

## HEALTH, SAFETY AND POLLUTION

Photo: Ricky Patel

### WHY IT'S IMPORTANT

Covid-19 has demonstrated with devastating economic impact, the negative aspects of living in an interconnected world. Yet it brought with it unexpected, albeit temporary benefits for pollution levels. Skies cleared. Starry nights became visible. Birdsong grew louder and wildlife appeared in previously crowded spaces. Positive interest in nature has been fanned in the media during lockdown. Whilst this might bode well for nature travel post lockdown, reassurance about health and safety will be more critical than ever to those making travel decisions.

Economic recovery needs to be accompanied by less polluting, sustainable pathways forward. The World Health Organisation (WHO) estimates that around 7 million people die every year from exposure to fine particles in polluted air causing respiratory and chronic disease and presenting a more insidious, ongoing threat to human health.<sup>1</sup> India was ranked the world's 5<sup>th</sup> most polluted country in 2019<sup>2</sup> although on the positive side, air pollution fell by 20% on the previous year and its National Clean Air Program launched in 2019 has set ambitious plans and strategies for reducing air pollution. Nepal is ranked 8<sup>th</sup> most polluted country. Water pollution is likewise a major source of environmental and health concern in India and Nepal through indiscriminate dumping of industrial and domestic waste and untreated sewage.

The healing powers of nature are well documented and are a positive selling point for nature tourism. Trees and forests clean air. Aquatic and semi aquatic plants can be harnessed to clean water. Being in nature and around trees reduces stress and promotes wellbeing. Patients who can view nature from their hospital windows recover more quickly.

Human health and the health of nature go hand in hand. Well run wilderness destinations can offer a uniquely restorative experience away from the stress of urban living encouraging repeat visits. Responsible nature tourism sets out to provide a safe visit for its guests, minimise its impact, avoid pollution and helps to protect and restore the pristine environments its guests come to enjoy.

### SUSTAINABLE DEVELOPMENT GOALS



## WHAT YOU CAN DO

(see separate COVID-19 guidelines)

### Easy Wins

- Have first aid available for guests and staff and clear strategies to deal with injuries and health issues. The best providers have in-house paramedics.
- Display a layout map of the resort.
- Establish and communicate emergency exits and fire procedures.
- Provide fire extinguishers/fire-fighting equipment at appropriate locations.
- Store LPG cylinders separately outside the kitchen with fire equipment adjacent.
- Label hazardous materials and store them separately with fire safety measures in place.
- Display rules for use adjacent to the swimming pool and indicate depth clearly.
- Comply with health and safety regulations in your kitchen and preparation of food.
- Brief your staff and guests on health and safety issues and display appropriate notices.
- Use natural and biodegradable soaps, cleaners and guest toiletries to minimise pollution.



Photo: Pench Jungle Camp

### Going for Gold

- Ensure hazardous materials are stored away from waterways in a concrete room and are correctly disposed of to avoid pollution.
- Avoid harmful chemicals, oil and diesel etc entering your water treatment system.
- Develop and implement a waste management plan and avoid burying or burning waste or allowing it to enter waterways (see [Waste Management and Recycling](#) profile).
- Minimise sound and light pollution to avoid disturbing wildlife.
- Develop and implement a comprehensive policy covering health and safety and disaster management.
- Allocate responsibility for key tasks and provide staff training.
- Ensure your planning and activities are fully compliant with statutory health and safety and pollution guidelines and regulations.



Photo: Pashan Garh - Taj Safaris

### See further tips in Resources.

Please note this profile does not cover a comprehensive range of health and safety issues.



Clear waters at Tiger Trails Jungle Lodge. Water and land restoration at the lodge has led to an increase in water quality with two studies revealing a substantial rise in phytoplankton and fish species. See case study in [Water Conservation and Treatment](#) profile.



## EXAMPLES OF GOOD PRACTICE

### SITE LAYOUT



Providing a map of the site for effective visitor information and health and safety is good practice. Pictured here a map of the resort at Limban Resort.



Signage showing the layout of Jim's Jungle Retreat is displayed in each guest room.



Layout map at Red Earth Kabini.

