historical importance of the temple to surrounding pilgrim communities.
- Contemporary religious importance to pilgrims; main reasons for temple visit.
- General regions where pilgrim communities come from and any known estimate of pilgrim footfalls.
- Description of main pilgrim festival; other days / festivals of special significance for pilgrim visits.
- The pilgrim path(s) that are used during pilgrimage inside the Tiger Reserve; any other paths that pilgrims frequent e.g., a *parikarama* – a route encircling the holy area.
- Any nearby temples / holy spots that pilgrims visit in the Tiger Reserve.
- Perceived shortcoming in arrangements for the pilgrimage. This includes deficiencies expressed by different stakeholders during discussion.
- The relationship of the temple, with the Tiger Reserve including negative environment impact on the forest and wildlife.

The main methodologies employed for this section are:

2.1 Opinions of key stakeholders in the landscape

Key Stakeholders who have an interest in the pilgrimage, particularly the temple should be met one on one, and interviewed on the above facts. Perceptions of visiting pilgrims and surrounding community will provide depth. Both these techniques are discussed below and supplement a survey of expert opinion / stakeholders, which in addition provides an understanding of many aspects of the existing pilgrimage situation.

2.2 Secondary research from literature, reports, previous studies

Any documented studies or research done by NGOs, Forest department or social institutions on the temple, pilgrimage, the landscape, or surrounding communities. This often provides organised information and is helpful to supplement findings.

3. Survey of expert opinion of key stakeholders

Stakeholders of this landscape who have a direct interest in the pilgrimage or who can impact or get impacted by it should be met one to one, to discuss their pilgrimage concerns.

These include:

- ❖ Forest department
- ❖ Temple management
- ❖ Temple shopkeepers
- ❖ Local village Pradhans
- ❖ Local NGOs
- ❖ Important civic society
- ❖ Local government
- ❖ Hotels and tourism industries
- ❖ Tourist guides etc.

A list of key questions reveals important insights on the pilgrimage like:

- Overview of pilgrimage facts including pilgrims' communities and where they come from.
- Their involvement with the temple, the pilgrims, and the ecosystem around the temple i.e., Tiger Reserve.
- Their understanding of the impact of the temple related religious activities on the forest and wildlife of the Tiger Reserve, including negative environment impacts
- Perceived shortcoming in arrangements for the pilgrimage including deficiencies of any stakeholders expressed during discussion
- Suggestions for resolutions
- Willingness to participate in and help the GPM program. E.g., help in pre-Mela campaign that is to be organized in order to create awareness.

These stakeholders can also play a significant role, individually or in coordination, in negotiating with authorities, providing manpower for different works, raise funds for campaigns, and creating awareness among the people of the area in the GPM model.

4. Socio-economic profile of pilgrims

A basic identity of the type of pilgrims who patronize this temple pilgrimage to ascertain

- Where pilgrims come from i.e., geographical areas (revenue blocks / districts / states)
- Livelihood practices and socio-economic status of visiting pilgrims
- Major communities / castes / sub castes of pilgrims that visit this temple.

The main methodologies employed for this section are:

4.1. A short-structured survey of visiting pilgrims

Short socio-economic questionnaire for pilgrims visiting temples in TRs

Surveyor-1: Name / mobile no:

Date:

Surveyor- 2: Name & mobile no:

Q.1. Name:

Q.2. Age:

Q.3. Gender: Male Female Other

Q.4. Marital Status: Married Unmarried

Q.5.a Village:

Q.5.b Taluk:

Q.5.c District & State:

Q.6. Profession / Occupation:

Q.7. What is your Yearly Family income in ₹? a) 0-50,000 b) 50,001-1,00,000
c) 1,00,001-5,00,000 d) Over 500,000

8. How much did you spend to make this visit to the temple? a) ₹ 0-50 b) ₹ 51-100
c) ₹ 101-500 d) ₹ 501 to 1000 e) Over ₹ 1000 (specify) _____

Q.9.a Religion:

Q.9.b Caste:

Q.9.c Sub-caste:

Q.10. Specify (if applicable): Other Backward Caste / Schedule Caste / Schedule Tribe

Analysis and interpretation of this data helps understand the geographical regions from where pilgrims come, how far away and rural vs urban settings; it provides their socio-economic profile and also reveals any significant groupings from a particular community or a particular socio-economic background.

5. Estimate of Pilgrim footfalls & Traffic Pressure

The above structured survey can be also be extended to help ascertain:

- i. Different types of transport that pilgrims use to reach the temple in any Tiger Reserve.
- ii. Typical number of pilgrims visiting during a regular period including auspicious days / holidays

Q.11 What is the transport used to come to temple?

a) Govt. bus b) Private bus / mini-bus c) rented van / jeep d) Auto e) Car / taxi
f) Two wheeler g) tractor h) Any Others (walk, cycle etc.) _____

Q. 12 (If the vehicle is owned...) Where have you parked a) Parking Area b) Road side c) Others (specify) _____

Q.13 Are parking arrangements adequate Yes No

Q. 14 How many times do you visit the temple?

a) Daily b) weekly c) Monthly (12-15 times a year) d) 3-4 times a year e) only during annual pilgrimage

Q. 15 With whom do you come to the temple? a) Alone b) Family c) Friends

Analysis and interpretation: The traffic section of the questionnaire helps create an overview of the preferences of transport, frequency of visit and adequacy of parking services provided for the pilgrims at the Tiger Reserve / Temple area. Patterns and preferences emerge for local pilgrims as well outstation pilgrims; any increased / decreased footfalls on particular days or special occasions with resulting vehicle pressure when more pilgrims come. A better transport arrangement and regulation for the future can be suggested.

6. Traffic Census

The amount traffic flow measured every day helps to calculate the average traffic density on forest roads due to the temple, and whether it is excessive on particular days. We can also estimate number of pilgrims visiting the temple by approximate loads on each vehicle type.

The main methodology employed for this section are:

Over a period of about two weeks, the type of vehicles visiting every day (cars, jeeps, motorcycles, farm tractors, private or public bus, etc) is noted down every day. This is usually at the entry gate of the Tiger Reserve, where vehicles slow down.

Traffic census sheet

| Day () / hour | Govt Bus | Pvt Bus | Van / Jeep | Auto | Car / Taxi | 2-wheeler | Tractor |
|----------------|----------|---------|------------|------|------------|-----------|---------|
| 6 - 7 am | | | | | | | |
| 8 - 9 am | | | | | | | |
| 10 - 11 am | | | | | | | |
| 12 - 1 pm | | | | | | | |
| 2 - 3 pm | | | | | | | |
| 4 - 5 pm | | | | | | | |
| 6 - 7 pm | | | | | | | |
| 8 - 9 pm | | | | | | | |

6.1 Estimates are taken for every alternate hour on a vehicle census sheet during main hours of temple visit (≈6am to 9pm). Daily vehicle numbers are estimated on an hourly basis by taking the mean of all 1 hour sample for a particular day.

6.2 The number of people in each category of vehicle is randomly estimated by visual count or when the crowd alights especially from buses. The mean for each vehicle type is calculated from several such counts. This is then multiplied by vehicle density / h to estimate total number of people arriving and leaving the reserve during temple timings permitted for a Tiger reserve. People walking or using cycle was also factored into this calculation.

Analysis and Interpretation: Vehicle Density – The estimated the number of and types of vehicles frequenting the forest roads over the days of study can be presented in graphs to see trends of density during normal and rush days. Handling and parking of vehicles can be thought of

Crowd size estimates – An estimate of the pilgrim footfall entering the reserve based on vehicle counts over the days of study and on heavy rush days can also be presented.

Consequently, we recommend to park managers and government authorities to plan improved vehicle movement and types of transportation of pilgrims to improve crowd management. We can also suggest better regulation of Festival traffic to reduce road-killed animals.

Traffic census exercises are an important part of field research during main festival period.

7. Perceptions of the surrounding local community - I Semi-structured surveys

These are carried out with pilgrims who visit the temple by a separate group of surveyors. Visiting pilgrims have a socio-religious perception of the temple and of its festivals. They consider the temple & deity to be a part of 'their cultural / community landscape. Additionally, they have their relationship with nature in the TR and may perceive negative environment impacts of pilgrimage activities. A semi-structured questionnaire on the socio-religious perceptions is administered on the following issues. Each answer is briefly noted down

PART A

Questions 1-10 of structured questionnaire above (demographic data) are common

PART B

Q.11 What is the importance of the temple in your life?

Q.12 What is the importance of the pilgrimage to you and your family

Q.13 Are you happy with temple arrangements and its management?

Q.14 What is your relationship with wildlife and forests near the temple and in the TR?

Q.15 Do you face any problems because of the animals in the forest?

PART C

Q.16 Do you notice any negative environment impact in the TR when pilgrimage takes place? (Any possible suggestions to reduce it is also sought)

Q.17 What is your understanding of the waste and garbage problem?

Q.18 Is there any problem for bathrooms / toilets in Temple area?

Q.19 Does non-biodegradable polyethene used inside the TR harm wildlife and forests?

Q.20 Your opinion on whether the Tiger Reserve and the temple can function together.

