

Save Lives of Snakebite Victims in Rural India

Periodical Report



April 2024

TROPICAL INSTITUTE OF ECOLOGICAL SCIENCES
Ecological Research Campus
K.K. Road, Velloor PO., Pampady, Kottayam-686501
www.ties.org.in

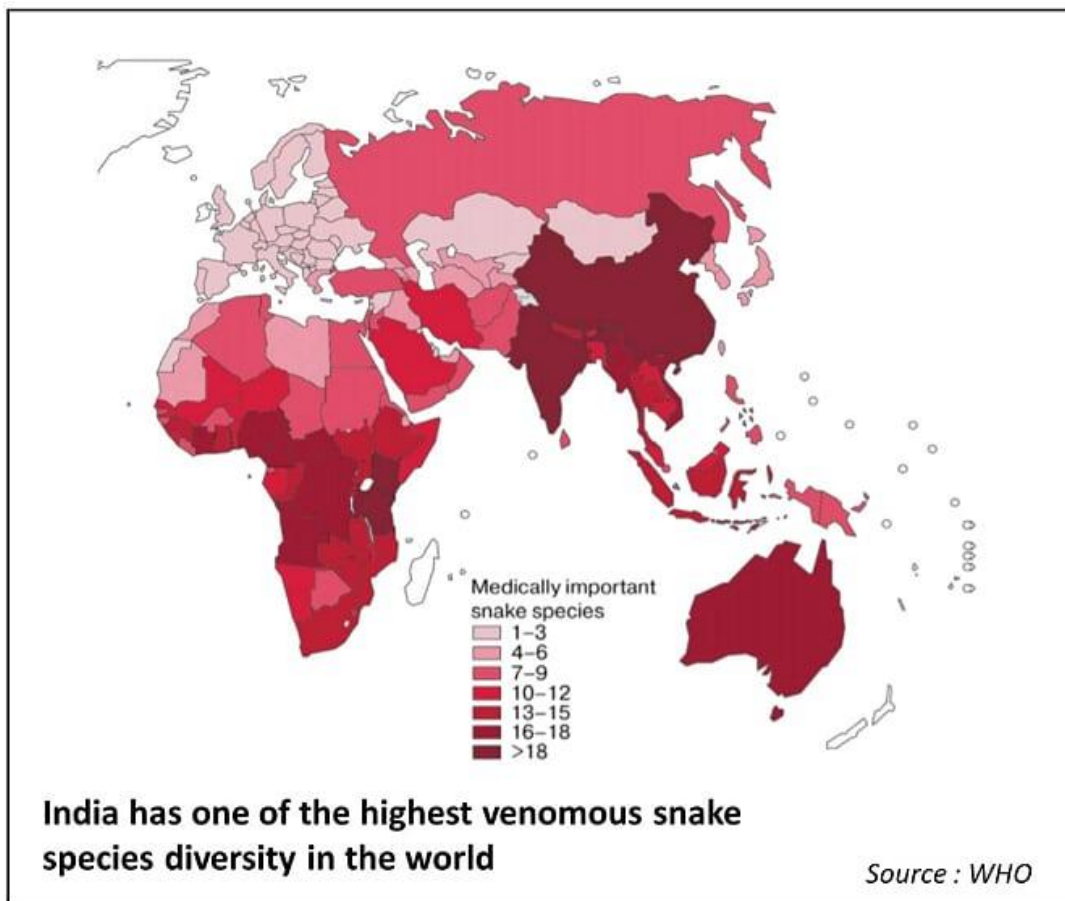
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Snakebite: Indian Scenario



Every year in India, 50,000 people die from snakebites, and thousands more suffer permanent disabilities and mental trauma. Most victims come from low-income rural backgrounds, such as farmers and tradesmen, and are often the sole breadwinners for their families. Although the danger of snakebites is a part of rural life in India, it is usually an avoidable accident with simple precautions. It is crucial that accurate information and assistance reach remote villages where most snakebites occur. People need to learn to distinguish between venomous and nonvenomous snakes, understand how to avoid dangerous snakes, and know what to do if bitten. The only cure for a venomous snakebite is antivenom, and local health authorities must ensure it is always available where and when needed.

Snakebite is a serious issue in rural India, where several highly venomous species are commonly found in and around agricultural areas with abundant prey such as rodents and amphibians. Four snake species, known as the Big Four, are responsible for nearly 95% of fatal bites: the spectacled cobra (*Naja naja*), Russell's viper (*Daboia russelii*), common krait (*Bungarus caeruleus*), and saw-scaled viper (*Echis carinatus*). A polyvalent antivenom is available to treat these bites, but public awareness and distribution of this life-saving drug

are inadequate. The Centre for Herpetology/Madras Crocodile Bank and its partners are conducting a snakebite project that includes venom sampling and research, mapping of snake and snakebite treatment centers, and a nationwide awareness campaign for snakebite mitigation.

Snakebite in India is a significant medical and social challenge, and it is time we come together to address it. As the Indian chapter of the Global Snakebite Initiative, we are establishing and strengthening local partnerships, collaborating with national and international experts in herpetology, venomology, health, and social science. We also welcome the support of philanthropic agencies to help us refine our methodology and increase our reach to bring relief to the most remote parts of the country.

Snakebite kills 45,000 people annually in India, mostly simple village folk. Anjali Health Center in Pithora, Chhattisgarh, and Divya Chhaya Hospital in Subir, Gujarat, are small primary level hospitals supporting over 6,000 economically vulnerable tribal families. These hospitals treat more than 200 snakebite patients every year. TIES is providing them with adequate supplies of antivenom, medical supplies for wound management, and snakebite management training for staff.

Challenge

In rural India, where 90% of the population comprises tribal communities primarily engaged in farming, fatal encounters with snakes are alarmingly common. These communities live and work in close proximity to agricultural lands, forests, and areas where snakes are prevalent, increasing their risk of snakebites. The lack of proper infrastructure in local hospitals exacerbates this issue, as many are either understocked with antivenom (ASV) or lack personnel trained to handle snakebite cases effectively.



A snakebite victim

Furthermore, there is a significant lack of awareness about the medical consequences of envenomation, which leads to delays in seeking medical treatment. Many victims rely on traditional remedies or simply do not recognize the severity of their condition until it is too late. This delay in treatment can be fatal, as the effectiveness of antivenom decreases significantly the longer it takes to administer it after the bite.

Adding to the problem is the scarcity of current and accurate data regarding snakes and snakebite occurrences. This data deficit results in the issue being a low priority in administrative circles, despite the alarming findings of the Million Death Study, which reports that 45,000 people die every year in India due to snakebites. Without comprehensive data, it is challenging to allocate resources, plan effective interventions, or

raise the necessary awareness at the governmental level to tackle this pressing public health crisis.

Efforts to address this issue must include improving the availability and distribution of antivenom in rural hospitals, training healthcare personnel in snakebite management, and conducting widespread awareness campaigns. Additionally, systematic data collection on snakebite incidents and outcomes is essential to inform policy decisions and prioritize resources effectively. By addressing these gaps, it is possible to significantly reduce the number of snakebite fatalities and improve the quality of life for rural and tribal communities in India.

