



सत्यमेव जयते

GOVT. OF MAHARASHTRA



MELGHAT TIGER RESERVE AMRAVATI



**TIGER CONSERVATION PLAN: SECURITY PLAN
(DRAFT)**

Plan Period: 2024-25 To 2033-34

O/o Chief Conservator of Forest & Field Director
Melghat Tiger Reserve,
Camp, Amravati 444602

CHAPTER-1

THEME FOR PROTECTION

1.1 THEME FOR PROTECTION

The theme plan for protection (Security Plan) will be for the entire Melghat Tiger Reserve over 2757.97sq km (both core and buffer area).

The protection is one of the most important activities in the biodiversity conservation of the Reserve. It lays stress on defence against interference, damage or destruction of any kind by the human beings and the cattle including illicit felling, grazing, NTFP collection, poaching, encroachment and fire etc. However, the following factors militate against efforts of Park management in ensuring protection:

1. The Park is surrounded by large number of human habitations both inside & outside the park.
2. The poverty and unemployment in the fringe areas coupled with the demand for the forest and wild animal products exerts a considerable pressure on the Park.
3. Inadequacy of skilled manpower resources.
4. Inadequate intelligence network for providing timely information about impending activities.
5. Difficulty in detection and prosecution of cases.
6. General lack of education, awareness, understanding and support from the fringe communities.
7. Hunting by tribal.
8. Difficult terrain and connectivity.

Objectives

- 1) To maintain and conserve bio diversity by providing efficient protection
- 2) To maintain and conserve viable population of tiger and its prey species
- 3) To check illegal harvesting of NTFP and fuel wood
- 4) To check biotic pressure
- 5) To enhance capacity building of staff
- 6) To provide infrastructure for protection
- 7) To provide efficient monitoring system.

Problems in achieving the objectives

1. Inadequate staff and infrastructure.
2. Patrolling is difficult in monsoon
3. Destructive and illegal collection of NTFP
4. Inadequate coordination and cooperation with other law enforcement agencies and administration
5. Inadequate arms and ammunitions.
6. Lack of special training for combing and scientific patrolling.

Strategy

The overall patrolling strategy of the Tiger Reserve includes the following features:

- Staff / camps listed with duty allocation and route chart
- The teams are equipped with mobile wireless sets and firearms
- The patrolling teams systematically cover the One Sq.km. grid area allotted in different Beats.
- Special instructions/ provisions for squads
- Surveillance: hotels, tourist points, vehicles, bus stand, trains and other means of transportation on the fringe of the park and nearby towns.
- Surveillance of traditional hunters
- Coordination with local police
- Sanctioning Protection Assistants for patrolling
- Improving Communication Networking
- Preparation of daily schedule
- Regular checking of market
- Surprise checking of barriers
- Preparation of “crime maps” with periodic updating with update in Beat information System.
- Monitoring cattle kill, human kill, injury incidences and crop raiding
- Monitoring issues relating to compensation
- Monitoring water points near habitation
- Preparation of crime gang dossiers at range level

- Preparation of individual crime dossiers
- Monitoring of habitual offenders
- Preparation of monthly Crime Map on 1:50,000 scale indicating location of each crime with date.
- Conveying progress to Field Director/ Dy. Director on a daily basis through wireless
- Deviating from routine schedule during emergencies
- Taking note of offences registered in local police station
- Using tape recorder/ camera etc. to record evidences
- Special monitoring of water holes near human habitation during the pinch period
- Surveillance of half eaten carcasses of livestock on account of carnivore depredation to be carried out to eliminate the possibilities of poisoning for retaliatory killing by local people.
- Continuous monitoring of the area where more than three incidents of livestock depredation are reported within a fortnight.
- Village level crime register to be maintained at the EDCs level to keep track of villagers involved in wildlife offences.
- Maintaining list of vehicles passing through manned barrier and surprise check by senior officer at such point every month.

Administrative Units

The Melghat Tiger Reserve has been reorganized into 4 separate wildlife Divisions namely Sipna WL Division, Akot WL Division, Gugamal WL Division and Melghat WL Division which are managed by independent DCF. All these Divisions are under the overall control of the Field Director, Melghat Tiger Reserve, Amravati. The respective DCF of Tiger Reserve looks after protection and management of the entire Tiger Reserve area i.e 2757.97 Sq. Km. The area statement thus comes as below:

Table-1(a): Area statement of MTR

Sl. No.	Name of the Division	Area in ha.		
		Core	Buffer	Total
1	Sipna Wildlife Division, Paratwada	48407.6	35502.1	83909.7
2	Gugamal Wildlife Division, Chikhaldara	46640.7	17354.1	63994.8
3	Akot Wildlife Division, Akot	55002.2	26190	81192.2
4	Melghat Wildlife Division, Paratwada	0	46700.9	46700.9

5	Total (Melghat TR)	150050	125747	275798
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The other administrative units having jurisdiction over Melghat Tiger Reserve have been detailed below.