Questions are administered to various age groups to obtain a cross section of views over generations. Group A) 0-20 < (youth); Group B) 21-60 < (householders); Group C) > 60 years (elders and senior citizens). The division of sample should approximately be Group A: 10-20%; Group B: 50-60%; Group C 10-20%.

Analysis and Interpretation: The above data allows us to understand how pilgrims interact with the temple in the context of this conservation landscape; how they interrelate with the surrounding forest and wildlife. Finally, how do they perceive various issues and problems being caused during pilgrimage as a result of this interaction.

7. Perceptions of the surrounding local community - II Focused Group Discussions (FGDs)

Several surrounding villages in a range of 0-40 km around the Temple in the TR know much on the TR and Temple pilgrimage. These villages usually have different community representations i.e. predominant caste groups. FGDs in any village bring people from similar socioeconomic backgrounds to discuss a specific issue of interest; in our case on aspects of religious pilgrimage, and relationship the conservation landscape (TR).

A facilitator gathers 10-15 representative people of the village and poses key questions or issues. Where possible, some women are encouraged to participate. Opinions and answers around each issue allows for a narrative to develop. A sociologist will note and interpret the responses, observe nuances of group behavior that any issue evokes including what appears to be suppressed. In RTR - Trinetra Ganesh Mandir setting, seven surrounding villages in a range of 0-40 km from the Sawai Madhopur main entry gate, with predominantly *Gurjar, Mali and Meena and Moghya* communities / caste representations, were covered.

The following issues / themes were covered in our FDG at RTR

- Importance of the Ganesh temple in the lives of these people and importance of the main Ganesh Chaturthi

pilgrimage festival time. Type of involvement of the village

- The problem of pollution from polythene waste, garbage, sanitation and its impact on wild animals
- Villagers' relationship with wildlife; any problems caused due to the presence of Tiger Reserve
- The relationship with the Forest Department
- Any problems with temple management and changes desired

FDGs help in finding out meanings of survey findings that cannot be explained statistically. They also produce hidden insights that are less apparent in individual interactions. What different groups (caste / villages) think about an issue, their range of opinion and ideas in terms of beliefs, and their experiences and practices arising on the issues, come out. Socio-cultural perceptions of pilgrims and surrounding community to the landscape and pilgrimage is an input, Forest departments don't have. These perceptions can be significantly different from what the forest and government hold. This then becomes available to them.

8. Procedures for structured, semi structured surveys, census studies and FDGs

The pre-pilgrimage structured, semi structured surveys, census studies and FDGs

- Are conducted for a period of two to three weeks. A typical month that gives a good idea of representative pilgrim activity should be chosen (not 'off season', but 'on season'). In Ranthambhore RTR, March-April was chosen, which is during the harvest season and beginning of holiday season, where pilgrimage visits are regular.
- Structured, semi structured surveys need to be done on days when pilgrim visits are regular to get a good representation of pilgrims. For instance, in Ranthambhore Tiger Reserve, Wednesdays is special to the Ganesh deity, monthly *Chauth* an auspicious day where devotees from nearby villages visit for parikrama. On weekends town people have holiday time to visit; all these days were included during surveys.
- While structured and semi-structured surveys are conducted near the temple area, where pilgrims enter, the traffic census is done at the main entry to the TR, where vehicles have to stop for checking.
- About 100-150 questions sets for structured survey and 50-100 for semi-structured surveys give a good representative trend of issues covered.
- Groups of 2-3 field assistants execute the survey, over the 10-15 days period.
- Vehicle census has to be 100% during designated hours.
- FDGs are conducted by a separate team in 7-10 villages around the Tiger Reserve.

9. Main findings & Report

A pre-pilgrimage social survey report should cover the important conclusions and interpretations of all the above sections and provide the socio-religious dynamics of pilgrimage in the Tiger Reserve.

Sociologists see social processes and patterns, understand biases or prejudices at play and train themselves to observe objectively cultural-religious patterns imposed in a conservation setting. After using the above methods they interpret and analyse the information to reach inferences. The report will conclude with inputs for a socio-cultural based conservation approach for GPM. The main conclusions are used by the Lead NGOs / FD to formulate a multistakeholder approach based on sound realities for the ensuing GPM project.

What should a preliminary report contain:

- Background to Temple / pilgrimage in the TR: Its significance to pilgrims and surrounding communities
- Socio Economic Profile of visiting pilgrims
- Estimate of Pilgrim footfalls & Traffic Pressure on the Tiger Reserve because of the temple
- Make-up of surrounding local community: their perceptions on select environment related pilgrimage issues and any solutions they suggest
- Environment impacts resulting from socio-cultural behaviour of pilgrims during pilgrimage
- Main findings and Recommendations for GPM

Appendix-3

Establishment of multi-stakeholder committees for GPM

❖ **Who should host the meeting?** The initial GPM multistakeholder meeting is hosted by FD and conservation NGO(s). The latter is the moderator and/or subsidiary co-chair.

❖ **Who should be invited to the Meeting?** Lead local conservation NGOs invite key stakeholders to this meeting after consulting the Tiger Reserve. Care must be taken by them to filter out community groups that have vested interest not conducive to GSM or are hostile to the Tiger Reserve. Forest department usually reinforces the invite to the Temple authority.

Section 3.2.3 Step 1 - Research phase, identifies possible stakeholders of a religious pilgrimage inside a Protected Area (**Annexure-8**). Tiger Reserve authorities and conservation NGOs initiating GPM, must recognize key stakeholder groups that need to be brought together initially to develop a GPM action plan. Key stakeholders should at least include.

| | |
|---|---|
| Tiger Reserve Forest Department | Local conservation NGO working with TR |
| National / state conservation NGOs working with the TR on conservation projects | Respected / influential civic society members |
| Temple Authorities | Educational institutes |
| Temple / festival related shops | Media |
| Community NGOs / socio-cultural or religious groups who interact with surrounding local (pilgrim) community | Businesses dependant on (religious) tourism e.g., official guides, hotel owners |
| <i>As the model successfully develops, the District administration should be appraised of the GPM. Coordination with local government is often required and received by GPM when action plans are executed in successive years</i> | |

As the model successfully develops, the District administration should be appraised of the GPM. Coordination with local government is often required and received by GPM when action plans are executed in successive years.

Approaching main stakeholders

a) Temple authorities – The Tiger Reserve FD should initially inform the temple authority inside the TR to be part of a new GPM initiative as they have considerable executive hold over them. Conservation NGOs / social NGOs working with the FD on GPM should thereafter, immediately approach main temple authorities. NGOs representatives need to possess deference to the temple, the pilgrimage, and to temple authorities' issues. Their task is to explain the program, remove apprehensions and get temple authorities on the GPM side, while respecting their views and limitations.

b) Local conservation NGOs and state/national NGOs – These NGOs are already working on conservation projects with the TR. They are reliable co-partners, with credibility. Their role is to help handle and coordinate the GPM with the TR and District Administration. Conservation NGOs may have an existing project that supports the GPM initiative, or alternately, TR-FDs can approach them to start a GPM initiative and give as much support as possible. Ultimately, such programs over time must find themselves in the annual management plan of the Tiger reserve, as well as landscape NGOs project planning.

c) Community NGOs / any socio-cultural or religious groups – The Lead conservation organisations should suggest local social NGOs and socio religious groups that readily embrace concerns like a green and clean pilgrimage. They are effective in working with local society and pilgrims in the surrounding area. Such groups can contribute time and skilled resources, conduct outreach with local people, help in devising locally suited awareness programs, participate in campaigns often provide innovative solutions; they also help link with schools and colleges.

d) Temple or festival shops – These come up in the temple area of the Tiger Reserve during religious festivals to service visiting pilgrim. A few are permanent. All shops need to be conservation compliant within the Tiger reserve but often are not; they need to adopt procedures and practices agreed by stakeholders. One or two key shopkeepers should attend initial GPM meetings and can be contacted by Temple authorities; follow ups with them need to happen.

e) Civil society members – A few important civil society members are interested in the pilgrimage and need to be present. They are respected community members and have social reach and are experienced on local community matters. They maintain networks with community groups, local government and even local political persons to provide informal interfaces for GPM. Local NGOs need to identify and invite them with the FDs permission.

f) Educational Institutions – Universities, colleges, senior schools provide student youth volunteers for awareness campaigns and assisting in hands on GPM model during key pilgrimage days. Institution heads are met by NGOs and active civic society members; they explain GPM and the role of the institution and their students. Some concerned teachers /heads can be involved in the initial meeting. The FD / district administration should officially endorse the GPM program for them so that participation is more forthcoming.

g) Businesses dependant on (religious) tourism e.g., official guides, hotel owners In certain TRs, wildlife hotels, sponsor some efforts, like contributing to alternate bags to replace polythene, helping in waste management support. The Forest department needs to invite these stakeholders. In Corbett, adjacent resorts initially funding transport to remove waste and in KMTR all bag substitutes were sponsored by business who work with the FD.

h) Media is not an initial stakeholder but is approached as the campaign starts to firm up and is accepted by stakeholders. The FD and NGO groups and Temple must approach Local press, and local cable TV to report positively on the campaign. They should inform the surrounding pilgrim landscape of the GPM effort, and do's and don'ts of pilgrimage; negative press coverage of key stakeholders by each other, should be avoided, as far as possible.