Solution



Anti-snake Venom (ASV)

The project aims to comprehensively address the snakebite crisis in rural India by implementing several key initiatives:

Regular Supply of Antivenom and Medical Supplies

Hospitals in rural and tribal areas will receive a consistent supply of antivenom (ASV) to ensure that they are always equipped to treat snakebite victims promptly. In addition to ASV, these hospitals will be provided with essential medical

supplies and life-support equipment. This will enable them to manage not only the immediate effects of envenomation but also any complications that may arise during treatment.

Training for Healthcare Personnel

To enhance the quality of care for snakebite victims, the project will offer extensive training programs for healthcare personnel. These programs will focus on the latest snakebite treatment protocols, the identification of different snake species, and the management of snakebite complications. By equipping healthcare workers with this knowledge, the project aims to improve the survival and recovery rates of snakebite victims.

24/7 Expert Consultation

Recognizing the complexity of some snakebite cases, the project has enlisted snakebite treatment experts from major cities who will be available for consultation over the phone 24/7. This service will provide crucial support to local healthcare providers dealing with complicated or severe snakebite cases, ensuring that patients receive the best possible care.

Awareness Campaigns

A significant component of the project involves raising awareness about snakebite prevention and first aid. Snake rescuers and experts will conduct awareness campaigns in community spaces throughout India, with a particular focus on rural areas where snakebites are most common. These campaigns will educate communities about snake behavior, simple measures to prevent snakebites, and proper first aid practices to follow in the event of a bite.

Snake Rescue Operations

A dedicated team of certified snake rescuers, comprising students, doctors, auto drivers, scientists, IT professionals, and daily wage workers, operates under the Forest Department. This diverse group is committed to rescuing snakes and safely releasing them back into their natural habitats. Their efforts protect both the snakes, which are an essential part of the ecosystem, and the communities that encounter them. By rescuing and relocating snakes, the team helps maintain ecological balance while reducing human-snake conflicts.

Targeted Outreach

The awareness campaigns will cover a broad spectrum of the population, including school and college students, government officials, laypersons, and forest officials. By targeting these groups, the project aims to instill a culture of safety and preparedness that permeates all levels of society. Educating students ensures that the younger generation is well-informed, while training government and forest officials ensures that policies and practices support snakebite prevention and treatment.

Comprehensive Coverage

The project's holistic approach ensures that no segment of society is overlooked. By providing resources and training to hospitals, establishing expert consultation services, and conducting widespread awareness campaigns, the project aims to create a robust network of support for snakebite prevention and treatment across India.

Expected Outcomes

- **Reduced Fatalities:** With a regular supply of ASV and better-trained healthcare personnel, the number of fatalities due to snakebites is expected to decrease significantly.
- **Improved Treatment Quality:** Continuous access to expert advice and life-support equipment will enhance the quality of care for snakebite victims.
- **Increased Awareness:** Through education and awareness campaigns, communities will be better equipped to prevent snakebites and respond effectively if they occur.
- **Empowered Communities:** Educating various groups within the community will foster a sense of empowerment and preparedness, leading to a proactive approach to snakebite prevention and management.

- By addressing the snakebite issue on multiple fronts, the project aims to make a significant impact on the health and well-being of rural and tribal communities in India.

Long-Term Impact

This project is expected to save over 100 lives annually at each of the two hospitals involved by ensuring a steady supply of antivenom and providing essential medical supplies and life-support equipment. Additionally, 500 more lives will be positively impacted through awareness workshops and training sessions, which will educate communities on snake behavior, prevention measures, and proper first aid. An informal national-level volunteer group, already responding to snake rescue calls, has mapped 5,500 instances of human-snake conflict using a specially designed mobile app. In 2019, the project will begin snakebite mapping to generate crucial data, which will aid clinicians and scientists in understanding the dynamics of snakebites across different seasons and geographies. This data will inform better prevention and treatment strategies, further enhancing the project's impact.

REPORTS

Sangeeta's Story

18-year-old Sangeeta was bitten in her foot by a cobra one August evening in her home in a tiny village in Chhattisgarh. She reached Anjali Health Centre (AHC) within an hour, but the venom had already spread and was starting to paralyse her body. Drooping eyelids, froth in her mouth, choking... She had reached the hospital just in time. Dr. Archana was just finishing supper when Sangeeta was brought in. This doctor has treated many snakebite patients but she remembers Sangeeta because of her amazing recovery.

Sangeeta was immediately given 10 vials of antivenom along with supportive meds and alternate suction-oxygen (AHC did not have a ventilator at that time). The response to timely and sufficient quantity of antivenom can be quite dramatic as was seen with Sangeeta. She showed signs of improvement within just 30 minutes and even began trying to help the doctor by mumbling “Idhar... idhar... (here... here...)” and slowly turning her head to direct suction! She was discharged from the hospital 3 days later.

But Sangeeta’s troubles were only beginning. The site of the snakebite on her foot had been badly affected by the venom with the tissue starting to die (necrosis). This eventually formed a wound almost the size of her open hand on the side of her foot around the site of the snakebite. She came every day to the hospital for the next 10-15 days to have dead tissue removed and get the wound disinfected and re-dressed. The wound had started to improve by then and Sangeeta was seen once a week for a couple of months until her family moved away from the area.

Fortunately, necrotizing fasciitis as in Sangeeta’s case does not always occur, but when it does the patient suffers long and hard. The continuous wound care that such patients require can be a very big financial strain on the families and words cannot convey the mental and physical strain borne by the patient due to pain and disability.

Sangeeta has remained positive through all her pain and her smile is what keeps us going. We cannot thank you enough for choosing to support this project. Like Robert Frost said, this project also has many “miles to go”, and we have many more smiles to save - together.



It took 10 vials of antivenom to save Sangeeta

Snakebite Treatment Workshop and its Impact

In the beginning of March, a workshop was held for 22 doctors and nurses from rural hospitals in Gujarat and Maharashtra. The workshop was conducted on request from Divya Chhaya Hospital in order to be able to improve management of snakebite patients. There were two sessions - one on snake identification and behavior and the other on snakebite treatment.



Snakebite Mitigation Workshop by Dr DC Patel

The snakebite treatment session was conducted by Dr. DC Patel from Dharampur in south Gujarat. He is a renowned snakebite expert in this region with over 20 years of experience and has also been honoured by the state government for his services in the treatment of snakebite patients. Dr Patel is a goldmine of information and he selflessly shared his knowledge with the attendees at the workshop.

And the impact is already visible!

Just yesterday, we got a message from Divya Chhaya Hospital saying that they had received a snakebite patient who said he had been bitten by a snake that he suspected was a cobra but he was not sure. Following the treatment protocols that Dr. Patel had given them, Dr Joma ascertained that almost 8 hours had elapsed since the bite and so, they cleaned and disinfected the wound, took precautions against tetanus and infections and put him under observation. They did NOT immediately administer anti-snake venom (ASV) as they had been doing earlier. When we spoke with hospital today, the patient had remained fine without any signs of envenomation. They had kept him admitted at the hospital under observation for 24 hours and he has now been discharged with wound care instructions.

We could not have asked for more!

Dr. Patel had conducted a comprehensive session where he spoke in detail about the symptoms of envenomation of each individual species of the Big4 (cobra, krait, Russell's viper and saw scaled viper). He also gave detailed directions of lab tests to be conducted, the intervals at which they were to be repeated, and the supportive treatment to be administered and what to expect at each stage. This intensive classroom session along with the question-answer session resolved the doubts, fears, and misconceptions that the participants shared.