### FIRE SAFETY & EMERGENCY PLANNING



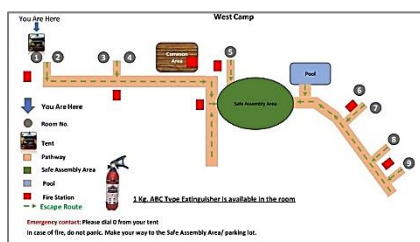
Clear fire escape plans are presented in all the guest room at Jaagir Lodge showing fire exits, a standard requirement. Extinguishers are found at appropriate locations throughout the resort. Security checks and training are provided by Paliya Fire Station and mock drills and training for staff organised at regular intervals.



Taj Safaris lodges - Banjar Tola pictured here, provide a clear exit plan and instructions in the event of fire in all their guest rooms, part of their rigorous approach to health and safety.



Emergency layout in each guest room at The Fern Gir Forest Resort.



Signage displayed on the back of the entrance door of each guest room at Banjar Tola – Taj Safaris.



Smoke detectors are a minimum criteria for certification and required as a safety measure in India and Nepal.



Bells are used by a range of lodges for staff or guests to sound the alarm. Exceptional: Jaagir Lodge has a PA system and speakers fitted at suitable locations as part of their emergency planning. 28 CCTV cameras and three pan-tilt-zoom cameras are also installed at appropriate places for security.



Clear signage for the fire assembly point at Bandhav Villas.



Bajaar Tola pictured here, and other Taj Safaris lodges provide fire-fighting equipment at key locations throughout the property including guest rooms, the kitchen area, dining area, near the diesel generator set and outside the chemical storage room. All guest rooms have smoke alarms.



Providing firefighting equipment outside the LPG storage, pictured here at Singinawa Jungle Lodge, is standard good practice for all areas with combustible materials such as chemical and diesel stores and diesel generator set.

## STORAGE OF HAZARDOUS MATERIALS



Chemicals at Pashan Garh - Taj Safaris are stored in a separate storage room, good practice. Clear signage is in place regarding use of different fire extinguishers for different substances and equipment.



Chemicals in Pashan Garh – Taj Safaris are labelled and stored to avoid spillage.



Banjaar Tola – Taj Safaris displays clear signage on its hazardous waste.



Separate diesel storage at Banjaar Tola – Taj Safaris, good practice to reduce fire risk.



LPG containers are kept outside the kitchen at Kanha Earth Lodge in line with good practice.



Wildlife enjoying one of the waterbodies at Jim's Jungle Retreat. Ensure you keep polluting substances out of waterways.



Mela Kothi - Chambal Safari Lodge helping with the Gharial crisis in 2007. See Nature Education and Conservation profile.



## HEALTH



It's standard good practice to provide first aid for guests and staff, pictured here, first aid kit at Pench Jungle Camp.



... and to have paramedics on call when needed. Pictured here paramedic at Mahua Kothi – Taj Safaris.



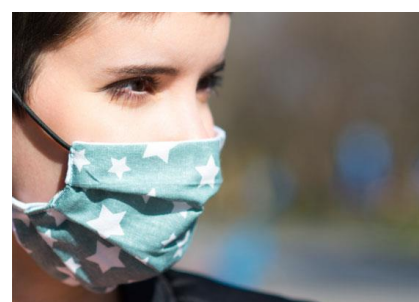
Taj Safaris provides first aid training for all its staff. Pictured here, clear instructions on how to deal with electric shocks.



A range of lodges and resorts highlight the risk of mosquitos and offer preventative measures. Red Earth Kabini, pictured here, highlights the risk and sells lemon grass, a natural insect repellent in its gift shop.



Spice Village Thekkady has a mosquito breeding control system to reduce the mosquito population. Mosquitoes are encouraged to lay eggs in urns. Once the larvae hatch, the water is decanted into a column of sand where the larvae are killed due to the absence of water.



TOFTigers has published [COVID-19 guidelines](#) in association with the Adventure Tour Operators Association of India (ATOAI) for the safe handling of guests by accommodation providers, outdoor activity operators and tour operators.

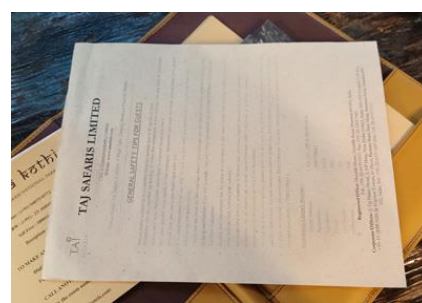
## HIGHLIGHTING SAFETY ISSUES FOR GUESTS AND STAFF



Provide your guests with clear information through briefings, information in rooms and signage on do's and don'ts to ensure a safe visit for your guests and for wildlife. Pictured here, signage on arrival at Red Earth Kabini.