❖ **How should the meeting be run?** The TR authorities explain conservation problems arising out of the pilgrimage and steps required for conservation compliance. GPM concepts and specific goals like ban on polythene bags for pilgrims and shopkeepers, avoidance of littering, use of dustbins, use of designated toilets, community volunteer enforcement, etc. are further outlined by the conservation NGO(s), citing examples of other pilgrimage experiences. Stakeholders are asked to express their views on these issues and what roles they can take on as stakeholders. All invited stakeholders must be allowed to speak their view. They need to feel safe and free to express genuine views and 'own' any decisions they agree to. Discussions need to be skilfully moderated by the Lead NGO to maintain decorum. A key outcome of this meeting are clearly defined roles, responsibilities and contributions various stakeholders agree too. Other key takeaways are, forming of a multistakeholder committee to coordinate with the FD, and steps needed to execute the GPM action plan

❖ **Where should the meeting be held?** The first and main meeting may be done at the Tiger Reserve auditorium/ FD office or at a more spacious venue where everyone is invited. In Ranthambore Tiger Reserve (RTR) a venue was chosen by the Lead NGOs Tiger Watch and Prakrutik Society for a daylong meeting. All above stakeholders were present and expressed views. Sub-groups like social NGOs, important civic society including village heads, wildlife tourism guides, press etc interacted in the afternoon and then gave their views and commitments.

❖ **Subsequent sub-group stakeholder meeting(s)** with the FD / Lead NGOs need to take place to reinforce multistakeholder commitments and consolidate roles. These also form a part of multistakeholder committee meetings.

Sub-groups meetings with lead NGOs occur more frequently to develop specific components of a green pilgrimage campaign. Monitoring sub group activity progress, enlisting of local support, organise campaign components including pre pilgrimage awareness rallies etc., all need to be accomplished. The DFO / Director of the Tiger reserve need to be updated on all subgroup activities by lead Conservation NGOs. There can be about 2- 3 joint meetings by the DFO with subgroups / lead NGOs to monitor progress.

Meetings with the local district government such as the SDM the '*Mela*' or Pilgrimage executive officer in charge, police head or municipality officers, may be carried out by Lead Conservation NGO accompanied by key stakeholders, in this intervening period. Appraising and coordinating with the District Government for GPM pilgrimage issues is important component, which usually develops in successive years.

❖ **A pre final meeting before the final festival campaign starts** is needed with all volunteers / participating stakeholders. This is to give final orientation on roles, responsibilities, provide schedules / logistics for coordination, proper identification kits and ID cards etc., during pilgrimage. This is to be held by the FD and the Lead NGO(s). Some stakeholders like the temple and FD may be already pre-occupied, but senior representation should be present.

9) **A closing meeting after the festival to facilitate the multistakeholder contributions** is organised by the Lead Conservation NGOs and TR officials like DFO. All participating volunteers like important civil society, college-school, volunteers, community-based NGOs, senior citizens, women's group, social-religious groups, cleaning groups and lead conservation NGOs that contributed are facilitated: certificates of contribution are given to them. This helps consolidate the GPM model for the next year. Notably, in the second and third years in RTR, the local district government saw the contribution of GPM stakeholders and decided to help organise the concluding function. It was attended by the District Magistrate (DM) the SDM / festival magistrate, Municipal commissioner along with Tiger Reserve Authorities. An endorsement to strengthen and continue GPM model was given by the District government for the ensuing years.

Maintaining Effective Multi-Stakeholder Committees

Steps for establishing a Multi-Stakeholder Committee (MSC) are given in the drop down of Appendix-7 Step 3. Once the MSC is formed, effective management of MSC by Tiger Reserve (TR) forest Department (FD) is outlined.

Immediate engagement principles

1. **MSC formation should allow stakeholders to feel they are a part of a larger goal in an important event of their landscape.** FD and Lead NGOs must ensure this sentiment in all MSC meetings, in the initial year and subsequent years. MSC must not become a formality.

2. **TR- FD needs to empower and support to the Lead NGOs to carry out processes for community based and Temple based conservation initiatives.** They must have approval and authority of FD to deal with different stakeholders, like main temple, educational institutions, local community / socio-religious groups, social NGOs, for Green Pilgrimage Management (GPM) initiatives.

3. **Individual responsibilities of MSC stakeholders to manage an operation finalised in meetings need additional FD / local district support.** Education Institutes provide volunteers for awareness rallies, frisking, festival monitoring; community groups help organise better cleaning and sanitation operations for temples or help make cloth bags or add to monitoring operations. Social NGOs organise awareness and education campaigns etc. Stakeholders must be given official backing and importance in each of these GPM tasks.

However, FD officials need to maintain some social distance with stakeholders, while being cooperative with local community groups. They have to ensure conservation compliance by law in a Tiger Reserve. It is best for lead NGOs to be a buffer in meetings between FD and MSC.

4. **FD should regularly update themselves on initiatives between Lead NGOs and sub groups during GPM build up.** It helps to monitor and coordinate with MSC to assist them overcome bottlenecks or solve problems. FDs involvement must be proactive. It is best that FD make time for a few coordination meetings on pt. 2 and 3 with stakeholders.

In KMTR and RTR, volunteer groups from colleges and community groups were provided orientation on tasks like frisking for polythene bags, harmful substances by FD / Lead NGOs. They were given official badges and supported by Forest Department staff NGOs in their frisking operations during peak pilgrimage. The Police and District Administration was informed by the FD to help them during peak pilgrim influx, if required.

5. **Being a new initiative, the FD should commit resources and manpower to facilitate the success of the GPM initiative from the first year itself.** In RTR, KMTR and Corbett TR, the to and fro transportation for youth volunteers and NGO cleaning staff was provided by the Forest department and district Administration. In KMTR and RTR initially, providing substitute bags in place of confiscated bags was partly financed by FD or their networks.

6. **Appreciation of stakeholders for their contributions by FD / Local district government or respected civic society members** is a must for building networks for future years. It is already explained in the drop down of Appendix-7 Step 3 – ‘Establishing a Multi-Stakeholder Committee’. In RTR, the District MLA, Princess Diya Kumari, made an appearance at the MSC formation in 2014 and lauded all the stakeholders for undertaking this important task.

Future-engagement principles

7. TR Director should provide permission for field research on assessing pilgrimage impact on Biodiversity by conservation to NGOs specialising in this (see section 3.1 Identify & Monitor Environmental Impacts).

In some TRs there is reluctance to provide research access. Nevertheless, over a period of 3 to 5 years field research helps provide assessments for future conservation management of pilgrimage. In KMTR, research by ATREE on transport during pilgrimage time and resultant road kills, led to the Tiger reserve and local district government banning night driving in 2014. Two years later, movement of traffic in convoys, and stoppage of private and taxi vehicles resulted.

8. Lead NGOs and some MSC member should be allowed to develop links with local District administration

for coordinating on issues that require their support. In Corbett Buffer the district administration directed the Ramnagar municipal authority to assist in regular clearing of Temple and shop waste although it was outside town limits. In KMTR, our request to rationalise the sanitation provisions in the temple area after three years, resulted in more finances being diverted by the temple authorities to this issue. Better temporary, permanent toilets and mobile toilets came up during pilgrimage in 2018 and 2019.

9. FD and lead NGOs must network in the intervening period

- The TR FD need to involve / invite some of the new MSC groups formed to some forest functions through the year like World environment day, Tiger conservation week, environment awareness and education programs with schools, campaigns for plastic clearance in forests / river, etc. Lead NGOs must involve with the FD / Local district government programs periodically, so that they are visible. Important civic society or NGO members can be asked to be speakers at functions.

10. FD and Lead conservationists must eschew the outlook the main Temple is the reason for the difficulties during pilgrimage.

Faith is an intrinsic part of Indian communities in all landscapes including forests and mountains that are now PAs It is necessary to build a productive relationship with Temple management and help them with desired conservation practices. Experience shows that Temple authorities need to be brought into GPM gradually rather than coercively. Otherwise, a conflict situation arises. Temples have political patronage and contacts, and this sometimes can adversely affects the development of GPM, if not handled carefully.

Continuity for GPM and its internalisation

11. **GPM is a new model of management to the FD and District government.** It is not standardised official procedure for DFO / Local district governments. The DFO and lead NGOs should ensure that at meetings concerning GPM, including their 'minutes of meeting' and correspondence are logged in officially with TR Forest and local district governments. Official records are always referred to in successive years to understand the GPM and further develop its requirements. It must be remembered that Tiger Reserve Officials and Local District government officials change, every 2-3 years and administrative continuity of GPM needs to be maintained for successive years.

In both KMTR and RTR, stakeholders with Lead NGOs were invited by new DM, TR authorities to explain what their plans were in the second / third year of pilgrimage based on previous records. In subsequent official government meetings on the pilgrimage, Lead conservation / local NGO representatives were present and suggestions were solicited from GPM. In RTR, restricting of free food and water stalls to outside (rather than inside) the TR for pilgrims was achieved at MSC's instance to avoid waste littering. The collection of waste was made more effective in all three Tiger Reserves on suggestions by ARC India and local NGOs after two years of experience. This was adopted by Temple stakeholders and municipal workers.