Krunal Trivedi from Nature Club Surat conducted the session on snakes, snake identification and behaviour at the beginning of the workshop. Starting off with common snakes of the Dangs, he moved on to telling the attendees about snake behaviour, for example, that kraits are nocturnal in habit and there are high chances that a patient coming in during the night might have suffered a krait bite.

The first thing that comes to a layperson's mind on seeing a snake is, "Is it venomous?" But not many people can distinguish between venomous and nonvenomous snakes. Krunal observed that although the attendees were familiar with the term 'Big4' and the names of the common venomous snakes, they were not able to recognize the images of these snakes during the presentation.

So, an exercise in identification was done where sets of images were shown of the venomous snakes and possible nonvenomous or mildly venomous lookalikes - Russell's viper with Indian rock python and common sand boa, cobra with the rat snake and banded racer, krait with the barred wolf snake and common wolf snake, and saw scaled viper with the cat snake. At the end of the session, most of the participants were able to spot the venomous species, but they were still asked to reach out to experts to confirm their identification while correlating with the patient's symptoms.

Krunal also spoke about some simple measures to prevent snakebites that could be easily followed by the villagers. The participants were provided with a brochure on common snakes of Gujarat, posters of the Big4 snakes, snakebite first aid protocols, and a poster on snake behaviour myths and reality. Most of these handouts were in the local language which would make it easy for the general public to understand them. The attendees were eager to be able to pass on this information to the villagers and we are now in the process of preparing portable information kits to help them with that.

With your support we will be able to conduct many more such workshops and awareness campaigns that can further bring down the incidences of snakebite.

We have just 3 more days left for this project to earn a permanent spot our space on this platform and we are almost there!

Update from Anjali Health Centre, Pithora

25 June 2019, Pithora, Chhattisgarh, India: Harishchandra, a 25-year-old male with viper bite on the right big toe, was brought to Anjali Health Centre at 2.40 pm on 23rd June, 2019. He was bitten at 12.30 in the afternoon while working in his field (harvesting okra) in his village - Dumarpali. Other people from this village had been treated earlier at Anjali Health Centre (AHC) for snakebite and he was quickly brought there on motorbike.



Harish had been bitten on the side of the right big toe near the toenail. On arrival, he had been bleeding profusely from the small puncture wound. He presented with very low blood pressure (70/60) and a weak pulse. He was conscious and talking but very frightened and in shock. He was reassured by Dr. Archana at AHC and slowly calmed down. He was also in severe pain and stated that the pain extended as far up as his right knee. By evening the same day, the pain had decreased and his blood pressure had improved.

A total of 25 vials of ASV were administered to the patient and it took more than 24 hours for his blood to clot normally. Four rounds of 20-minute whole blood clotting test (20WBCT) had to be drawn before normal clot formation was seen on 24th evening. Discolored urine threw up concerns of kidney damage but, thankfully, renal function tests were within normal limits. Had that not been the case, Harish may have had to be referred to Raipur which has specialized hospitals, as AHC does not have a dialysis unit.

Harish's blood test on admission also showed signs of infection for which he was treated with IV antibiotics. On arrival, he had a mild swelling in the foot, but that increased as the hours passed. At the time of discharge, the foot was still swollen and a cause for concern as it could result in tissue necrosis. Harish was switched to oral antibiotics and has been asked to return for followup every two days.

Viper venom is hemotoxic and the patients present with bleeding or clotting abnormalities and cardiovascular abnormalities. Patients may develop excessive bleeding from local bite site and also can suffer from severe internal bleeding if intervention is delayed. Patient can also develop cardiovascular symptoms like dizziness, fainting, visual disturbances, low blood pressure, heart rate abnormalities (arrhythmias), etc.

Snakebites kill close to 45,000 people in India every year. The first step to reducing this number is implementing 3A's – Awareness, Ambulance, Antivenom.

With monsoons already setting in across the country, awareness is the need of the hour. Having knowledge of simple precautions and first aid measures can prevent snakebite and significantly decrease mortality. We have set ourselves the target of conducting 100 snakebite awareness workshops during the monsoons as this is when maximum snakebite cases are reported. It costs less than \$40 to conduct a workshop that can reach out to about 100 people. The workshops have already begun and we will be sending you a report on them soon.

Thank you so much for helping us to take care of Harish and others like him. But we can't rest... not just yet... not when every 5 minutes, somewhere in India, a person dies of snakebite.

September Update from Anjali Health Centre

On 6th July 2019, Neera, a 45-year-old woman from Sirpur village about 20 km away, came to Anjali Health Centre (AHC). She had been bitten by a cobra on her left foot at 7 am that very morning in the courtyard just outside her house. Neera reached AHC at 10.30 am. When she arrived she was conscious and responding, but had difficulty breathing and her eyelids were drooping. Even though the bite marks were hardly visible, there was significant pain and swelling in the bitten foot. Her blood pressure on arrival was a little high at



Neera swelling at bite site

160/80 but other systems were within normal limits. The necessary blood tests were done to assess envenomation and status of organ systems - 20min Whole Blood Clotting Test, complete blood count, and kidney function tests. 10 vials of ASV were transfused and Neera was also treated with atropine and neostigmine. She showed remarkable improvement by 1.30 pm the same day and was discharged at 8 am the next morning in normal condition. Neera returned for follow-up two days later and had completely recovered with good wound healing.

With Neera's treatment the number of anti venom vials at AHC dropped to below 100. With the monsoon season on, this stock is too low for comfort because there have been instances when up to 4 severe cases of snakebite have arrived at AHC on the same day! So 100 vials were ordered and these reached Raipur, the nearest town, and then from there to AHC by 2nd August, 2019.

On 8th August 2019, six days after the vials reached AHC, 62-year-old Sohadra was brought to the hospital. She had been bitten on her right hand at 2.30 pm that day while working in a paddy field in her village. Sohadra's village, Kalmidadar, is about 22 km from AHC and she reached the hospital at 3.45 pm. Usually, the caregivers would have had some idea about the snake that had bitten the patient, but in this case nobody had seen the snake, not even Sohadra. Going by the presenting signs and symptoms and clinical tests, the doctor at AHC diagnosed viper bite. There were no signs of neurological involvement ie, no drooping eyelids and no difficulty breathing or swallowing. The patient was treated with 13 vials of ASV (10 vials on arrival and 3 vials 2 hrs later). As of 10 pm, the patient had improved

considerably although the 20WBCT was still positive. Renal function test results were received the next day and were normal. Sohadra Bai arrived at the hospital with severe pain in the bitten hand and swelling up to the wrist. At the time of writing this, the pain in her right hand has reduced but swelling is still present. Sohadra was discharged in the evening the next day.



Neera on discharge

Awareness is key to reducing snakebite mortality

Awareness is key to reducing snakebite mortality. A simple statement that is proved by our pilot project at Pithora. Anjali Health Centre has been reporting steadily decreasing numbers of snakebite incidents from both nonvenomous and venomous snake species. The venomous bite cases were treated and discharged within 48-72 hours and the nonvenomous cases within 4-5 hours after being given an anti-tetanus injection, antibiotics for prophylaxis and wound care instruction and materials. In some cases, the patient was kept back for observation for 12 hours. One snakebite related death occurred in the past few months. A woman who was brought in almost 6 hours after the bite. Reason? The family had opted for ritual healing as the first choice and it happened to be a venomous snakebite. The patient was already critical when she arrived at Anjali Health Care.