Table No-1-(b): administrative units of Melghat Tiger Reserve

Division	Range	Round	Beat
Sipna Wildlife Division, Paratwada	5	31	96
Gugamal Wildlife Division, Chikhaldara	4	18	67
Akot Wildlife Division, Akot	5	19	71
Melghat Wildlife Division, Paratwada	5	16	53
Total (Melghat TR)	19	84	287

Anti-poaching camps

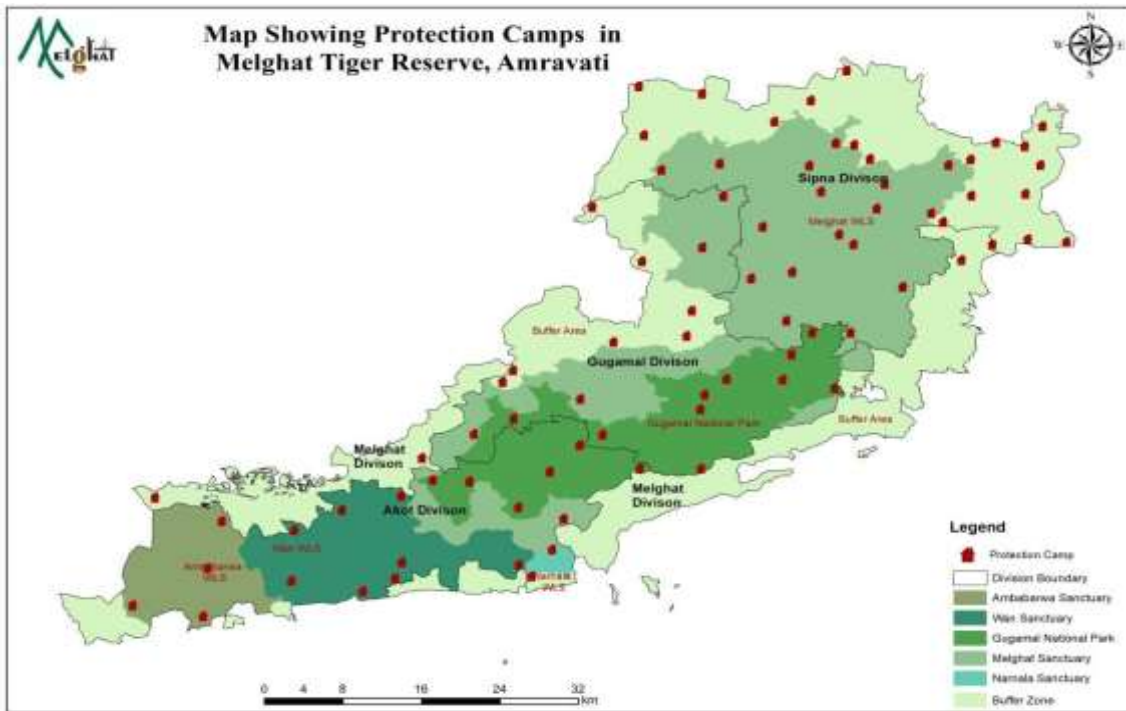
In MTR there are 78 protection camps each covering 30-40 Km². Each camp has 3-4 personnel. The terrain is difficult and the area to be patrolled is very large. It limits the effectiveness of patrolling. Hence number of protection camps will be increased to desired levels to reduce the effective area of patrolling to 15 km². The selection of sites for camps should be based on a High offence risk map (prepared by mapping POR cases for illicit felling, poaching, fishing and grazing).

The existing anti-poaching camps have to be maintained. All the camps will be required full staff strength of at least one Departmental staff and four nos. of daily wage Protection Assistants equipped with self protection gadgets and walkie-talkies. All the protection camps will be made full-proof equipped with basic communication facilities and amenities like wireless sets, hand held sets, solar lights and charging equipment, drinking water, toilets and fencing around the camp.