12. The DFO must be ensure that lead NGOs involve themselves in orientation, training of stakeholders

Best conservation practices of pilgrimage management need to be passed on. The GPM model has to be localised so that it is of use to the TR and local community when National / state Conservation NGOs start the process of disengagement. In KMTR, Temple Conservation management was a weak link. Temple staff were trained and upgraded in conservation practices of effective collecting temple waste and improving sanitation facilities by ARC India and a local NGO Human Uplift Trust. This concern led to the temple authorities increasing their financial budget for better temporary and permanent toilets, temple waste collect dumps and more permanent staff. Similarly, in all three TR landscapes teachers, youth and social NGOs are now aware how to run conservation based religious campaigns and socio-economic-religious surveys.

13. Internalising Financial planning for GPM by local Stakeholders

If GPM is successful, necessary financial expenses and activities over successive years need to be institutionalised by stakeholders. National or state NGO funding GPM projects, disengage after some years. Tiger reserve authorities can include in Yearly Management plan budget the cost of campaigns and certain roles for engaging local NGOs for certain tasks. Transportation of volunteers, organising awareness and education campaigns with NGOs and education institutes, uniform dress of caps, t-shirt, substitutes to polythene bags, helping in GSM meeting and facilitation ceremonies, undertaking surveys and their analysis can all be provisioned. Tiger Foundations of Tiger Reserves can also support such expenses. A budget provision of ₹ 3-5 lakhs per annum should be sufficient. Other players like Educational institutes can use funds for NCC / NSS college volunteer participation. Temples can make additional provision for conservation related spending, like better and more dustbins for festival shopkeepers, Local Conservation NGOs can also seek funds to participate in GPM projects from state central environment ministries or funding by private conservation organisations or CSR. In 3-5 years, such costing must be standardised to form local systems to support GPM activities.

How to implement a waste management campaign

Rationale for intervention

The main temple area and its festival shops are two key areas where waste accumulates quickly because of continuous pilgrim rush. There is almost no thought-out waste plan or micro management of waste by temple authorities and shopkeepers to keep these areas clean during a limited period (usually 2-3 days). GPM intervention helps to set up these standards of cleanliness and an improved waste management plan for them.

While management of overall waste during pilgrimage is mostly assigned by local district government to municipal authorities of nearby town(s), the temple authorities and shopkeepers / food points have to take more responsibility in their areas.

Step 1: Who will carry out waste management campaign

Project lead: A social / community NGO with some experience in waste and cleaning management is selected by the MSC / Lead NGOs

- a. **Assembling a team of Professional workers:** Cleaning and waste management workers (*safai karamcharies*) and their supervisor are selected. These are usually from nearby town municipalities and also double up as a sanitation team. Some workers have experience with waste management NGOs. Depending on the size of the pilgrimage and budget allocations, 10-16 workers are employed for 3 days of intensive campaign work in shifts and command a higher rate for these days.
- b. **College student volunteers assist the professional cleaning team.** Volunteers accompany worker to see if all zones are properly covered, they monitoring and sometimes measure waste, watching habits of shopkeepers / pilgrims. They also help workers in securing waste disposable bags in dustbins and help in filling bags.

Step 2: Assess Key pre-pilgrimage intervention points

- a. The waste / cleaning system of temples and shops is initially assessed. What is in place? *
- b. Orientation on micro waste management to shopkeepers in pre pilgrimage meetings, with on-site reminders. **
- c. Orientation on micro waste management to temple administration and temple workers in pre pilgrimage visits. ***
- d. Preparation of travel logistics and stay, procurement of materials, networking for arrangements. #

Step 3: Actual waste management Campaign

a. Outline zones of operation:

Areas that require focus are

- festival shops, including eateries / snack and tea shops
- Temple area, where pilgrims worship and stay in the temple precinct
- Main approach road to temple (usually a few hundred meters)
- Any river / water tank waterfront where pilgrims offer worship / bathe / frolic
- In some pilgrimages, devotees stay overnight for a few days, as in KMTR
- In some pilgrimages, free food is given to pilgrims en route / at the spot

b. Identify what you will do and where:

- Temple zone including seating / cooking areas and waterfront area are all swept clean
- Festival market road with shops, including eateries / snack / tea shops are swept clean

- Shopkeepers / eateries reminded to see waste is put in dustbins and spillage avoided.
 - Pilgrims are told not to litter on roads while operations are on
 - Filled dustbins emptied and dustbins are lined the with fresh disposable bags.
 - waste bags are measured as and when necessary (e.g., eateries or roadside collections) and waste collection bags are sent to the temporary collection points
 - Temporary garbage collection centers are checked for removal of garbage; coordination is done with municipal staff to have garbage removed to their garbage vans .
 - Temple workers, included temporarily hired staff are asked to join us for on the job training
- c. How often:** Major operations are 3-4 times a day in the morning, mid-afternoon and evening, apart from cleaning by municipal and temple.

*** Pull outs as Checklists for Step 2**

1. The waste and cleaning system of temples and shops is initially assessed.

- *Do temples have sufficient dustbins and garbage collection disposal points?*
- *Do shopkeepers have dustbins and are they sensitive to littering / waste collection?*
- *Are they indiscriminately using plastic / polythene?*
- *Is there enough temple cleaning staff?*
- *Are temple staff trained to handle peak pilgrimage flow?*
- *How often is waste disposed? and can waste be segregated?*
- *Do pilgrims use dustbins?*
- *Is there coordination with municipal cleaning workers?*
- *How efficient are pilgrimage arrangements?*

A plan of GPM intervention is devised after these inputs are received

**** 2. Orientation on micro waste management to shopkeepers in pre pilgrimage meetings, with onsite reminders**

- *Keep dustbins for customers to use*
- *All shops asked not provide polythene bags for carrying of sold items*
- *Gift item for adults / children – they are asked to remove plastic wrapping before sale or ensure gift not unwrapped in pilgrimage*
- *Eateries not to use non-biodegradable plastic or Styrofoam cup, plates, spoons*
- *Free food stalls to be mindful of the above and have large dustbins*
- *cleanliness around shops is their responsibility; not to blame customers*
- *Non sale of certain banned items like chewing tobacco (gutka), one time use micro sachets of hair oil / shampoo / detergent powder, to be complied with*
- *District government / FD are asked to reinforce this in their messaging and onsite visits*

***** 3. Orientation to Temple**

- *The numbers and placement of dustbins in Temple area and where necessary in main market area and areas near waterfront*
- *Joint determination the temporary / permanent rubbish dump collection points where garbage is placed and determining their numbers*
- *Orientation of temple cleaners, which are usually insufficient*
- *Non-acceptance of polythene bags, carry bags for flowers and temple offerings. Alternately, priests to separate and collect these bags for safe disposal*

4. Preparation of logistics and stay, procurement of materials and networking for arrangements

- *Pre-visits to site by the NGO and the supervisor for orientation including informing the cleaning team on what is required.*
- *Procuring of waste implements gloves and mask, disposable waste bags for dust bins and collection, are done by the NGO and supervisor*
- *Any back-up support including transport to and fro, food and stay of volunteers campaign team and professional cleaning team.*
- *This is facilitated by MSC stakeholders usually, the lead NGO / Temple authority / FD / District administration*
- *Where possible, especially in successive years, meeting with municipal authorities handling pilgrimage operations - for appraisal and any coordination*

Plastics Frisking and Quantification Survey

1. Introduction

1.1 Experience shows that laws relating to manufacture, import, stocking, distribution, sale and use of single-use plastic, are being implemented leniently in most Indian states* and pilgrims still use them during pilgrimage.

1.2 In all TRs and other PAs where GPM is implemented, pilgrims are checked during pilgrimage for carrying single use polythene bags: these are confiscated before entering into the PA reserve. In some instances, alternative bags are offered.

1.3 In many Tiger Reserves, hazardous substances are also checked for during pilgrimage and confiscated by Forest department: these include, matchboxes, cigarettes, beedis, alcohol, narcotics and sometimes chewing tobacco packaged in single use micro pouches.

2. GPM stakeholder community participation

2.1 Effective frisking operations are greatly enhanced when community volunteers involve themselves with the Forest Department in confiscation of single use plastics and hazardous substances. During peak pilgrimage days, the rush is significant: more hands are needed to stop these substances from entering the TR / PA. GPM community volunteers can include local NGO volunteers, college students, senior citizens and interested community groupings.

2.2 Forest Department staff need to be present with GPM community volunteers during operations. Frisking need to be conducted jointly, to ensure that official authority is present, when handling minor resistance.

3. Organising frisking of plastics and hazardous substances in GPM

3.1 Check points for frisking operation need to be identified with the help of FD. Points are specific to each Tiger Reserve and pilgrimage temple complex. Some key check points are

- The main entrance to the Tiger reserve for pilgrims by road or foot - This area usually occupies the maximum volunteers for frisking operations.
- Other forest routes coming from different directions leading to the temple: checking is done for pilgrims on these routes at key points.
- Sometimes, a second frisking takes place nearer the temple, where pilgrims converge from all routes. This also depends on the logistics / number of volunteers available.
- Festival shops at / near temple pilgrimage are banned from using single use polythene bags. Occasional on the spot checks are carried out by volunteers.