In 2020, we are focusing on covering as much ground as we can with awareness workshops on snakebite prevention and emergency first aid. Our aim is to reach out to as many people (men, women, children) of far flung rural communities and to engage with them through a local person who is a snake rescuer and educator. This person will continue to be part of the snakebite emergency support system for the community. A start has been made with two workshops already conducted.

The first workshop was in Narucot village in the Panch Mahals district in Gujarat; and the second in Rajapur village in Ahmednagar district of Maharashtra. As with all villages, there are numerous stories of snakes and snakebite incidents that go around, some commonplace and some tragic. Tragic because, in most cases, disability and sometimes death could have been prevented by following a few simple guidelines.

Through these two workshops alone, we have been able to reach out to 220 people who are now better prepared to handle emergencies related to snakes, be it an unwanted presence in a dwelling or a chance encounter out in the open. Appropriate first aid using easily available material was also demonstrated and discussed. Each workshop costs \$35 and we are mobilizing our network of rescuers and educators to conduct as many of these workshops as possible.



Workshop at Narucot, Gujarat

India still records the most number of snakebite deaths every year and awareness can change that. You have brought us a long way and we are grateful to you. We continue to need your support to take this work deep into India's countryside and conduct awareness workshops and create support systems in remote villages. Please do reach out to your circle of friends and well-wishers and help us secure more lives.



Workshop at Rajapur, Maharashtra

Anjali Health Centre during the Covid-19 Lockdown

For Anjali Health Centre (AHC), it has been life as usual. The villagers around AHC have been coming to the hospital as they used to before the crisis, but in lower numbers. As most of their livelihood avenues have shrivelled away to almost nothing and they are confined to their homes and villages, the incidents of accidents and work-related ailments have significantly reduced. A situation more bitter than sweet.

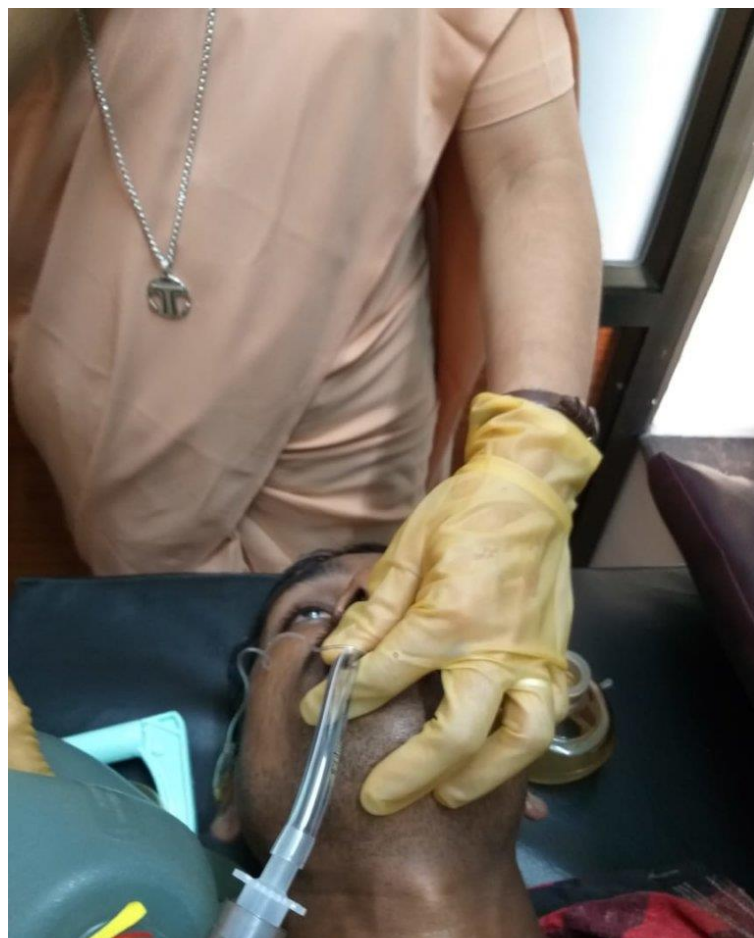
Snakebite cases have also been coming in, but thankfully, the months of April and May saw the total of only four venomous bite cases. Of these, three cases were successfully treated and discharged. One patient, a 32-year-old male, could not be saved. Almost four hours had elapsed since the bite and the patient was already critical when he arrived at the hospital.

The one we lost

Babulal was a 32-year-old man residing in a small village about 30-40 km from AHC. He sustained a krait bite on his left hand in the early hours of 17th April 2020. Although he was bitten at 4 am, he arrived at the hospital at 7.45 am, almost four hours later. The family had chosen to visit a local faith healer and he was brought to AHC only when he failed to respond to the faith healer's rituals.

Krait venom is neurotoxic and paralyzes muscle tissue, including those that control respiration and circulation. When Babulal reached AHC, he was in the final stages of collapse. There was severe ptosis and he could not open his eyes. The muscles controlling eyelid movement were paralysed. He was unconscious and his breathing was shallow, blood pressure was too low for the machine to record and pulse was erratic and feeble.

The doctor at the centre worked on resuscitating him with oxygen, medications and CPR (cardiopulmonary resuscitation) but it did not help. Babulal was declared dead at 8.25 am, less than an hour after he reached AHC.






Babulal at AHC

In retrospect, the reason for Babulal's untimely demise is quite obvious - the hours spent fruitlessly at the faith healer's. The first 60 minutes after a bite is called the 'Golden Hour' when the patient has maximum chances of survival given proper treatment. Even though

his village was less than an hour away, Babulal was long past the Golden Hour when he reached AHC.

Now, more than ever we see the need to reach out to rural India and educate communities on how to respond to a snakebite emergency and also avoid potential human-snake conflict situations. The awareness workshops we had been conducting had picked up momentum but we had to suspend operations due to the Covid-19 lockdown. Snakebite cases peak during the monsoons and the rains have already hit India. Our field persons will be restarting workshops from next month keeping in mind this urgency. We will keep you posted on the progress that we make through subsequent reports.

SNAKE BITE : DON'T

- 
- ✗ Tie ligatures around the wound
- 
- ✗ Burn the wound
- 
- ✗ Apply herbal paste on the wound

How to prevent snakebite

- 
- If you see a snake, just leave it alone and it will leave you alone
- 
- Check before putting your hands or feet into bushes or grass, use a stick
- 
- Always carry a torch at night, even close to home
- 
- Keep the area around your home clean and rat free. Snakes love rats
- 
- Keep pathways clean of leaf litter
- 
- Use footwear whenever possible
- 
- Use a tucked in mosquito net when sleeping

Beyond 2020 - Way Ahead for the Pithora Project

Anjali Health Centre in Pithora had an eventful year in 2020. Well... the whole world had an eventful year in 2020. There is no downplaying the impact of the pandemic as we all struggle to find our balance in the new normal. And there is certainly no question about how devastating the death of a family member or a friend can be. Be it death from any cause – the coronavirus, a road accident, or snakebite.