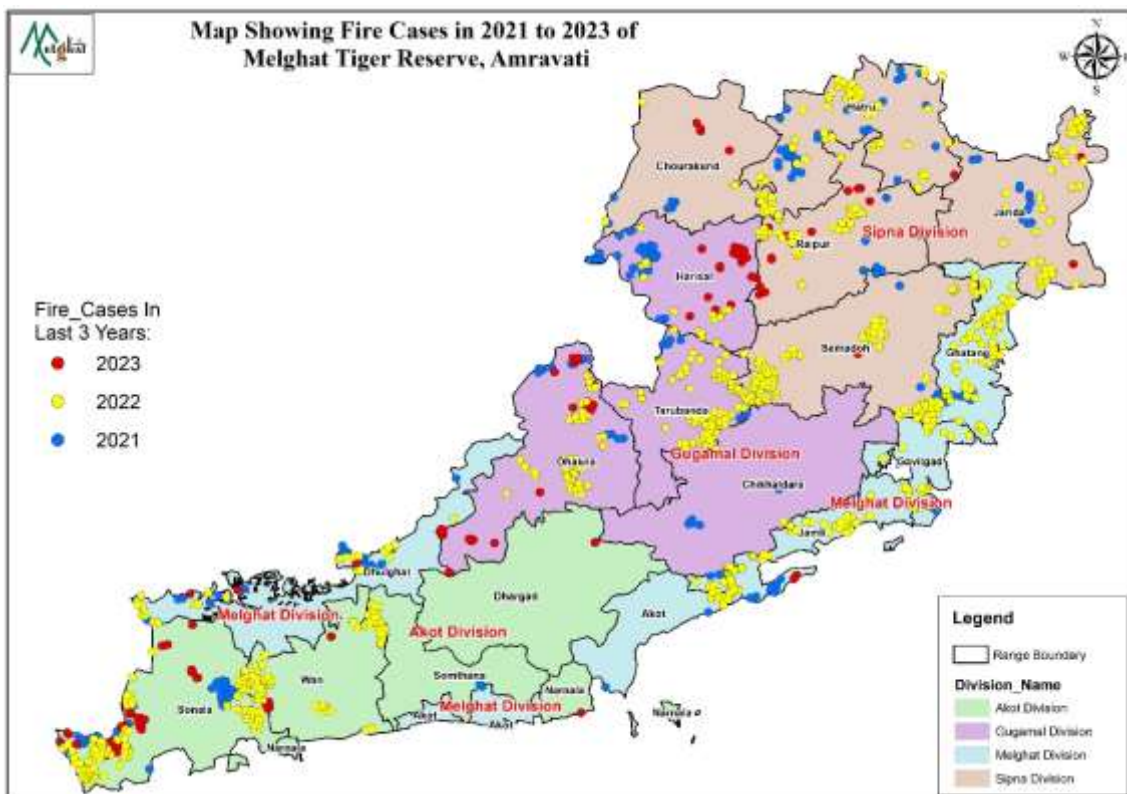
Apart from the above, temporary camps will be established in shape of *machans* or other low cost camps at vantage locations as per field requirement in specific occasions like fire season or *Shikar* control. The annual maintenance of camp sheds including furnishing; uniform etc will be assessed by DCF which will be incorporated in the Annual Plans.

Duty charts must be pasted on camps indicating night halts of forest guards and foresters which should be checked periodically. Wireless based night attendance must also be instituted and reviewed periodically. In addition a duty chart for majors need to be prepared listing specific works to be

carried seasonally and enforced. Such works can include removal of invasive around camps, preparation of PIP, regular maintenance of roads, water holes, fire lines etc.



Map-1(a): Protection camp of MTR



Map-1(b): Fire Prone Zone Map of MTR

1.2 Patrolling

Patrolling inside Melghat Tiger Reserve is regularly monitored with the help of an application called MStrIPES developed by NTCA and a patrol mandate of 30 km every week for Forest Guard and 20 km every week for Forester is expected to be met. The application can be used to monitor both quantity and quality of patrolling done by staff both foot as well as vehicle mode. The application has to be installed on mobile phones and distributed to every Beat. Time to time trainings to be organized to field staff to make them familiar with use of application.

Extensive patrolling on foot and on vehicle is of paramount importance. The Patrolling should be focused on following sensitive spots -

- a. Water Sources and their approaches and signs of poisoning if any.
- b. Saltlicks and their approaches and signs of poisoning if any.
- c. Post monsoon nala beds need to be patrolled to check illegal fishing and signs of poisoning if any.
- d. Fire sensitive areas
- e. Checking the water holes outside the TR during summer season - Laying out impression pad near water point in villages to ascertain the presence of carnivores in the area.
- f. Signs of human presence
- g. Cattle kill by tiger
- h. Snares, traps etc
- i. Along buffer areas and forest boundaries, to coordinate with MSEB officials for joint transmission line patrolling to detect illegal tapping of electric lines for electrocuting of wild animals. Also a whatsapp group for reporting of trip incidents need to be there and patrol teams should visit such areas immediately.

The following schedule of patrolling is prescribed.

- Protection camps patrol team should cover all the compartments every fortnight.
- Range officer should join any of the patrol team once in every week.
- DCFs to join randomly patrol team once in every fortnight.

There are 104 anti-poaching camps with housed staff. All of these camps are to be provided with solar lights, drinking water etc. and solar fencing to protect structures wild

animals and wireless network connection. For drinking water, water filters have need to be provided to all the anti-poaching camps.

Each camp will maintain

1. one patrolling register,
2. one duty register and
3. one wireless register
4. Visitor register
5. Seasonal activity
6. PIP register
7. Form No.06 (NTCA)
8. Form No.42 (NTCA)
9. MStrIPES Mobile application.