In KMTR from 2017 onwards passenger transport vehicles that lined up for entry at the Tiger Reserve entrance Forest check post were checked for single use plastics and hazardous substances. Vehicles and passengers were frisked and pilgrim bags / luggage checked by forest guards / volunteers. Frisking was also repeated enroute, when pilgrims disembarked from busses a kilometre before the temple.

In Ranthambhore Tiger Reserve, apart from frisking by several teams for over two hundred meters at Main entrance, different NGO volunteer teams accompanied foresters into other forest routes from where pilgrims from adjoining districts and Madhya Pradesh state came in. Community youth / NGOs conducted a second check at Ranthambhore fort entrance where all routes converge before reaching the temple. In Corbett Tiger Reserve buffer and at MM Hills wildlife sanctuary a check was done at the approach gates to the temple area.

3.2 All GPM volunteer lists, including those participating in polythene bag frisking, need to be submitted to the Forest Department (DFO / Deputy Director of the TR / PA). The list may also be given to the districts administrations 'Mela Magistrate' administering the pilgrimage.

3.3 Each frisking team for a check point should have a leader who has to organise and oversee frisking operations. Mature voluntary members like senior citizens can assist him. All volunteers should have an identification badge signed by the DFO and be in proper dress code during operations.

3.4 All volunteers need to be oriented for frisking operations by the Forest Department:

- Volunteers should be in groups of 2-4. The ladies teams must frisk ladies; no gents to be involved. Gents team will frisk gents only.
- Luggage bags / shoulder bags / haversacks, etc., all need to be searched by opening and ruffling through them. All single use polythene bags and any hazardous materials like alcohol etc need to be removed.
- Volunteers must be polite but firm on confiscations; they are representing the forest department. Altercations or rough behaviour to be avoided. Any escalation must be brought to the notice of forest staff for quick resolution.
- There should be 2-3 shifts of volunteer's groups through the day, so that frisking is continuous. Late evening operations may be avoided as volunteers have to return home, to return the next day for more work.
- All confiscated polythene bags / hazardous materials to be deposited into separate larger disposable bags kept at one point near a supervisor / senior team members.

4. Operations

- Each frisking volunteer team in different locations should have the following: A weight measure instrument (a spring balance which hooks on to a bag and gives an accuracy to the nearest hundred grams is sufficient); Large waste disposable bags, preferably biodegradable grade (green colour) or medical grade needed to deposit confiscated items; Strings to close and secure the filled bags; a pen and pad and quantification sheet for noting of weight of bags; A dedicated volunteer in each group for taking photographs of frisking operations and filled bags.
- Volunteers to have shoulder bags while peak frisking operations are on to enable them to hold confiscated polythene bags and hazardous materials; these items are at regular intervals transferred in larger (and separate) bags.
- Large disposable bags are for confiscated polythene bags; A second lot of these bags are for hazardous material (cigarettes, *beedis*, matchboxes, chewing tobacco (*gutka* sachets). Once the bags are full, they need to be secure and tied and weighed: a new bag is positioned for filling.
- Intoxicants like alcohol bottles, narcotics have to be held separately and held at checkpoints till they are safely disposed of. The team leader / senior community volunteers should insure this. If not secured properly, confiscated items and intoxicants can be surreptitiously taken out, sometimes by team members.
- At the end of the shift (usually 4-5 hours) the team leader should secure, count and weigh the bags. Photographs need to be taken of the count of bags and volunteers operations. Press release needs to be given.
- If the frisking is to continue for more than a day, hazardous material (items like alcohol, narcotics and even dangerous instruments like knives, scythes) needs to be safely deposited in the evening outside the TR in a secured FD office. After pilgrimage these have to be photographed, records maintained and finally burnt and destroyed in their presence of senior FD officers Press release needs to be given.
- The one time use plastic waste bags are left to be picked up by the municipal teams involved in post pilgrimage cleaning. In Corbett, all bags were collected counted and loaded onto municipal vans / tractors and taken to the dump yard for disposal by the GPM team. In others cases the forest department / municipality need to be notified of the bags lying for disposal.
- In some pilgrimages alternate bags are given by GPM / Forest department to those whose single use polythene bags are confiscated. These are usually made from viscose, cotton or hemp. They are sponsored

by stakeholders, the Forest department or made by community groups on subsidised support. Volunteers of the frisking team need to distribute it

- In each pilgrimage, notes can also be made of the dominant reason for use of plastics when checking is on. In RTR it was mainly used for carrying changer over set of clothes. They were also many pilgrims who carried grains from first harvest of their fields to be offered to the deity. In KMTR and Corbett on the main day of festival, flowers and fruit, were caried in polythene bags as well as daily use items like food packets, soaps for bathing, change over clothes etc. In KMTR, campers had many cooking ingredients in single use plastic packets Such information about the reasons for the use of plastic can later help in creating good management strategies to reduce the inflow of plastic into the TRs. A quantification sheet is given below.

Conclusion: Frisking, confiscating and quantifying one time use plastics / hazardous materials has great advantages. It greatly reducing negative environmental impact mass pilgrimages in core TRs and PAs during pilgrimage. The sheer volume of confiscated items when seen by volunteers, stakeholders and decision makers like the Temple administration, Forest department, District administration and media to make the public aware of the dimensions of this problem. Quantification and classifying polythene bags differing uses helps pilgrims understand through future GPM awareness programs to use alternate bags and give up polythene bags. This greatly reinforces, safe conservation behaviour with respect to non-biodegradable one time use plastics in Pilgrimages in Tiger reserves.

* <https://timesofindia.indiatimes.com/india/centre-notifies-ban-on-single-use-plastic-items-from-july-1-2022-increases-thickness-of-polythene-bags-to-120-microns/articleshow/85286261.cms>

1. Plastic quantification sheet

Checkpoint Location _____ date _____
 Shift time: start _____ finish _____ Name / mobile number _____ (.....)

| Single use polythene | Measure | Quantity | Remarks |
|--|----------------------|-------------------------------------|--|
| | Bag 1 | Weight___(to nearest ≈50 grams) | Secured & tied |
| | Bag 2 | Weight___(to nearest ≈50 grams) | ” |
| | Bag 3 | Weight___(to nearest ≈50 grams) | |
| | | | |
| TOTAL | | | s / d (signature) |
| Hazardous Material (matchbox, beedi, cigarettes, gutka, etc) | Bag 1 | Weight___(to nearest ≈50 grams) | Secured, tied and deposited in forest room / Forest jeep |
| | Bag 2 | Weight___(to nearest ≈50 grams) | ” |
| | | | |
| TOTAL | | | |
| Intoxicants | | | |
| Alcohol | Litre (½, 1L etc) | Type (whisky, rum, local brew, etc) | s / d (signature) |
| Narcotics | Qty | Description (Type) | s / d (signature) |

| | | | |
|--------|--------------|--|-------------------|
| Others | Qty | Dangerous implements (knives, etc) | s / d (signature) |
|--------|--------------|--|-------------------|

Note: Quantification sheets of various shifts are given to frisking team leaders at various check points. Daily and overall totals need to be maintained. Overall compilation is done at the end of the pilgrimage.

2. Plastic use sheet

(Counting marks for first hour are illustrative)

| Day () / hour | Clothes | toiletries | eatables | Provisions / cooking | Flowers / puja offerings | grains | Others eg Alcohol / narcotics |
|----------------|---------|------------|----------|----------------------|--------------------------|--------|-------------------------------|
| 6 - 7 am | | | | | | | |
| 8 - 9 am | | | | | | | |
| 10 - 11 am | | | | | | | |
| 12 - 1 pm | | | | | | | |
| 2 - 3 pm | | | | | | | |
| 4 - 5 pm | | | | | | | |
| 6 - 7 pm | | | | | | | |
| 8 - 9 pm | | | | | | | |

2.1 This estimation is usually only carried out at the main entrance gate of the TR where frisking of an overwhelming majority of pilgrims take place. Estimates are taken on main days of pilgrimage (usually 2-3 days). This is done by one or two teams of 2 persons making notes while frisking is in progress.

2.2 Counts are administered for every alternate hour on a 'Plastic use sheet' during main hours of temple visit (≈6 am to 6 pm). The daily plastic quantities by category of different plastic uses are estimated by physical count on an hourly basis and by taking the mean of all 1 hour sample for a particular day.

2.3 If 100% sampling in the designated hour does not take place (sometimes the rush is too great), the number of plastic bags in each category is randomly estimated by visual count when the crowd is being stopped for frisking. The mean for each plastic type is calculated from the several such counts. This is then multiplied by plastic category qty / h to estimate total number of bags in different categories by use. The proportion of use of plastics by different categories gives useful insights as to what are the key reasons and habits that cause the proliferation of plastics into the reserve. This allows GPM to devise strategies on how to reduce / stop such flows.