A chance encounter in 2013 on a train travelling northward from Kerala to Delhi is what connected Indiansnakes.org to Anjali Health Centre (AHC). A casual conversation brought out the on-the-ground difficulties encountered by a small medical facility deep in rural India when treating snakebite cases.

When the Pithora Project began seven years ago, AHC was buying antivenom from the open market – sometimes at exorbitant rates when supply was limited. The lone doctor in the facility had never received training on snakebite management and followed standard treatment practice - every snakebite patient received antivenom, whether or not the patient displayed signs of envenomation. Over and above all of this was the fact that the community typically took a snakebite victim to a faith healer rather a mainstream medical facility. Most of the snakebite cases that AHC received were those that had been sent away by the faith healer as ‘past redemption’. Such patients were usually critical by the time they reached AHC and did not survive long.



Chinmay Sawant, a volunteer, taking awareness session

Today AHC tells a very different story. Having received snakebite management training for a month at the start of the project in 2013, the doctor was able to treat patients much more effectively. Indiansnakes.org also ensured that AHC would never be in a situation where they would have to purchase antivenom at inflated prices by establishing a direct connection with the manufacturer. A low-cost ventilator was also procured for the hospital. Most importantly, the doctors were informed about simple do's and don'ts of snakebite first aid and the significance of the 'Golden Hour'. The 'Golden Hour' is the first 60 minutes after a bite when treatment is most effective. All of this information was passed on to each snakebite patient and the caregivers during their hospital visits.

Soon the snakebite recovery rate at AHC started to improve and word spread through the community about this hospital that was saving snakebite victims. Today, AHC has a recovery rate of over 95% and the local community prefers to take snakebite victims here rather than to a faith healer. The doctors report that they get regularly get patients from villages almost 50 km away. Looking back on 2020, AHC received about 120 snakebite cases between January and December.

As is common practice for snake identification, either a photograph is taken and shown to the doctors, or the snake is killed and brought to the hospital. In almost 15% of the snakebite cases, the snakes were killed to facilitate identification.

The community around Pithora are mostly farmers and snakes are natural rodent controllers. Removal of snakes from the environment will eventually result in increased rodent population and hence damage to standing crops and stored grain, severely impacting the farmer.

The Indian Snakebite Initiative and Indiansnakes.org work on the principle of 'One Health' and believe that the health of a person cannot be divorced from the wellbeing of the environment that he or she lives in.

In 2021, we are looking to begin community awareness workshops and snake rescue facilities in Pithora in addition to continuing support to AHC. The Pithora Project now aims to further reduce snakebite incidents through intensive awareness workshops and bring down the number of snakes being killed through interventions of the Indian Snake Rescue Network – the rescue and rehabilitation wing of Indiansnakes.org.

We are most deeply grateful to you for your patience and support and we look forward to being able to share frequent updates and stories on our newest initiatives.



Teaching them, to keep them SAFE: A nation's fight against Snake bite mortality

Yeah it's a fact that SNAKES are not everybody's favorite animal. When I say that they are not loved by much people, I mean that a lot of people even don't know or understand their role in this ecosystem, they are rodent exterminators, predator, etc.. They are not here to scare us but their bites need to be scared !!! Yes, it's a fact that lack of timely intervention in case snakebites will lead to deaths. Snakebite Mortality in India shows that 90% of the fatalities occur in rural settings like, simple farmers, tradesmen, homemakers, etc. this is not a good copy for the media's and is usually never covered. The result is continuing ignorance of the enormity of the problem. Studies show that a year around 45, 000 snakebites deaths are occurring in India alone and in an hour it is 5. Evethen snakebite remains as an underestimated cause of accidental death in modern India and main reason behind this numbers is the ignorance within general populace, administrative circles and within the medical fraternity. A community level intervention will only be shows a change in this graph. Thus indiansnakes.org initiated the concept of conducting snakebite awareness workshops across the country in order to spread awareness on snakebite. Awareness seems to be the effective go head to tackle the snakebite mortality cases in India. Across India, volunteers of indiansnakes.org are conducting awareness workshops in especially in rural villages across India.

Till date, overcoming the barrier of Covid-19 we have come a long way about 115+ workshops were conducted. These workshops were reached more than 12,000 categories of people like schools, villages, police departments, industrial workers, etc. so what exactly does volunteers do in this project? What we need to is to train them on identification of venomous

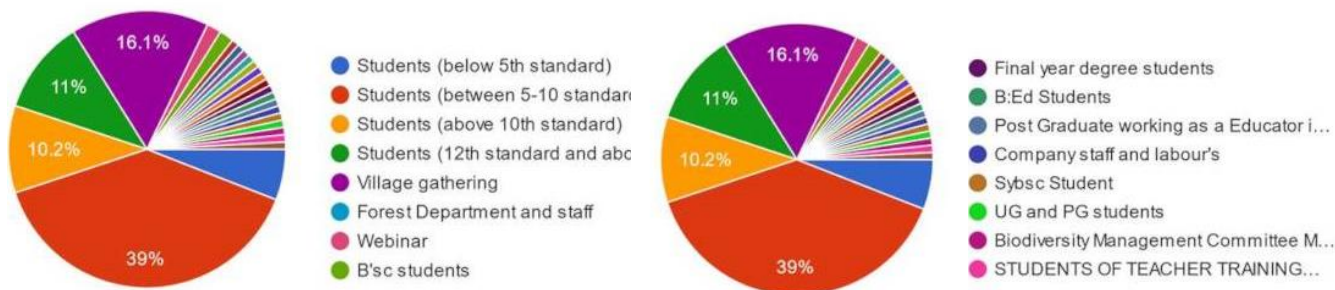


Awareness classes for school students at Kerala

and non-venomous snakes; first aid; dos and don'ts after snakebites. Our surveys shows that after the snakebites, either the person dies due to lack of knowledge about the first aids to be taken or the person becomes physically handicap. Hence our indiansnakes.org the volunteers are working towards mitigating these snakebites through awareness classes and that too include presentation, which will help the viewers to stick on the concepts.

'Tying a cloth at the time of snakebite doesn't allow the poison to spread throughout the body': this is a misconception that the people have and many use to say during our workshops on how to tackle snakebites. No, this is not the right way to treat snakebitesc and our workshops are trying to overcome this myth among the community. As of now we have received an outstanding response from Maharashtra, Gujarat, Chattisgarh, Odisha, Karnataka, and West Bengal as we were able to reach the rural most areas in the country for conducting the workshops.

We are most deeply grateful to you for your patience and support which very much aid us in conducting these workshops and safe lives.



Target Audience covered

Community Awareness: The tool to tackle snakebite mortality



Snakes- the most modern of reptiles, have immense importance in keeping the food chain. They are considered to be the most important component of natural ecosystem. As a common organism in every habitat, they act both as predator and prey. Still there are many myths associated with snakes and snake bites. Even people with a well-developed awareness of the environment and the natural world are afraid of snakes. This has made snake the enemy of HUMAN and lead to the extinction of nay species due to killing, hunting, etc.

Snakebites are preventable health hazard often faced by rural population. It is a truth that snakes never chase people unless they are provoked. But if anyone bitten by a snake, they should be treated with care. In case of venomous snake bite, timely administration of anti-venom under medical care is the only cure. If not treated properly, it may lead to neurotoxic symptoms. Studies shows that the high fatality due to Krait bite is attributed to the no-availability of anti-snake venom (ASV), delayed and inappropriate administration of ASV, lack of standard protocol for management, etc. a mutli-pronged intervention including community awareness, empowering healthcare workers result in bringing down snakebite mortality.