Clear signage at Mahua Kothi -Taj Safaris (pictured here) and its other lodges alerts guests about the risk of animals, snakes and insects, an issue also covered in guest briefings along with other safety issues. Guests are not permitted to walk around the lodge at night unless accompanied by security.



Guest room literature at Taj Safaris lodges provides safety tips and emergency telephone numbers.





Do's and don'ts when visiting the park are displayed at Aahana The Corbett Wilderness and other lodges and resorts with safety issues highlighted for the benefit of both guests and wildlife.



Rules and regulations of the park displayed at Kanha Earth Lodge.



Clear signage is used by Singinawa Jungle Lodge and other lodges and resorts to indicate potential hazards on site and areas which are out of bounds, to help mitigate risk.



Clear signage around the accommodation itself to indicate potential hazards is also good practice, pictured here at Aahana The Corbett Wilderness.



Notice discouraging consumption of food in guest room to discourage pests at Limban Resorts.



No smoking sign at Red Earth Kabini.



Ensuring good safety standards for staff is core good practice. Pictured here, a back of house safety notice for Banjaar Tola - Taj Safaris's staff, one of a series of notices clearly displayed in areas across the property complementing staff training to ensure staff safety.



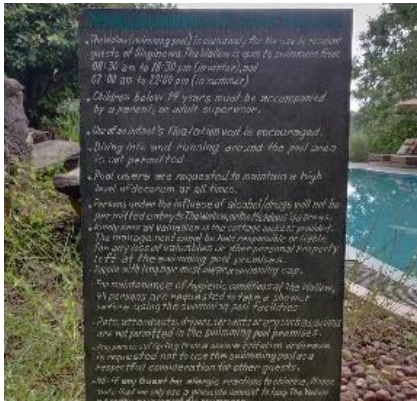
The Fern Gir Forest Resorts restricts access to its diesel generator set, displays signage and provides firefighting equipment adjacent to the diesel generator.



Safety instructions are clearly displayed outside the diesel generator set at Banjaar Tola – Taj Safaris.



## SWIMMING POOL SAFETY



Singinawa Jungle Lodge displays rules and regulations for pool use by the pool, standard good practice.



Pool depth is clearly indicated ....



.... and appropriate signage displayed.



Swimming pool rules and regulations at Mahua Kothi Taj Safaris. The pool displays depth and signage to prevent diving.



Safety equipment at Evolve Back Kabin.



Clear pictorial rules and regulations for pool use at Pugdundee lodges.

## KITCHEN HYGIENE



High levels of cleanliness and hygiene are core good practice. Pictured here, neat and clean kitchen at Kanha Earth Lodge.



The lodge displays its food and hygiene policy in the kitchen complementing its staff training to ensure good practice.



Taj Safaris properties display twelve golden rules of food safety in their kitchens to complement their hygiene and food safety training.



## USE OF NON-POLLUTING PRODUCTS



Using natural/ecological soaps, shampoos and cleaning products is positive for health and the environment. Svasara Jungle Lodge pictured here uses a guest toiletry range by Soul Tree offering certified natural products.



A range of lodges and resorts make their own toiletries and detergents from natural materials. Jim's Jungle Retreat uses fruit from the soapnut/reetha (*Sapindus mukorossi*) grown on site for shampoos and soaps. It also provides its guests with coarsely-ground gram flour mixed with grated fresh turmeric, an excellent natural exfoliant which is free from chemicals and positive for wellbeing.



Red Earth Kabini uses no chemicals on the property. Laundry is outsourced to Mysore. All soaps and shampoos are handmade from natural products. Their spa, run entirely by local men and women, uses only herbal products, mostly made in-house.

## WATER TREATMENT AND MONITORING

(See also [Water Conservation and Treatment profile](#))



Appropriate water treatment systems for sewage and other wastewater from guest rooms, kitchen, laundry etc are essential for avoiding pollution whether through using septic tanks, sewage treatment plants (STP) or plant-based systems such as root zone treatment. Pictured here, STP at Oberoi Vanyavillas.