How to implement a Sanitation & Hygiene Campaign

Rationale for intervention

Sanitation is a key issue to be tackled during a pilgrimage where footfall can be up to 200,000 on the main 3-4 days in various tiger reserves. It is often not properly attended to, but is critically important to address. Unhygienic open defecation often takes place without adequate sanitation facilities, proper cleaning or regular sanitization. This causes water contamination and disease near water bodies, with unacceptable levels of faecal coliform *e coli*, harmful to both humans and wildlife.

Normally the FD and conservation NGOs do not actively involve themselves in sanitation and it is left to the district administration or the temples to manage. However, Green Pilgrimage Management's (GPM) teams active involvement and support for improvements in sanitation has shown to lead to higher toilet use and reduced open defecation by pilgrims, decreasing negative environment impacts.

Step 1: Who should carry out the sanitation management campaign?

Project lead: A social NGO / community group with some experience in sanitation management should be selected by the lead NGOs / GPM Stakeholder Committee. This GPM Team should coordinate with and assist the Temple or district administration. The government / temple responsibility on sanitation measures vs that of the GPM sanitation team efforts should be clearly delineated.

E.g., Setting up of toilets with their functioning systems and operating them is government / temple responsibility; the GPM sanitation team assists in maintaining cleaning and hygiene standards during pilgrimage, providing recommendations for improvements in coming years.

A) Assemble a team of professional workers: The GPM social NGO / community group should select their sanitation supervisor and workers (*safai karamcharies*). These are known workers, usually sourced from nearby town municipalities. These workers will also double up as the waste management team. Depending on the size of the pilgrimage and budget allocations, 10-16 workers are employed for 3 days of intensive campaign work in shifts and command a higher rate for these days.

B) Select student volunteers from colleges to assist the professional sanitation team. Volunteers help cordoning off the toilets from the public during cleaning operations; ensuring sufficient cleaning sanitizers and powders are carried by the team; confirming all toilets blocks are cleaned and maintained to a high level off sanitization and water levels / pressure are sufficient, especially during peak pilgrimage period; quickly report problems that arise.

Step 2: Assess key pilgrimage intervention points

a. Assess areas where open defecation / urination takes place. Are there any restrictions in place in these areas?

- Are there open defecation areas near rivers or waterbodies, forest or barren grounds?
- Are there toilet facilities near temple areas?
- Where do people stop or stay for long periods?
- What about facilities for shopkeepers?
- Are there any restrictions in place to stop open defecation? Under whose authority?
- Is there effective patrolling to stop this behaviour during peak pilgrim rush?

b. Location and number of toilets blocks (semi-permanent and temporary):

- Find out all temporary toilets and any semi-permanent toilets locations.
- Note the numbers available for men and women.
- Are they free or pay toilets?

- Are there sufficient numbers?
- Are temporary urinals required?
- Are the toilet points sufficiently near pilgrim points of congregation?

c. The state and functionality of toilets and arrangements of cleaning:

- Are the toilets sufficiently private and safe? Are toilets functional or broken? Are doors and partitions effective?
- Are toilets cleaned sufficiently?
- What is the temple or municipal arrangement for cleaning during peak pilgrimage? Are staff and their duty roster sufficient?
- Is there separate toilet provision for administration staff like police, firefighters, health telecommunication officials stationed for temporary pilgrimage duty?

d. The system of water supply for toilet use:

- What is the water system supply for toilet use and for cleaning? Is it sufficient? Check storage capacity, supply pipeline condition, and water pressure.
- Based on previous experiences, have there been any water shortages especially on the main two days of pilgrimage? Suggested remedies?

e. The arrangements for sanitation pits:

- Check on placement, size and depth of toilet sanitation pits.
- If dry toilets, ensure proper depth of waste pit.
- Establish whether and where pucca pits are for semi-permanent toilets.
- Consider possibility of mobile toilets and their daily cleaning.

Any modifications on any of the above points need to be brought up at district administration meetings.

Step 3: Actual sanitation management campaign

Checklist of operations

- Network with temple and district administration on the logistics of travel and stay.
- Procure effective and special sanitation implements and sanitizing materials. Ensure sanitation teams are in full dress code, masks and special gloves with material / implements.
- Divide into two teams for effective coverage of zones. Volunteers cordon off area till professional cleaning is complete.
- a) All temporary toilets to be cleaned / unclogged, flushed and sanitized with special phenyl and bleach.
b) Water tanks for pilgrim use to be filled. Inspection by team leaders after completion.
- a) All permanent toilets to be cleaned, flushed and sanitized with special phenyl and bleach.
b) Water tanks for pilgrim use to be filled. Water pressure to be monitored. Inspection by team leaders after completion.
- Ladies' toilets cleared of sanitary napkins, separately disposed of to municipal workers.
- Temporary (open) Sanatory pits to be disinfected and sanitized with strong deodorant phenyl / bleach in and around pit. Also periodically inspected to see no seepage / overflow.
- During peak hours and peak days of festival rush, ensure proper water supply to temporary toilets and water pressure to permanent toilets blocks. Ascertain problematic issues report them immediately to decision makers.
- Ensure proper lighting in toilet areas for night time use.
- Ascertain problematic sanitation issues during s report them immediately to decision makers for on-the-

spot operational rectifications

- Ensure through GPM team reports reach district authorities and other decision makers to appraise them of these issues for successive pilgrimage.

How often:

- Major cleaning operations are 3 times a day in the morning, mid-afternoon and evening. This is apart from any cleaning by municipal and temple authorities.

Appendix-8

Faith-based awareness and education campaign

Awareness and Education interventions during pilgrimage season in a Tiger Reserve are actionable tasks through which we influence response of pilgrims towards key conservation issues.

Linking conservation concerns of pilgrimage with religious beliefs and symbols in a faith-based campaign can result in greater conservation awareness and conservation friendly behaviours. Faith-based awareness campaigns can highlight to pilgrims basic 'do and don'ts' while on pilgrimage in a soft, culturally sensitive manner.

◆ **When should it commence?**

1. **3 - 4 months before the campaign in the first year.** Campaign steps need to be carried out in the lead up to the pilgrimage

This is when a framework for the GPM, the key stakeholders and key campaign components are firmed up by the FD and Lead NGO(s). Which type of Awareness-Education-Response campaign is suitable and who will be useful in its implementation are identified.

2. **In subsequent years,** Awareness-Education-Response campaign interventions need only about 2 months to execute. Awareness and education materials are already prepared, community links established and stakeholder familiar with what works and what doesn't.

◆ **Initial Preparations**

1. **Conceptualizing key faith and conservation messages** Chosen stakeholders e.g., social NGOs socio religious groups, civic society members with talent are tasked to prepare key faith and conservation messages. The Lead NGO should orient these stakeholders and it should start 2-3 months before the main campaign.

2. **Sub-team of volunteers with the lead NGO** should manage decisions on creating a campaign logos, coining key conservations-faith messages in local language, (1-2 liners). Various photographs to be used in visual / audio visual media (banners, placards etc.) and audio slogans or jingles or songs are to be determined. Themes for street plays need to be decided. Direct conservation messages like ban on plastics need also be made. Final design, layouts and printing of written matter takes about 2-3 weeks. Logos (with artwork), special printing of T-shirt / caps and audio jingles and song composition / recording take more time and money. FD should be updated on these steps as they happen.

All key media instruments need to be ready at least one month before main campaign.

3. **Cost and budgeting** of the above need to be done by Lead NGOs and FD. Stakeholders that can diffuse some of these expenses needs to be explored, including Tiger Reserve own resources.

◆ **Pre campaign Groundwork**

1. **The main volunteer source** for pre-pilgrim rallies are from schools and nearby colleges. Educative talks

by Lead NGOs and civic society members need to be given to these youth and staff on the pilgrimage, key conservation issues arising and importance of conservation in their religious - cultural fabric. Permissions for participation need to be taken for subsequent tasks.

2. **Social NGOs, socio religious groups, local community associations**, ladies groups, Rotaract, senior citizens, need to be a part of awareness and education contact campaigns. They often join in and help the main campaign. In RTR, when NGOs interacted with ladies groups they decided to supply free second hand sarees to other women groups who stitched cloth bags, for three years running. These bags replaced confiscated polythene bags of pilgrims during frisking. Another instance was when senior citizens members became on site administrative support for youth during frisking of pilgrims.

3. **Temple and Festival shopkeepers** need to be geared up for the pre and main campaign events. They should be met separately before pilgrimage starts to explain new dos and don'ts, banned items, cleanliness and waste management around shops during pilgrimage. In both Corbett buffer and KMTR, ARC-India and local lead NGOs met the shopkeepers with Temple authorities in two three interactive meetings. In Corbett buffer, Garjiya temple permanent shopkeepers commenced self-cleaning and waste clearing after pilgrimage. The connect to these institutions needs to be arranged by Lead NGO, but Tiger Reserve authorities should use their good offices to facilitate these interactions, where possible.