Across India, volunteers of indiansnakes.org are conducting awareness workshops especially in rural villages across India as they are the most vulnerable communities. Some have an opinion that the faith healing is the best practice, others says that no doctor....no

hospital, and there are another group who believes that a tiny cloth can heal everything. So changing human minds as it is known is a difficult task and our volunteers are striving to guide them properly. The destination is clear, that getting people aware about the do's and don'ts of snakebite, but the path is rigid. 150+ workshops, 14291 people may be a small count for a normal man, but for us it's a great number... The training covered students, layman, labourers, etc. tribes is another group who have good practices and many myths associated with each everything, but an interesting fact is that there is an herbal plant for curing snakebite and this knowledge was passed from the tribal community. Workshops are aimed to spread awareness on snakebite management, snakebite treatment, snake habitat, human-snake conflicts, myths and misconceptions, etc.,



Workshop at North Bengal Wildlife Animals Park

Snake rescue calls, another area where we need to act to protect the species from extinction. We are happy to share that even from remote areas people are contacting us for rescue operations.

Anjali Health Centre (AHC), which is supporting the community by providing Anti Snake Venom (ASV) and snake bite treatment, etc., is now able to ensure safety of the community with the help of snakebite management training given by the volunteers. With our support they are now able to purchase antivenom at reduced rates and at more number, which in turn support more people.

Let's see some responses of our sessions:

“On the occasion of Nagpanchami day we conducted randomly workshop in village temple. We got overwhelming response from villagers. We even didn't invite to anyone just stick the banner and people's joined. In that workshop identified two snakebites Case's. One the 18 years old boy got bitten by Russel viper before one month an ago. He got just remedies from local traditional healers. But necrosis seems fatal. We suggested to them for proper hospital treatment.” - from Maharashtra

“Today's morning we received a snake rescue call from a near village. After reaching snake rescue site we found a 2 feet spect. Cobra in water tank of toilet. During this scenario women's , children, elders were gathered to see the snake and snake rescue. We rescued the snake by bagging method. After that we performed the on-site awareness about Snake's identification, ecology and snakebite management” - from Karnataka.

“On the occasion of world snake day we conducted a Awareness Session on Snakes and Snakebite by taking the precautionary measure and guidelines of Covid-19 pandemic the villagers gathers by maintaining social distancing. They get a nice knowledge and scientific knowledge about Snakes. I thanks to Indian snakes.org who gives me this opportunity by providing resources material for conducting a workshop on snakes”. - from Karnataka.

On the occasion of World Wildlife day we focused to aware tribal student's from remote area. We conducted workshop with the presence of zp school teacher, first in covid situation they allowed to conduct workshop. After workshop we received loud clapping from innocent little kids and at the teacher's gave us thanking words. -- from Maharashtra

Now we are planning to train more volunteers which will help to cover more crowd and demographics, and this will for sure save more lives- both SNAKE and HUMAN.

We are most deeply grateful to you for your patience and support which very much aid us in conducting these workshops and safe lives.



Training for the Village gathering at Maharashtra

Protecting Children's from Snakebite

Awareness camps are intended to make the community aware of the pros and cons of a particular thing. Yes, we are doing the same making people aware of the importance of SNAKES and the dos and don'ts during snakebite. A community comprises several hierarchies, like children, boys, girls, men, women, etc. all these are part of this wonderful dynamic universe. Getting them equipped with a particular topic is a somewhat tedious but interesting thing, quoting "if you are interested". TIES along with our passionate ISBI volunteers is trying hard to teach the community and especially during this period, we focused on the young, sprouting generation-our little champs. An education from the base has more effect than from the top. We just followed the same from child to elderly people. They are the next generation and they can do many things, even above what we expect.

During this period, specifically from September till December we conducted around 82 awareness workshops around the Northern part of especially, Maharashtra, Gujarat, West Bengal. Students from 1st grade till 12th grade were focused and we also included tribal schools and community in our campaigns, as they can add up to our campaigns and we can reconstruct many misconceptions prevailing in their communities. More specifically said 7562 people were taught about snakes, snakebites, etc. Along with students we included forest staff, veterinary staff, village gatherings, farmers too. The students were so excited and they attended the session with much interest and that gave us a feel of fulfilled and we are happy that there will be a great change tomorrow.



Training for the school students

Let's hear something from the volunteers:

“On the occasion wild food festival we conducted snake awareness workshop. Tribes used herbal plants for curing snakebite, we collected information about that plant. It was an interactive session with tribal women about myths, misconceptions, and snakebite management.”

“9th class students were attended our workshop from school. One of the girl's mothers from this group got bitten by Spect. Cobra some years ago. So I discussed about her case study for snakebite awareness and management”

“We conducted randomly a workshop in the village temple. We got an overwhelming response from villagers. We even didn't invite to anyone just stick the banner and people's joined. In that workshop identified two snakebites Case's. One the 18 years old boy got bitten by Russel viper one month ago. He got just remedies from local traditional healers. But necrosis seems fatal. We suggested to them for proper hospital treatment.”



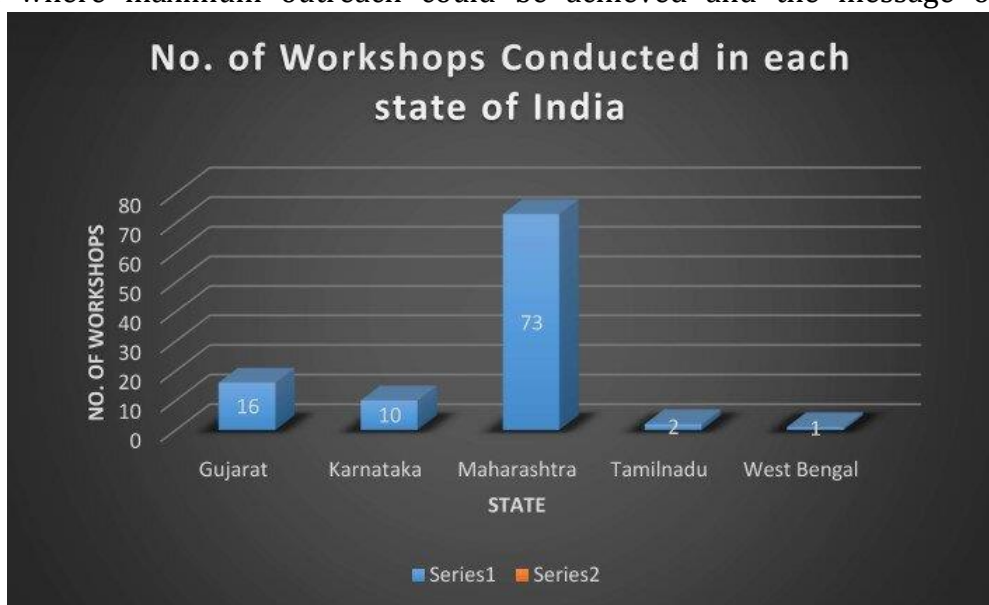
Workshops for the COMMUNITY

Nationwide Snakebite Awareness Workshops were launched to mobilize its network in the field with the purpose of spreading awareness about snake identification, snakebite first aid, snakebite prevention, within at-risk communities in rural India. through this volunteer-driven initiative, volunteers across the country came forward to conduct awareness workshops in their respective regions. In order to reach more people, the outreach materials were translated into several regional languages. And also as part of the initiative Anti Snake Venom or ASV bank was also maintained. ASV Bank is not a stockpile of ASV, whereas it is a fund that ensures a quick and immediate supply of ASV to thorough vetted rural medical facilities that have a proven track record for successfully managing snakebite cases.