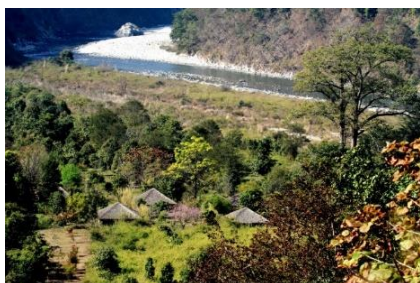


The root zone treatment system at Aahana The Corbett Wilderness, harnesses plant power to clean wastewater to a high standard for reuse for irrigation. See case study in [Water Conservation and Treatment profile](#)



Regular pH and TDS monitoring is important for health in drinking water and also an indicator for pollution in treated water for other uses. (See [Monitoring Water quality in Resources](#)).

## MINIMISING SOUND, LIGHT AND AIR POLLUTION



Minimising sound and light pollution is good practice. Vanghat Lodge has no outdoor lighting to avoid disturbing wildlife. Herds of elephants now pass by in the restored landscape where previously only a solitary bull was seen.



Sensitive lighting at Evolve Back Kabini to minimise light pollution.



Kipling Camp uses solar lights with sensors to save energy and minimise light pollution.





Pictured here a no noise, low polluting diesel generator set at Evolve Back Kabini, used by many lodges as part of their responsible approach to noise pollution.



In addition to its silent, fuel efficient diesel generation to minimise noise pollution, Limban Resort siphons its kitchen exhaust into an Exhaust Washer System which transfers it into a large water tank for dissolving polluting particles and gases. The water is then released into the resort's sewage treatment plant



Act responsibly. Help to protect the magic of pristine wilderness.

## WASTE DISPOSAL

(See also [Waste Management and Recycling profile](#))



A range of lodges and resorts have highly effective waste management and recycling practices to avoid burying or burning waste and polluting the environment. Pictured here, waste segregation at Spice Village Thekkady.



Covered compost at Flame of the Forest Safari Lodge to keep out pests.



Act responsibly. Burning, dumping and burying waste is bad for human health, the environment and wildlife. Reduce, reuse, recycle, recover or dispose of waste safely through proper management.

## LOCAL COMMUNITY

(See also [Community Liaison and Support profile](#))



A range of lodges and resorts extend their medical care to the community. The Prakratik Society, set up by Khem Villas' owner in Ranthambore organises regular medical camps for the local community – 1,588 people in 2019-20 in 38 health camps covering 200 villages. It has also established a hospital.



Tiger Tops Tharu Lodge has an on-site clinic for villagers providing free treatment by trained Community Medical Assistance (CMA). The lodge also provides free health and eye check-up for the school it supports.



Snakebite awareness programme run by Singinawa Jungle Lodge's conservation foundation which also supplies anti-venom vials for treating snakebites.



# RESOURCES

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## TIPS FOR GOOD PRACTICE

Please note these tips are limited in scope to TOFTigers certification and do not cover a comprehensive range of health, safety and pollution issues.

### Planning and Legislation

- Abide by legislation by national and state Pollution Control Boards.
- Obtain a No Objection Certificate and planning approvals from the Gram Panchayat.

### Management and Training

- Carry out a risk assessment covering potential hazards for guest and staff safety, wildlife and pollution (eg fire, flooding, fencing/wildlife and guest safety, potential for snakebites and injuries, spillage of polluting materials etc) and put in place policies and practical measures to mitigate risk.
- Develop a health and safety policy covering staff and guests.
- Develop a disaster management plan.
- Carry out a safety audit at least once a year.
- Allocate responsibility for key tasks.
- Provide staff training in first aid, fire drills, hygiene, snake bites and other health and safety issues. The best practitioners go beyond the basics and provide their staff with wellbeing initiatives such as yoga and postural guidance.

### Fire Equipment and Alarm Systems

- Display emergency exit plans in guest rooms and other important areas such as dining areas.
- Provide fire-fighting equipment at appropriate locations throughout the property including all guest rooms, the kitchen and dining areas and other public and back-office spaces.
- Take particular care to have appropriate fire-fighting equipment near flammable substances eg near diesel generator sets, LPG gas cylinders, fuel and chemical storage etc.
- Store LPG cylinders outside the kitchen and away from fuel and other flammable substances.
- Practice fire drills.
- Use smoke detectors and alarm systems.
- Keep fire extinguishers up to date and renew before they expire.
- Store flammable materials separately (eg wood, gas or diesel away from the diesel generator set).
- Designate an assembly area.