◆ Pre-Pilgrim Awareness-Education events

1. **Rallies:** If a TR has an adjoining pilgrimage town. One or two rallies involving school, college, socio-religious groups, NGOs, civic society groups should be organized about 1-2 weeks before the main pilgrimage. A good mix of banners, posters, placards, slogans, street artists, jingles and songs be used. Permissions from district administration / police need be taken by FD. In RTR we had a decorated jeep with artists leading about 300 children from 5-6 schools and social groups / NGOs. The event was flagged off by the DFO and an important civic society person. At its end, a motivational talk was given to students by functionaries.

2. **Signature campaign:** Children and youth of schools and colleges can participate through a signature campaign. A one-page handout on negative conservation impact of pilgrimage and their cultural religious responsibilities to protect their temple and forests is devised locally. Children, ask parents and locality friends to read and sign. A large sign banner in various colleges and schools, was also signed on by students. A vigorous and successful pre-pilgrimage campaign in selected schools and colleges was launched in RTR in 2014 -15. Even the District Collector signed as a parent!

3. **Village street plays or group talks:** Many pilgrims come from nearby village areas. If time and budget permits, an NGO can be asked to devise street plays on key themes like harmfulness of plastics, bringing their own cloth bags, using toilets, protection of biodiversity etc. Word quickly spreads to other villages. In RTR in 2015-16, the lead NGO and a local social NGO delivered awareness talks to 7-8 villages and street play to 12-15 other villages. In KMTR in 2017-18, ATREE covered a group of main villages with street plays, and talks while HUT and ARC conducted talks with temple shopkeepers, women groups and senior citizens in three towns with the help of temple and town municipal authorities.

4. **Ensuring Media coverage:** A volunteer media group should be formed to alert, invite and inform local press on campaign events. Formation of MSC, rallies, street plays, making of cloth bags by self-help women's groups and main campaign need coverage. DFO, NGOs and civic society leaders can make their own press releases. Reporting by local press often impacts pilgrims all around the districts, educating them on the changing face of pilgrimage.

◆ Main campaign Awareness -Education-Response

1. **Placement of banners / boards:** Campaign team ascertains where visual media is most effective. Points like TR pilgrim entrance (frisking point), pilgrim path and key vantage points near Temple areas / market. Points like waterfront area, toilets, rubbish dump require direct conservation messages as opposed to faith

conservation messages. Volunteers must ensure banners etc., cannot be easily taken off and remain for the main pilgrimage.

2. Smaller signage on festival shops giving key messages to be placed on some shops where pilgrims make purchases during pilgrimage. Key messages on plastic ban, non-sale of one time use micro-sachets, non-littering, using dustbins etc., are placed here. Shopkeepers are asked to ensure that shops and customers adhere to these norms and keep shop area clean.

3. Awareness-education Volunteer team(s) with placards and dress code are oriented to go to main pilgrimage areas where pilgrims congregate. Placards coupled with various team formation and patterns of display are used to catch attention and educate pilgrims and other stakeholders. The main entrance, Temple(s), main market(s), eateries, the waterfront and camping areas (KMTR) are covered in an organized routing by 1-2 teams about 3-4 times a day. In Corbet buffer (2017-18) and KMTR (2015-19), this was used very effectively. Where required, a market watch team of volunteers would also goes around to see shop-keepers and their customers were being complaint with plastics and littering since this is a main area where control is needed.

4. Distinct uniform and official identification of college volunteers greatly impact pilgrim awareness and response Their behaviour and actions must be regulated. Lead NGOs and DFO must instil during orientation before the campaign. It is found that NSS and NCC college volunteers show good discipline.

5. Street plays and folklore story enacting have been used sometimes during main pilgrimage for a day to convey conservation concerns in a cultural way. They attract crowds and deliver messages in a culturally acceptable way. If the rush is heavy, transportation, organization and stay of artists require separate logistics

6. Audio jingles and messages on loudspeakers. Many pilgrims respond to direct conservation messages made regularly by the forest department. The TR-FD is an executive authority, that is heeded too and this must be used. Key conservation messages in culturally accepted local language with jingles and even a locally composed rustic environment song of the pilgrimage in a catchy tune, embeds with the pilgrim psyche. ARC-India and ATREE used this effectively in both RTR in 2014-16 and KMTR 2018-19 with good recall of message.

NOTE All the above techniques are not found in any one pilgrimage. As a thumb rule even 50% of these activities, some being crucial, help deliver a heightened response by pilgrims to awareness-education campaigns. The Tiger Reserve authorities oversee operations, play a facilitating role and take active interest, where required. Responsibility for detailing and executing the campaign lies primarily with the Lead conservation / social NGOs.

Appendix-9 (DATA SHEET)

ASSESSMENT OF MAMMAL DISTRIBUTION IN KMTR

FORM NO: _____ **DATE:** _____ **MAP NO:** _____
GPS NO: _____ **WEATHER:** _____ **AREA:** _____
START LOCATION: LAT - _____ **END LOCATION: LAT -** _____
WPT NO: _____ **LON -** _____ **WPT NO:** _____ **LON -** _____
START TIME: _____ **END TIME:** _____ **DISTANCE WALKED:** _____
SURVEYORS: _____

DETAILED DESCRIPTION OF SURVEY ROUTE:

| No | Time | Species | Evidence | GPS co- ordinates/ Locality. | Wpt no | No indiv | Pic no | Segment | Habitat | Remarks |
|----|------|---------|----------|---------------------------------|--------|----------|--------|---------|---------|---------|
| 1 | | | | Lat- Lon- | | | | | | |
| 2 | | | | Lat- Lon- | | | | | | |
| 3 | | | | Lat- Lon- | | | | | | |
| 4 | | | | Lat- Lon- | | | | | | |
| 5 | | | | Lat- Lon- | | | | | | |
| 6 | | | | Lat- Lon- | | | | | | |
| 7 | | | | Lat- Lon- | | | | | | |
| 8 | | | | Lat- Lon- | | | | | | |
| 9 | | | | Lat- Lon- | | | | | | |
| 10 | | | | Lat- Lon- | | | | | | |
| 11 | | | | Lat- Lon- | | | | | | |
| 12 | | | | Lat- Lon- | | | | | | |

ABBREVIATIONS

SPECIES: LVS - livestock, CHT - chital, SBR - sambar, FHA - four horned antelope, GSQ - giant squirrel, ELP - elephant, MJK - Muntjac, MSD - mouse deer, PIG - wild pig, GAR - gaur, TGR - tiger, LPD - leopard, BER - bear, DHL - Dhole, HYN - hyena, WLF - wolf, JCL - jackal.

EVIDENCE: SCT - Scat, PLT - pellet, KIL - kill, SCR - scrape, CAL - call, TRK - track.

HABITAT: FOR - forest, ACA - acacia, EUC - eucalyptus, TEK - teak, OTH - others (Please mention)

Will the forest be there to shelter the future pilgrims at Karayar? – Monitoring the forest structure

Species composition and structure of plant community is an indicator of the health of the forest and turn its functions. The health of the forest ecosystem will be affected mainly due to disturbances caused by human uses such as fuelwood collection, grazing by livestock, timber extraction largely and to some extent by the collection of forest produces such as fruits, seeds, tubers, bark, leaf or whole plant. However, composition and structure could get back if the extraction practices are minimal.

In the forest around Sorimuthayan temple located at Karayar, annually more than 200,000 pilgrims visit over a period of ten days. Considerable number of visitors stay in the forest closer to the temple by setting up camps. This leads to clearing of forest floor by sweeping, cutting saplings, and the entangled mass of climbers in addition to low branches of the trees and bushes. The cleared forest floor is compacted because of continuous trampling by the entire family and the heavy tarpaulin laid over it. The campers also prefer to camp on the same site every year. Even after compaction if some seeds germinate within the time interval of one year are again cleared or trampled. Seeds reached the soil from the trees in these camping sites can not become a seedling and further graduating as sapling and adult tree. Over a period of time the understory vegetation disappears totally that includes shrubs, herbs and saplings. Several such 'big gaps' can be seen in the forest stand where people camp regularly. Also increasing intensity of campers in the forest gaps over many years leads to extension of the gap that coalesce with the adjacent ones. Forest stand without saplings are considered as 'Standing Dead' as the trees will die after some time and it become open ground overgrown by weeds such as Lantana.

The forests in which pilgrims camp at present are one of the rare forest type called Dry Evergreen forest distributed as mosaics among the dry forest landscape. It also supports unique animals such as Slender Loris. There are many rare plants found in the forest where pilgrims camp.

The long term goal of setting up monitoring plots is to monitor the forest structure and regeneration in the frequently camped sites compared to the forests not camped by the pilgrims.