Details of the daily patrolling including the time, routes and area covered and all important observations will be recorded in the patrolling register. Wireless register will be maintained for recording of all wireless messages received and sent. All the registers will be periodically checked by all the superior officers starting from the Foresters to the DCF.

Similarly, the Range Officer must chalk out foot patrolling programmes with all the anti-poaching squads of his Range every week mentioning daily routes. These routes can be surprisedly inspected by senior officers. Also the protection camps must have a black board where guards going on patrol must mention the time and names of members who left for patrolling. Regularly DCF must inspect the seasonal activity register to see if the specified activities are performed.

MONSOON PATROLLING

Melghat Tiger Reserve becomes more vulnerable to illicit felling and poaching during monsoon as large part of the park becomes inaccessible and mobility of staff is considerably impaired. To meet these challenges a special protection strategy for monsoon is required. Keeping the ground reality in mind, and to make optimum use of available resources to achieve best result towards protection of Tiger Reserve following strategy is made out for the monsoon.

Strategy

The following strategy will be adopted

- A. Install camera traps (preferably black flash ones) across tiger reserve which need to be checked every fortnight to detect illegal entry for fishing, poaching

in the tiger reserve. Prioritize roads near nalas, near huge water bodies like dams, where people come for fishing and trapping crabs; Ballas where grazing camps are a possibility;

- B.** Deployment of Protection labourers in all the anti-poaching camps.
- C.** Prevention of poaching through intensive awareness drives with special emphasis on identified village Haats (weekly markets)
- D.** Collection of intelligence secretly with the available experience, from the dossiers list and counter acting effectively and timely through available resources.
- E.** Use of state of the art technologies to monitor wildlife trade and other illegal activities on different platforms like social media.
- F.** The provision for preventive detention of habitual offenders during poaching and fire sensitive periods may be explored.

Deployment of Protection Assistants in The Anti-Poaching Camps

1. Organisation of Anti-poaching camps

Currently, there are 104 anti-poaching camps covering the entire area of the Tiger Reserve. Each camp will have 4 **Camp labour/temporary watcher** drawn from surrounding villages, preferably from the buffer area villages which are not near the camps. The **Camp labour/temporary watcher** should be given patrolling gears like camouflage uniform, shoes, caps, rain coats, winter dress, lathis, torch etc.

If the DCF feels that the staff strength need to be changed due to field conditions or other logistic problems it can be done based on field requirements. All the camps will be supplied with first-aid kits with medicine and accessories. In case of emergency, the injured will be transported to the nearest hospital by the departmental vehicles. Wherever staff head quarters are present inside forest areas, a vehicle needs to be stationed for emergency purposes. Also Wifi facilities need to be ensured for such colony areas inside the forest area.

2. Patrolling pattern (on foot)

All the regular staff and Protection Assistants will be in proper camouflage uniform. Details of the daily patrolling including the time, routes and area covered and all important observations will be recorded in the patrolling register. Wireless register will be maintained for recording of all wireless

messages received and sent. All the registers will be periodically checked by all the superior officers starting from the Foresters to the DCF.

Similarly, the Range Officer must chalk out foot patrolling programmes with all the anti-poaching squads of his Range every week mentioning daily routes. These routes can be surprisedly inspected by senior officers. Also the protection camps must have a black board where guards going on patrol must mention the time and names of members who left for patrolling. Regularly DCF must inspect the seasonal activity register to see if the specified activities are performed.

On completion of the day's work, they will mention their observations in their camp Register. During patrolling staff should use mobile phones installed with MSTRIPES application/ GPS apps/GPS devices and record all observations as features described in the application. The patrolling data needs to be submitted to Division office every week. At Division office data should be analyzed by trained data analysis assistants using desktop based analysis software before 10th of the month. A copy of analyzed data should be submitted to NTCA as well as PCCF (WL) and CWLW, Maharashtra.

3. Vehicle patrolling.

The vehicles used inside Tiger Reserve are mostly Govt. owned vehicles. All the vehicles should only be used for patrolling and protection related activities. During patrolling it is mandatory to use MSTRIPES/GPS application for proper monitoring of vehicle usage. Vehicle patrolling should be mainly done in sensitive areas which are nearer to villages. Vehicles should be driven by experience drivers and regularly maintain properly.

All the Range Officer has to be provided with 4WD vehicles for plying in the difficult terrain. All DCFs and Field Director also need to be provided with 4WD all terrain vehicles for protection. All Range Office campus should have proper place to keep the vehicle to protect them from rain and sunlight. All patrolling vehicles should be installed with GPS tracking devices to monitor their movement.