### Storage and Disposal of Hazardous Materials

- Store hazardous waste separately in a concrete room with fire safety measures in place.
- Ensure containers for chemicals, oil and paints etc are covered and correctly labelled.
- Dispose of hazardous materials correctly to avoid pollution (see [Waste Management profile](#)) and avoid them contaminating the land or entering waterways or your wastewater treatment system.



Photo: Pashan Garh - Taj Safaris

### Minimising Pollution Risk

- Store hazardous chemicals away from waterways and have emergency planning in place (eg for flooding).
- Use non-polluting, biodegradable toiletries, laundry and cleaning products.
- Discharge kitchen water through a grease trap prior to further treatment.
- Use appropriate water treatment systems eg septic tanks, plant-based filtration systems or sewage treatment plants for all used water and sewage (see [Water Conservation and Treatment profile](#)) before discharge.
- Develop and implement a proper waste disposal plan (see [Waste Management profile](#)).
- Don't bury or burn waste – plastic in particular creates noxious fumes and pollution.

### Briefing and Signage

- Brief your guests on safety issues (eg visiting the park, approaching animals, going out after dark).
- Display emergency exit plans in all guest rooms.
- Display a layout map of the lodge or resort in the reception and other public areas.
- Place safety notices where required to indicate potential hazards (eg water bodies, work in progress).



### Guest security

- Provide staff and watchmen for guest security.
- Provide emergency numbers in guest rooms.
- Provide torches in guest rooms.

### Staff safety

- Brief your staff on safety issues.
- Display notices where relevant to communicate health and safety issues.
- Ensure only authorised personnel enter the electricity panel room.

### Health

- Follow the COVID-19 prevention protocol developed by ATOAI in association with TOFTigers.
- Provide first aid at reception and in other appropriate areas such as the kitchen.
- Provide in-house paramedic support or know where to find prompt support locally.
- Develop an emergency plan to deal with snake bites.
- Plant mosquito repellent shrubs or spray organic mosquito repellents near water areas.
- Empty and store away items such as empty paint cans to avoid attracting mosquitos during the rainy season.

### Kitchen and food hygiene

- Comply with health and safety regulations in your kitchen and preparation of food.
- Display food hygiene notices

Example:

- Keep kitchen premises clean and free from pests and rodents.
- Use potable water for cooking and washing raw food.
- Cook food thoroughly – keep hot food above 62°C and cold food below 5°C.
- Handle and store veg, raw and cooked food separately.
- Keep cooked food at room temperature for maximum 2.5 hours.
- Use separate chopping boards, knives etc for raw, cooked and veg food.
- Maintain refrigerator temperature below 5°C and freezer below 0°C.
- Wear clean apron, cap and gloves.
- Wash hands before handling food, after using the toilet and after every two hours.
- Use a waterproof bandage to cover cuts or burn wounds.
- Do not handle food when unwell.
- Use clean dusters to wipe utensils and clean surfaces.



Photo: Taj Safaris.

### Swimming pool

- Display rules for use adjacent to the swimming pool.
- Indicate the swimming pool depth clearly.
- Display no diving signs where needed.
- Provide safety/rescue equipment.

### Cruises, boats, coracles, kayaks etc

- Ensure the availability of life jackets and life-boats where appropriate.

### Composting

- Fence off compost areas to deter pests.
- Mesh/net cover around compost pits is also an option to keep small animals out eg wild boar.

### Sound and light pollution

- Use noise free and low polluting diesel generator sets.
- Avoid unnecessary sound and light pollution.

### Fencing for wildlife

- Avoid barbed wire for fencing to avoid injury to wildlife. Use solar fencing or natural materials as an alternative or no fencing.
- Ensure guests are briefed about risk from wildlife and provide staff and watchmen for security.