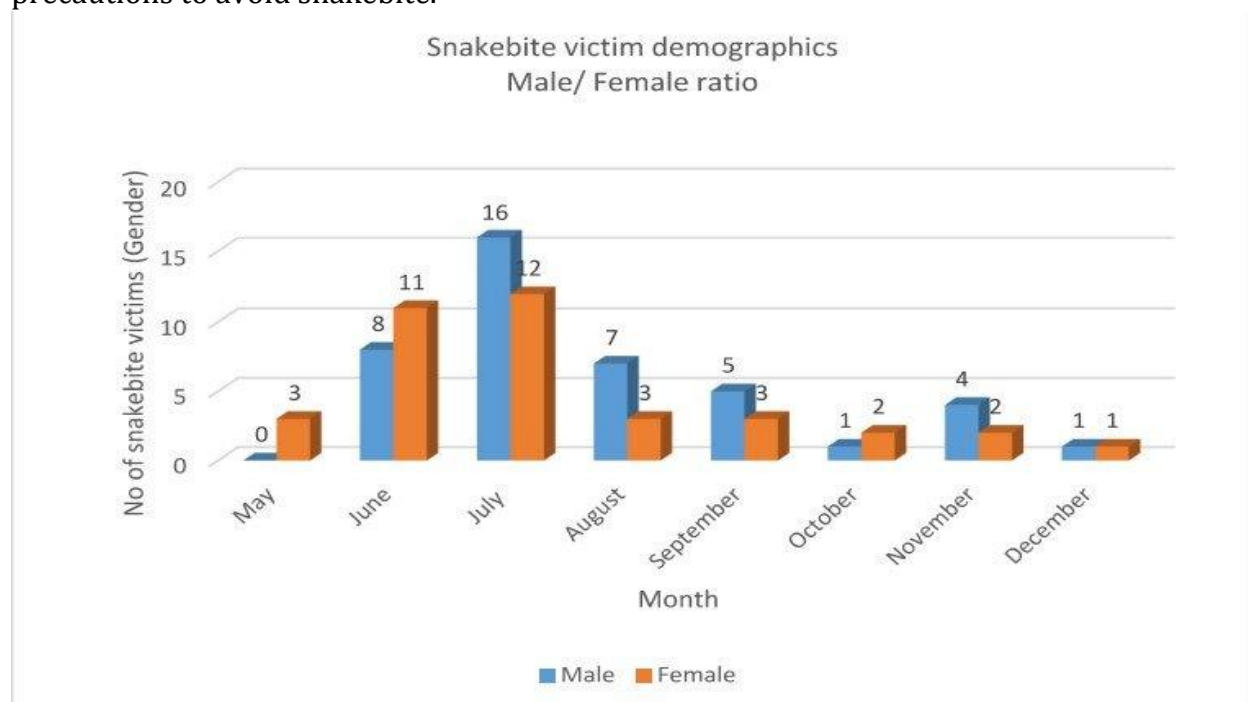
Russell's Vipers bite

During the last year, amid the Covid Pandemic, about 102 workshops were conducted in the 5 India States of Gujarat, Karnataka, Maharashtra, Tamil Nadu, and West Bengal. An in that largest workshop was conducted in Maharashtra where the focus was reaching out to school children who are most at risk for snakebite as they tend to walk around barefoot both indoors and outdoors. The fact that the general population was taking cognizance of the importance of snakes and snakebite-related awareness was made evident by the active participation of the local community and local authorities in conducting these sessions. The awareness workshops were timed to coincide with popular festivals like Nag Panchami and Ganesh Chaturthi where maximum outreach could be achieved and the message of awareness and conservation would be retained in community memory for a longer period of time. When we consider the school level, workshops coincided with Teachers' Training sessions and



Wildlife Week Celebrations and were attended by school students, teachers, non-teaching staff, and in some cases Forest Department Officials, and Women's from local Self-help Groups (SHGs').

A total of 8279 individuals were directly impacted by these workshops and in that 73 workshops were focused exclusively on school students. In order to maintain the project impact and sustainability, the school awareness workshops will be made a regular annual feature. 19 workshops were conducted for 1988 individuals from local gram panchayats and village elder groups, tribal women, and different government staff. Special workshops were conducted for farmers to inform them to snake behavior in open fields and precautions to avoid snakebite.



Along with workshops, ASV's were also delivered to Anjali Health Centre (AHC), a small facility located in rural Pithora in the Raipur district of Chhattisgarh. There have been 79 cases of snakebite related during the previous year and those were treated at AHC, with an administration of 38 vials of ASV. Snakebites that were inflicted by venomous snakes were treated with ASV and the remaining cases were discharged after receiving standard wound care, anti-tetanus shot, and prophylactic antibiotic cover. Data shows that the peak cases reported during the months of June, July and August coincided with the monsoon.

Over the years, the total number of snakebite cases (both venomous and non-venomous) coming to the facility has reduced considerably, but there is still a fair number of non-venomous snakebite cases being brought in for the treatment. And in that offending snakes were killed and that shows that a significant number of snakes are still being killed. From an ecological perspective, snakes are very much important for the balance of the food web.

"Awareness ": The prime factor

Public awareness and making the educated is the solution to bringing many issues to the attention of people and making them aware of certain impacts. Likewise, snakebite awareness workshops will benefit the community in many ways teaching them about snakes, their importance, first aid for snakebites, do's and don'ts of snakebites, etc. Thus we started our journey to educate the community, with special focus given to the rural communities. Our journey to make people AWARE showed that misconceptions are the major enemy among these communities and they strongly believe that their concepts are true. First, we tried to tackle this, and then only we can equip them.

Thus, to date, we completed 150+ workshops in several parts of India, especially in the Northern parts. Around 20,000 people were taught and including school and college students, forest officials, laymen, and other government officials. Faith healing and false beliefs were major factors that we addressed during our workshops and these are major reasons for the increased death toll due to snakebite. Maharashtra, Karnataka, Rajasthan, Odisha, Assam, Gujarat, West Bengal, Kerala, and Chhattisgarh are the major states in India where we conducted workshops. Lack of proper first aid and treatment also paved the way to death tolls, thus we trained people on how to provide first aid and Anti Snake Venom (ASV) to rural hospitals. The major strength is our rural volunteers who are actively conducting workshops using presentations and demonstrations and they help us to reach deep into the rural areas where snakebites are more. Biodiversity loss is another impact of lack of proper knowledge, thus we added a biodiversity component to our workshops.

Co-existence!!!