4. En-route Interception

The DCF will ensure that all the routes used by the timber smugglers outside the core area of Tiger Reserve are patrolled with the Divisional mobile squads and all the Forest check-gates function

in right earnest. The DCFs will keep vigil on known poacher-villages and collect information from local haats about poaching plans. Any information on movement would be passed on to the adjacent Ranges/ camps both in buffer and core area and special vigil would be kept on movement of poachers. Having prior knowledge of movement of locals for poaching and illicit felling is most important part of our protection strategy and will be given topmost priority with all sincerity and devotion.

5. VHF communication

There will not be any negligence in transmission of message from the field VHF stations directly to the monitoring cell at Headquarters i.e. FD office. VHF set of territorial frequency has also been installed at “Vairat” to facilitate communication between Core and Buffer camps. It will be ensured that all the camps are equipped with VHF. All the staff i.e. Range Officers and Foresters, while in the field, should have the walkie-talkie with them. Requirement of VHF sets to be brought to the notice of Field Director.

6. Collection of intelligence

Secret payment /awards to informer can bring advance information on poachers, etc. and can be a very effective tool in protection. The field staff would cultivate such contacts. Payment can be met from secret funds and other sources. Special care will be taken to track the movement of unidentified persons moving in the fringe area, as during monsoon, poachers from outside states like Madhya Pradesh have come for poaching of RBT, Leopard in the past.

The List of villages suspected to be involved in poaching / poisoning both inside MTR & outside MTR must be documented and mapped for circulation among staffs.

7. Monitoring

The movement of the staff in the camp will be monitored with the help of advanced technologies and also by traditional methods. Every staff during patrolling should use MSTRIPES application/GPS app/GPS devices and record the data. At the end of the month the data should be analysed at Division office and the information should be used for improving the patrolling efficiency. Meanwhile the concerned Forest Guard/Forester of the Beat/Section should review patrolling on a daily basis and would be checked regularly by the concerned Range Officer. Each camp will have five registers (i) VHF message register, (ii) Attendance register (both for regular staff

and casual labourers) and (iii) Patrolling register (Detailed day to day observations are to be noted), (iv) Form No.6, (v) Form no.42, (VI) MSTRIPES Mobile data. All the registers will be updated daily and produced on demand by any visiting supervising officer, who will sign it after entering his observations.

A. Strike Force

A group of 8 to 10 staff would be ready round the clock at each Range Hq. to act as striking force and move whenever required by the RO. If sufficient staff are not available, the Range officer shall requisition staff from other camps or even other nearby Ranges.

1. Modus operandi of strike force

The staff stationed in each camp will thoroughly cover the area assigned to them by foot, day or night, as required. In case of any incidence of poaching/presence of poachers, they will contact the nearest camp who will contact the Range headquarters immediately. The Range Officer will mobilize the staff from within his Range (and neighboring Ranges if the situation so warrants) and immediately proceed to the spot to combat the poachers. Unidentified person will not be allowed inside the sanctuary and, if noticed, they will be detained and the Range Officer will conduct enquiry and immediately report to the concerned DCF of the outcome of such enquiry.

2. Deployment of vehicles

In order to ensure movement of the striking force, one vehicle for each Range has been provided for all the Ranges. They would be authorized to use hired vehicles. The DCFs may hire vehicles to deal with emergency situations with permission from the Field Director, MTR, Amaravati in case sufficient Govt. vehicles are not available with them.

C. Monitoring of Patrolling

Daily monitoring

Every Range Officer of MTR shall report to the concerned Asst. Conservator of Forests at 8:00 pm over VHF regarding the daily monitoring report of his range.

Asst. Conservator of Forests shall report to the concerned DCF on receipt of the information.

Monthly monitoring

Mandatory monitoring duties to be performed every month at the level of executive field functionaries are outlined below:

Forest Guard/Beat Officer

Apart from regular monitoring of the anti-poaching camps in his beat jurisdiction / areas allotted under his charge, each Forest Guard shall lead the patrolling team at least four days in a week (16 days in a month) with 25% night patrolling.

Also once in a fortnight, Forest guard must patrol the adjacent villages and forest boundaries adjacent to them and monthly report needs to be submitted mentioning encroachments, boundary pillar status, illicit activity in villages, movement of suspicious people in the village etc

Forester/Round Officer

Apart from regular monitoring of the anti-poaching camps in his section / areas allotted under his charge, each Forester shall lead the patrolling team at least twice a week (8 times a month), of which 25% of the time shall be spent in night patrolling. Forester should also organize group patrolling along with beat guards in sensitive beats.

Also once in a month, Forest guard must patrol the adjacent villages and forest boundaries adjacent to them and monthly report needs to be submitted mentioning encroachments, boundary pillar status, illicit activity in villages, movement of suspicious people in the village etc

The Forester shall personally check and exhaustively review every camp under his jurisdiction at least once a week and submit a report to the RFO.