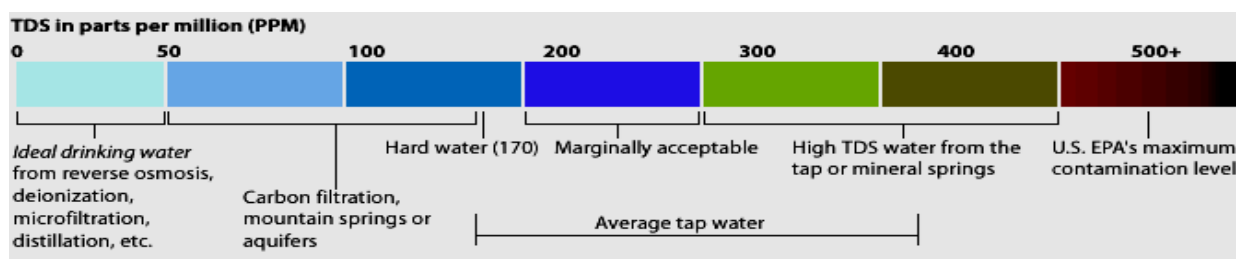
### Air and water quality

- Carry out mandatory air quality and water quality tests from respective State Pollution Control Boards or any ISO certified air and water quality testing/monitoring agency for lodges with at least twenty rooms or more. For others, it is recommended.
- Monitor water TDS and pH levels regularly.

*Information included may not be appropriate to every situation, destination and country and is intended for general guidance only and may be subject to change.*

## MONITORING WATER QUALITY

Monitoring levels of total dissolved solids (TDS) in water and its pH value are important measures of water quality. High levels of TDS and low levels of pH indicate that there are harmful contaminants in the water which can affect human health and wildlife. Fish die-off occur when pH levels dip below 4 or rise above 10. Safe levels for drinking reverse osmosis treated water are 50-150 ppm and 6-8 pH (7 is ideal.)



Source: Sycom Projects Consultants Pvt Ltd





## USEFUL ORGANISATIONS AND LINKS

### India

- **Central Pollution Control Board**  
Ministry of Environment, Forests and Climate Change, Government of India  
<https://cpcb.nic.in/>
- **Food Safety and Standards Authority of India**  
<https://fssai.gov.in/>

## USEFUL PUBLICATIONS

- **ATOAI COVID-19 Guidelines**, Adventure Tour Operators Association of India in association with Travel Operators for Tigers India Wildlife Association (TOFTigers) Version: 3.3 Date: 05/07/2020

## REFERENCES

<sup>1</sup> 9 out of 10 people worldwide breathe polluted air, but more countries are taking action, News release, World Health Organisation, 2 May 2018

<sup>2</sup> 2019 World Air Quality Report, Region & City PM2.5 Ranking, IQAir



Photo: Forsyth Lodge



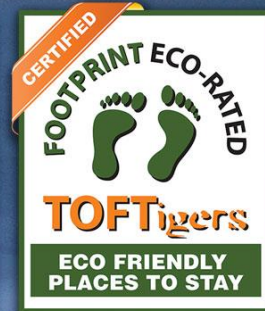


Act responsibly - put health and nature first



# HELP US DRIVE THE CHANGE

Your *corporate commitment*  
to sustainability



TOFTigers is a global business-to-business nature travel charity with a mission to improve the ecological and economic sustainability of wildlands and wildlife across Asia. Well-planned and well-managed responsible tourism is a force for good bringing economic benefits to rural areas, restoring habitat, supporting conservation and local communities, changing poachers into protectors and giving visitors inspiring experiences of nature. We work with the travel trade, destinations, accommodation providers, governmental and conservation organisations to make this happen through training, advocacy, certification, promoting best practice and partnership working.

Our **certification programmes** place local communities, nature and environmental sustainability at the heart of business operations. They are a symbol of assurance for travellers and the travel trade that the places they select to stay at have been reviewed by environmental experts and exceed a minimum standard on a journey towards best practice. The PUG certification is recognised by the United Nation's Global Sustainable Tourism Council (GSTC) and is aimed solely at nature focused accommodation. The Footprint certification has a broader client base that is not wholly nature focused and encompasses accommodation providers in rural, natural or more urban landscapes.

[Sign up for certification](#), [get involved in our campaign](#) or view sustainable travel options [on our website](#) and download the [Great Wildlife Travel Guide](#).

## TOFTIGERS BEST PRACTICE SERIES

- [Introduction](#)
- [Community Liaison and Support](#)
- [Energy and Carbon Footprint](#)
- [Nature Education and Conservation](#)
- [Sustainable Building](#)
- [Local Economy – Employment, Skills and Enterprise](#)
- [Water Conservation and Treatment](#)
- [Waste Management and Recycling](#)
- [Cultural Heritage](#)
- [Health, Safety and Pollution](#)

***Correct at time of press. Information included may not be appropriate to every situation, destination and country and is intended for general guidance only and may be subject to change.***

Compiled for TOFTigers by [Positive Nature](#) and [Sycom Projects Consultants Pvt Ltd](#), March 2021

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