"Snake Rescue Kit" for "Snake Rescuers"

In an effort to motivate the herpetologists and other professional snake rescuers, TIES is extending support to them by providing snake rescue kits through Kerala Forest and Wildlife Department. Initially, TIES along with Kerala Forest and Wildlife Department will provide rescue kits to the rescuers of the Kottayam district in Kerala State and on a later phase we will be covering the entire state and other areas. In the initial stage, TIES will be distributing 25 snake rescue kits in the Kottayam district. The rescue kit consists of two stainless steel snake hooks with teak handles (large and small), two cotton snake carry bags, a carry case, and a stainless steel bagging frame.

An ethical rescue kit will help rescuers in their endeavour to rescue snakes. Supporting them will encourage other youngsters and other nature enthusiasts to rescue snakes professionally without harming them. This will help to improve their expertise and motivate them.



A Snake Rescue Kit

"Snake Rescue Kit" for the right cause

Conservation of snakes is a growing awareness among the urbanized communities in India. Traditionally, several communities have been protecting snakes as part of serpent worship and believes. However, agrarian communities evolved to urbans, snakes posed potential threat to human life. This has led to snake kills in a massive order. The efforts of few snake rescuers, environmental conservation organization and Kerala Forest and Wildlife Department made substantial change in the mindset of several people and initiated steps to rescue snakes from human habitations. Kerala Forest and Wildlife Department has been giving training to volunteers on scientific rescue procedures and almost 250 trained personals are in various districts of Kerala.

TIES initiated a project to support trained snake rescuers with rescue kit containing specially made tools and bags for handling snake rescue operations. Each kit contains two steel hooks, two bags, hand gloves and sanitizer worth Rs. 5000/- (\$ 60 approx.)

TIES have distributed kits for 25 trained volunteers from Kottayam and Idukki districts on 22.03.2023. Sponsorship is solicited for rescue kits, which will save human life and conserve snakes.



TIES Snake Rescue Kit



TIES Snake Rescue Kit enables Rescuers for scientific rescue operations

Snakes, especially the FOUR venomous snakes are common in every human settlement in Kerala. Even though Kerala is considered as a conglomeration of townships with much developed housing and commercial structures, snakes are commonly reported from house premises, kitchens and even toilets. Kerala Forest Department has launched a snake rescue service, a few years back and trained 20-30 volunteers in every district, on scientific snake rescue methods. A mobile application (https://play.google.com/store/apps/details?id=ltl.kfdrs&pcampaignid=web_share) also launched to report such incidences for the community and several people are using the facility to get the service of such volunteers. However, many volunteers are devoid of snake rescue kits which are much expensive. TIES supported Kerala Forest Department for providing kits to the rescuers. This has enabled them to extent their services to more people, in time. TIES planning to provide kits to all volunteers of every districts in Kerala. Thanks to our supporters.

<https://youtu.be/g5A98Hx4BLQ>

Preserving lives by eliminating the threat of snakebites

Snakebites constitute a critical, life-threatening medical emergency (MoHFW, 2016), posing a time-sensitive risk. This peril not only endangers human lives but also results in the unnecessary death of numerous snakes. Given their dual role as both predators and prey, snakes play a crucial part in maintaining ecological balance.

TIES is actively engaged in raising awareness through training sessions for various community groups, students, officials, and more. Additionally, in collaboration with the Kerala Forest Department, TIES provides snake rescue kits to qualified volunteers. These trained individuals operate across the state, capturing snakes from residential areas, campuses, and open spaces.

Snakes often seek refuge in common areas such as helmets, cupboards, underneath beds, and bushes. The dedicated snake volunteers work tirelessly day and night to capture these creatures and subsequently release them back into their natural habitats. Over the past few months, more than 150 snakes, including the four venomous species found in India, have been successfully rescued. The snake volunteers operate with unwavering dedication, employing a systematic approach to their crucial task.

Snake Rescue: A Tale of Hope and Cooperation

In the heart of a bustling suburban neighborhood, a tale unfolded that captured the essence of humanity's connection with nature. It began with a call for help, a cry echoing through the community, summoning assistance for an unexpected visitor in distress: a snake, coiled and trapped amidst the fish net.

Responding to the urgency of the situation, our team sprang into action. There, amidst concerned onlookers, we found the snake, its sleek body entangled in a mesh of discarded netting, a relic of human habitation gone awry.

With gentle hands and careful precision, we untangled the snake from its precarious prison. Each movement was deliberate, each touch imbued with a sense of reverence for this creature of the wild. As the netting fell away, the snake slithered free, its scales glistening in the sunlight, a symbol of liberation and resilience.

But our mission was far from over. With the snake now liberated, we faced the challenge of finding it a safe haven, a place where it could thrive without fear of further harm. Guided by our commitment to wildlife conservation, we searched for the ideal habitat, a sanctuary where the snake could reclaim its rightful place in the natural order.



Rescued Cobra Babies



Rescued Cobra Babies

Together with local authorities and environmental experts and our team of trained snake rescuers, we identified a suitable location for the snake's release. Far from the urban sprawl, amidst the tranquil embrace of untouched wilderness, we watched as the snake embarked on a new journey, its serpentine form disappearing into the undergrowth, a silent testament to the power of cooperation and compassion.

As we departed the scene, our hearts swelled with a sense of fulfillment, knowing that we had made a difference in the life of a creature so often misunderstood and maligned. The snake rescue served as a reminder that in the tapestry of life, every thread is precious, every being deserving of our care and consideration.

In partnership with hundreds of dedicated snake rescuers, trained by Kerala Forest Department networked through SARPA App, TIES has undertaken a remarkable mission. Since December 2023, rescued and released approximately 500 snakes from various locations including residential areas, uninhabited regions, commercial buildings, schools, and colleges. These elusive creatures have been found entangled in fishnets, lurking beneath beds, nestled amidst wardrobes, or even slithering through farmland.

Our tireless team operates around the clock, committed to the cause of snake rescue, and our ranks continue to swell as more individuals demonstrate their unwavering dedication to environmental stewardship. Among the species we've rescued are the majestic Indian Rock Python, the iconic Spectacled Cobra, the stealthy Common Krait, the elusive Wolf Snake, and the graceful Rat Snake.

With each successful rescue, we not only save the lives of these fascinating reptiles but also contribute to the delicate balance of our ecosystem. As our team grows and our efforts expand, we remain steadfast in our mission to protect and preserve wildlife, ensuring a

harmonious coexistence between humans and snakes. TIES is providing essential tools to support the rescue team.

We extend an invitation for you to participate in this distinctive project.



SNAKEBITE FIRST AID

IN CASE OF A SNAKEBITE:

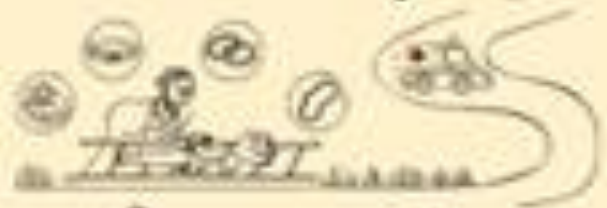
Move away from the snake and do not panic



Call for help



Remove jewelry from the bitten area such as rings, bangles, watches, anklets, etc



Keep the patient still. Don't move or bend the bitten limb



Do not tie a rope or cloth around the bitten limb



Leave the bitten area alone – Do not cut, suck etc.



**DO NOT WASTE TIME. GET TO THE HOSPITAL FAST!
AN INJECTION OF ANTIVENOM IS THE ONLY CURE!**





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