Range Officer

Apart from regular monitoring of the anti-poaching camps in his range jurisdiction / areas allotted under his charge, each Range Officer shall lead the patrolling team at least four times in a month , of which 25% of the time shall be spent on night patrolling.

The Range Officer shall personally check and exhaustively review every camp under his jurisdiction at least once a month and submit a report to the ACF, who in turn shall incorporate his observations and submit it to the DCF.

Night patrolling dates are to be fixed at random by the Range Officers in consultation with the ACFs.

DCF/ ACFs can ask for surprise patrolling during any given day of the month.

Asst. Conservator of Forests

The ACF shall visit all camps in the division within 3 months and shall submit a report to the DCF. He will lead the patrolling duty twice a month, once during day and another during the night.

Deputy Conservator of Forests

The DCF shall personally review all the camps under his jurisdiction within 6 months.

Co-ordination Meetings

1. There shall be a Tiger Reserve Level Conference of all buffer and core area DCF MTR along with their ACFs and Range Officers chaired by the Field Director, MTR on the 10th of every alternate month or any such convenient date.
2. There should also be an Inter state meeting of all divisions sharing the boundary with MTR every year.
3. Tiger Cell Meetings need to be organized at least once in 3 months at district level.

JOINT PATROLLING WITH POLICE

The vastness of area and degree of pressure on Melghat require co-ordination with police officials and a strategy to be in place for joint patrolling with police staff. The following programme is proposed for joint patrolling by police and forest staff to prevent poaching and timber smuggling within Melghat Tiger Reserve which will be followed on regular basis every year.

1. There will be monthly Sub-Divisional level coordination meeting between Range Officers and Police Inspector to be chaired by concerned Sub-Divisional Police Officer. DCFs will plan out and coordinate such meetings.
2. DCFs will take initiatives and will make planning for joint patrolling of timber smuggling routes.
3. Meetings of forest and police officials will be held before commencement of *Holi/Purnima* for planning out strategies to check this mass hunting activity. Such strategies will also be adopted during other vulnerable periods like festive occasions as the mass hunting is more or less linked to the rituals of the tribal.
4. Activities of infamous poachers and timber smugglers will be kept a close watch.
5. Authorised house raids of known poachers, timber smugglers will be made jointly by forest and police officials which will be done more frequently before ***Holi for seizure of illegal arms in possession.***

6. Flag march in the suspected villages will be done jointly by forest and police staff frequently. The list of suspected villages involved in poaching and illicit felling shall be prepared every year by the concerned DCF.

CHECK NAKAS

To check illegal entries, pilferage of natural resources and regulate the entry to TR the existing check gates will be maintained. There are 71 manned check gates are in place at different sensitive points to check the illegal activities. The details list of the check gates on the entry routes to have been given in **Annexure-9**.

These gates will be strengthened to effect proper checking of all vehicles and people entering through these gates, may be tourist, bonafide inhabitants, business vehicles etc. Close circuit camera have been installed at check gate for surveillance of people and vehicles passing through the gate. Vigil needs to be kept on following issues

- No matches or any fire igniting material needs to be carried inside forest during fire season
- Check for illegal timber being stacked in trucks on which labour/cattle are being transited
- Check for season specific NTFPs like salai, tendu etc

ROADS

Managing road infrastructure is one of the important security strategy in an terrain like Melghat. All the forest roads/ patrolling roads which are kachha/murum roads need to be maintained and The thumb rule to be followed is all roads need to be motorable atleast by the end of November. To achieve this following needs to be ensured

- **Pre-monsoon works**
 - Objective is to ensure that run off water doesn't flow on the roads(thus erode it). So drains need to be developed and maintained along all roads that are adjacent to slopes, so that water from slopes move through the drains. For water flowing on the roads, cross drains need to be made at appropriate locations (where the road is sloping into the drain) so that water flows back to the drain. (Cross drains are structures made on the road by excavating the soil profile and

pitching it with stone). However such stones get filled with sand/soil in 10-15 days defeating the purpose. Hence such cross drains need to be redug and repitched with stones every 15 days. Also such drains prevent run off from affecting the new grasses that are establishing on the forest roads (otherwise runoff water generally washes away the grass seedlings). The idea is grasses rhizome network once established will prevent future erosion of roads. This also becomes important when actual road repairs are being done after rains (will be discussed below)

- In cases where water falls/ smaller nala crosses roads, a different strategy needs to be employed.
- In the image you can see a water fall crossing a road. Normally such a water



flow

erodes away the road leaving it unmotorable. To avoid this a gabion across the nala where water reaches the road has been built to trap the silt and to reduce the speed of water flow. The water which escapes the gabion can still erode when it reaches road and here a cross drain is built by excavating the part of

road where nala crosses and pitched with stones. The slow moving water then flows through the stones keeping the road motorable.