- To generate baseline data on the vegetation composition, structure and regeneration status
- To monitor the changes in vegetation composition, structure due to camping in the forest
- To do advocacy to the stakeholders in managing the forest based on rigorous ecological data

Materials required to set up the plot and generate baseline data

Measuring tape 10 m / 30 ft – to lay the plot,

Three to five tapes of 1.5 m long (used by tailors)

One foot scale three – to measure the ht of seedlings

Trail markers – to mark the corners

Good quality paint preferably 500 ml containers of few and $\frac{3}{4}$ or 1 inch brushes, kerosene or thinner – to mark the trees with paint

Compass and GPS by the team leader

Pad (exam writing pad) with clip and a polythene cover to cover in case of rains

Data sheet for Trees, saplings, and seedlings and herbs together – with details such as serial number, species name mostly local name, gbh (measurement of girth of the stem at 130 cm from ground level)
Binocular and cell-phone (to take picture and not to be in conversation or sending messages)

Guidelines to document the plant composition and structure

- Location of plots has to be decided after assessing the forest stand and the level of disturbance in detail by walking through.
- Avoid bias towards having more trees inside plot to show that the plot is diverse or less tree in the plot to quickly achieve the more number of plots.
- Use a compass.
- Enter date, time, location name, landmarks to reach the site, compass bearing, GPS readings, number / code of the plot
- Use compass bearing to walk straight for 10 m while laying 10 m².
- Do not cut the saplings, branches or thorny plants on the way.
- Do not trample any plant while you walk in a forest stand and in the plot in particular as we are going to monitor them.

Measuring GBH:

Take a branch or fallen branch but not the regenerating sapling to have a pole of 130 cm height. This stick / pole should be placed closer to the trunk on the soil to mark the point at 130 cm on the trunk. Tape should be used to measure the girth of the trunk at this point.

If the point of measurement falls on the knot, branching point or wound better take measurement just above or below it.

If the trunk is made of more than one stem (called multi-stemmed) all the trunks should be measured individually. Data should be entered in the datasheet where measurement followed by plus for as many stems encountered within the box against the species.

Trees with smaller stem girth in the dry evergreen trees generally reproduce so the minimum gbh limit to consider a tree should be 5 cm and above. Stems taller than 130 cm but their diameter is less than 5 cm but not lesser than 1 cm should be considered as regenerating size class called as saplings. All the saplings *ie.*, stems with gbh between 1-5 cm with in the 10 m² plots should be enumerated. Shrub species falling under this category also should be enumerated.

Seedling and herbaceous stems within 1 m² plots should be counted species wise. Stems shorter than 130 cm should be grouped under seedlings for which the height should be measured.

Identification of plants: Generally take down the plant names as you know or remember it. However, field assistant hired from local will be able to identify the plant names, especially seedlings, saplings which are in vegetative condition as well they resemble very little of their parents in some cases. It can be converted into botanical names later. Even otherwise collect the specimen for reference. If it is a tall tree or a woody climber try to collect the dried leaf fallen to the ground comparing with the one intact in the branches. May be a binocular will become handy. Take down characters that you feel that it is distinct such as the sap color from the inflicted wounds, smell of the bark or crumpled leaf, leaf arrangement, twig etc. May be one can use cell phone to take picture of the distinct character to be referred to a botanist.

Appendix-13

W. P(MD) No. 14180 of 2015

BEFORE THE MADURAI BENCH OF MADRAS HIGH COURT

DATED : 09.09.2022

CORAM:

THE HONOURABLE MR. JUSTICE R. MAHADEVAN

and

THE HONOURABLE MR. JUSTICE J. SATHYA NARAYANA PRASAD

W.P (MD) No. 14180 of 2015

and

M.P (MD) Nos. 1 to 3 of 2015

B. Danasekaran

... Petitioner

vs.

1. Union of India,
Represented by
The Principal Secretary,
Department of Environment and Forest,
Government of India, New Delhi.

2. The Director,
Project Tiger, New Delhi.

3. The State of Tamil Nadu,
Represented by
The Principal Secretary,
Department of Environment and Forest,
State of Tamil Nadu, Fort St. George, Chennai.

4. The Principal Chief Conservator of Forest,
Office of the Principal Chief Conservator of Forest,
State of Tamil Nadu, Chennai.

5. The Conservator of Forest,
Office of the Conservator of Forest, Tirunelveli District.

6. The Field Director,
Kalakad Mundanthurai Tiger Reserve,
Tirunelveli District.

7. The District Collector,
Tirunelveli District.

8. The Commissioner,
Ambasamuthiram Municipality,
Tirunelveli District.

9. The Superintendent of Police,
Office of the Superintendent of Police,
Tirunelveli District.

10. The Temple Trustee,
Arulmigu Sorimuthaiyanar Temple,
Singampatti Jameen,
Karairar, Ambasamuthiram Taluk,
Tirunelveli District.

... Respondents

PRAYER: Writ Petition filed under Article 226 of the Constitution of India praying for issuance of a Writ of Mandamus, directing the Respondents to take immediate action to prevent the vehicle movements inside the Kalakad Mundanthurai Tiger Reserve, particularly, through Papanasam cheak-post from 6 p.m. to 6.a.m., prevent parking of vehicles in the forest area inside the reserve forest, make arrangements for the vehicles for dropping passengers and leave the reserve, construct speed breakers all along the road from Papanasam to Karayar to slow vehicle speed, to allow the vehicles in convoys to minimize road kills of animals in Sorimuthaiyan temple festival, prevent the usage of horn inside forest, prevent any form of camping inside the tiger reserve area, monitor and direct the shopkeepers and people to deposit the litter in proper collection points before they vacate the place, strictly continue the check and fine system against carrying plastic and liquor, constitute special task force for protect forest, wildlife and for conducting festival in accordance with wild life protection Act and other environmental legislations, prevent tourism in Karyar dam during the festival to relieve pressure on wildlife, forest and protection, to arrange for more frequent collection of garbage, take necessary action to collect garbage from the Agasthiar falls, Karayar dam and Banatheertham area, to provide separate drinking water for affected Kani settlement till 4-6 weeks after the festival, take appropriate action to prevent the usage of bleaching powder / DDT near the temple to reduce the chlorine content in Karaiyar river, take appropriate action for the proper disposal of garbage that is collected during the festival, to prevent the peoples from camping outside the temple land, restrict prolonged stay in the forest area, prevent the usage of sachets, plastic bags, liquor, bottles, prevent the people from burning plastic and other articles, prevent the people from occupying forest area for stay during temple festival, prevent the usage and sale of soap, shampoo, oil in Servalaru river, direct the shopkeepers to sell all pooja items in recyclable trays, prevent the sale of food products available in plastic sachets, prevent the officials to dispose the collected garbage in the forest or river, to maintain adequate number of toilets and dispose human waste out side the forest and prevent the mixing of human waste in the forest or river, to create slaughter spaces away from the river and in accordance with law, and to create awareness through electronic and printing media.

For Petitioner: Mr. R. Alagumani

For R1: Mr. D. Saravanan

Central Government Standing Counsel
For R3, R5 & R7: Mr. R. Ragavendran, Government Advocate
For R8: Mr. P. Athimoolapandian, Standing Counsel
For R9: Mr. A. Thiruvadikumar
Additional Public Prosecutor

ORDER
(Order of the Court was made by R.MAHADEVAN, J.)

The petitioner who is a practicing Advocate, has filed this public interest litigation seeking various directions for protection of Kalakad Mundanthurai Tiger Reserve. After making a study of research conducted by an environment organisation namely, Ashoka Trust for Research in Ecology and the Environment, the petitioner made a detailed representation dated 03.08.2015, to the respondents for protection of Kalakad Mundanthurai Tiger Reserve and finding no need to it was paid, he has filed this public interest litigation.

2. Though the petitioner has sought for a larger relief and subsequently filed M.P (MD) No. 3 of 2015, to amend the prayer to the effect that directing the respondents to take necessary action on the basis of his representation dated 03.08.2015, in the light of the report by a Trust namely, Ashoka Trust for Research in Ecology and the Environment (ATREE), today, when the matter was taken up for hearing, the learned counsel for the petitioner submitted that it is suffice, if a direction is issued to the respondent Nos. 3, 6, 7 and 8, to consider his representation 03.08.2015 and the report of the ATREE submitted to the District Collector, Tirunelveli, and pass orders on merits and in accordance with law.

3. In view of the limited relief sought for, without expressing any opinion on the claim made by the petitioner, the respondents Nos. 3, 6, 7 and 8 are directed to consider the representation of the petitioner dated 03.08.2015 and the report of the Ashoka Trust for Research in Ecology and the Environment (ATREE), regarding Kalakad Mundanthurai Tiger Reserve Campaign Sorimuthyan Temple, Karaiyar Forest-issues, impacts and recommendations for the future 2006-2007, submitted to the District Collector, Tirunelveli District, purely on merits and in accordance with law within a period of eight weeks from the date of receipt of a copy of this order.

4. With the above direction, the Writ Petition is disposed of. No costs. Consequently, connected miscellaneous petitions are closed.

[R.M.D.,J.] & [J.S.N.P.,J.]
09.09.2022

Index : Yes / No
Internet : Yes
bala

To
1. The Principal Secretary,
Union of India,
Department of Environment and Forest,
Government of India, New Delhi.

2. The Director,
Project Tiger, New Delhi.

3. The Principal Secretary,
State of Tamil Nadu,
Department of Environment and Forest,
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8. The Commissioner,
Ambasamuthiram Municipality,
Tirunelveli District.

9. The Superintendent of Police,
Office of the Superintendent of Police,
Tirunelveli District.

R. MAHADEVAN, J.
and
J. SATHYA NARAYANA PRASAD, J.
bala

ORDER MADE IN
W.P (MD) No. 14180 of 2015
DATED: 09.09.2022