- On bigger streams, flush causeways need to be developed. Flush causeways are concrete roads across nala. Along upstream of the river 3 or 4 gabions should be constructed to prevent silting and minimise water speed which might damage the flush causeway. Along downstream boulders can be placed close to the wall of flush causeway (as shown in the image below) to prevent scouring by water flowing down the flush causeway.

Also many a times, water erodes the sides of nala and also roads leading to the



flush causeway. In such cases gabion wall can be made on either side of the nala and also gabion rapta can be done on mud roads leading to flush causeway.(as seen below)

- In roads with Black cotton soil patches, excavate the soil and do stone pitching/gabion rapta to make them motorable even during rains.
- Even on the roads where gullies run in the middle of the road, the gully can be pitched with stones to prevent erosion.

- **Post Monsoon Works**

- Immediately after rains, road repair works need to be started. The general observation is that JCBs are used to repair roads. But in this process the entire top soil is disturbed and with that the entire grass rhizome network which traditionally holds the soil. So it is prescribed that
 - First grasses need to be cut for visibility without any mechanical removal by JCB.
 - Then assess where the gullies are formed in road and just pitch stones in them leaving the grasses intact on the roads. After pitching, murum needs to be put over the stones so that you have a mix of grass-stone pitched murum road.
 - This will ensure that the cost of road repairs come down and reduces future erosion and need for maintenance in the subsequent years.



VEHICLES

Currently, there are about 78 vehicles are present for patrolling & protection purpose. The protection related existing vehicles have been detailed in **Annexure-10**. At present some of the Range Officers have been provided with four-wheeler vehicles. New four wheel driven vehicles are

required in all most all the Ranges of Tiger Reserve replacing the existing old vehicles which are giving trouble running in difficult terrain. Most of the vehicles have become old which will be gradually replaced within the plan period

The existing vehicles need annual maintenance according to necessity.

COMMUNICATION

The communication needs to be strengthened to apprehend the offender, red alert, seeking additional assistance, informing the various officers depending on the gravity of the case including inter division and interstate. The list of wireless stations, in Tiger Reserve has been discussed in Chapter-4 & given in **Annexure-6**.

Internet connectivity shall be established at least at each Range Headquarter for effective communication at priority basis. Later, all sub ordinate offices may be brought under such connections. .In future based on availability advanced technology may be used to provide internet and telecommunication facilities to remote areas of Tiger Reserve to enhance living condition of staff and to provide advanced protection technologies.

E-SURVEILLANCE

E-surveillance (e-Eye) systems will be installed at strategic locations and boundary areas for 24/7 remote surveillance. The e-Eye is network of remotely operated high-end long range cameras with thermal and motion sensors are placed on top of towers, these sensors collect information and transfer it to a central control room, where all the processing and filtering of data takes place. Data is further transferred securely to the headquarters after processing, thus live feed is available at headquarters. All the sensors and cameras can be controlled from a Web Application at the headquarters and central control room.

Features: The e-Eye system will have the following capabilities

- 24X7 Live Surveillance with recording.
- Detection and alert about forest fire.
- Human Interference detection and alerting.
- Habitat destruction i.e. cutting of trees, grazing can be tracked and appropriate alarms are raised.
- Animal movement alerting includes tiger, deers, blue bull groups and cattles etc.

- Helps in planning and decision making as all the activities are summarised in the form of reports.
- Trespass of Cattle and human beings.
- Detection of vehicles and tracking within the restricted areas.

ARMS AND AMMUNITIONS

The list of arms and ammunitions available with the Divisions is furnished herewith.

Table No- 7(d): Up to date List of Fire Arms and Ammunitions⁴ which are in working condition.

Sl. No.	Name of equipment	Number	Ammunitions
1.	SLR rifle	37	10950
2.	Insas Rifle	14	6000
3.	Pistol	43	1859
4.	Pump Action Gun	37	1220

The Maharashtra State Govt. has provided immunity to the forest staff against criminal action in case of use of fire arm in the line of immunity given to police officials under the provisions of Section 197 of CrPC providing immunity from prosecution without prior sanction. Regular training of field staff on use and maintenance of fire arms will be organised.

The arms and ammunitions with the Tiger Reserve has been upgraded with procurement of Glock 17 Pistols, INSAS Rifle, SLR, Pump Action guns and other advanced weapons for use by frontline staff during patrolling and anti-poaching operations.

1.3 INTELLIGENCE GATHERING

Intelligence networking is a very important pre-requisite for prevention of crime as well as for follow-up after the crime has taken place. Intelligence deals with all things, which should be known in advance for taking actions in the direction of crime prevention. In this process after gathering the information, it is evaluated, analysed and used in the decision making. Advance information is key to success for prevention of crime and this emanates from intelligence. It is almost axiomatic that no poaching can occur without the passive knowledge or active help of villagers living in and around

the Tiger Reserve. While the villagers do come to know about poaching activities around their area, they are not willing to inform the Tiger Reserve Management for three reasons.

1. The General lack of rapport between officials and the villagers
2. Fear of reprisals by the culprits involved in poaching
3. Hostility among the villages against the administration which have put severe restriction on the use of the forest for their basic needs- grazing, firewood, small timber and collection of NTFP for livelihood.

The poachers and criminals need protection, hideouts and information about movement of animals and Tiger Reserve staff. Therefore most pertinent point at Tiger Reserve level is building bridges for trust between the Tiger Reserve and the local people. The prescription for building bridges and trust are prescribed in Chapter-9, Plan for Eco Development & Ecotourism.

Collection of Information

The Range Officer, Strike Force and Territorial Range Officer will maintain a directory of phones from locals in fringes, residential areas of offenders, teachers, students, people's representatives, NGOs and generate informers which may lead to informers in due course. The Range Officer, Strike Force and Territorial Range Officers will list the informer names and maintain and also provide the same to DCF /Field Director. The Range Officer Strike Force/Range Officer, DCF/ Territorial DFOs/Field Director will provide a code to informers and keep it confidential. In no circumstances the informers shall be exposed to Public or any law enforcement agency.

Rewards for providing information

The motivation of persons providing intelligence information could be varied and needs to be treated accordingly. A credible reward system is the sheet anchor for generation of information. There need to establish and operate a cash reward system for providing information. The reward should be just, appropriate and made on the spot. As is being done in Customs Department, payment of rewards should vary according to the value of the items recovered by the information. Payment should be delinked from the disposal of cases in the Court; Rewards should be paid to all giving information, including Forest and Wildlife officials. Cash rewards should be payable for:

- a. Information leading to the seizure of wildlife products and arrest of the offenders.
- b. Information leading to successful prosecution of cases in courts; and

- c. Information pertaining to the organization, modus operandi and other details of gangs indulging in wildlife trade.

The DCF will take action to implement the provision of relevant rules under WPA-1972 admissible from time to time for the payment of rewards.

1.4 SETTING UP OF LEGAL CELL:

In present practice, the dealing of the court cases is not much effective and the offenders are mostly acquitted for want of effective follow-up. Due to lack of proper attention, most of the court cases become weak resulting in the acquittal of the accused persons.

To avoid the repetition of such situations in future, a **Court Liaison Unit** shall be constituted for the Tiger Reserve.

To ensure the regular attendance on fixed dates in cause-listed cases, a special team of staff along with appointment of panel lawyer shall be identified and earmarked for this purpose. The team shall be entrusted with the job of attending the court regularly and report to the Field Director from time to time. The team would also inform the concerned staff to take necessary actions in such case, required from time to time. The team would also coordinate with APP/PP and maintain the necessary records for every individual case. The **Legal Cell** shall consist of

- (i) One Ranger as In-charge
- (ii) Forester/ Forest guards, one each for the courts having jurisdiction
- (iii) One Lower Division Clerk at Tiger Reserve headquarters to maintain the necessary records.
- (iv) Provision to hire/consult subject matter specialist whenever required.

The Legal Cell shall function at the office of the Field Director, Melghat Tiger Reserve, Amaravati. The Cell will coordinate with the Division Headquarters.

7.5 THE STRIKE FORCE

The leader of the strike force will be the Range Officer, Enforcement; the other members of strike force will be two Foresters and four Forest Guards. The Force will be fully equipped with vehicle, arms/ammunition, communication equipment, funds for intelligence gathering, etc. The

Strike Force will be given training on intelligence gathering, identification of wildlife articles, investigation, etc.

Duties and Responsibilities:

- Rapid action and response on receipt of any information related to illegal activities.
- Liaison with the territorial Range Officers and assist in protection.
- Liaison with EDCs to gather information on intelligence.
- Inspire confidence in people who want to provide secret information.
- Liaison with staff of anti-poaching camps.
- Sharing information with the territorial Range Officers on illicit activities.
- Maintain a secret record with the details of informers, information received, etc.
- Inform the DCFs, Field Director, MTR of any illegal activity and red alert to the anti-poaching camps.
- The Range Officer, Strike Force will be assigned any other duties related to protection.

1.6 THE SPECIAL TIGER PROTECTION FORCE

This is a centrally Sponsored Scheme of NTCA for deployment of a force with specialised training to be deployed as Tiger Protection Force. For Melghat Tiger Reserve NTCA have approved for a 112 member STPF consisting of 108 Forest Guards, 3 Forest Rangers and one ACF to come on deputation from existing cadre. The STPF was made functional in the year 2016.

Currently, all the STPF are absorbed into the department as regular Forest Guard vide department G.R no.FST-03/22/920.F-4, dtd.03.01.2023

1.7 STRENGTHENING OF DOG SQUAD

Currently, there is 1 sniffer dog of German Shepherd Breed are in place, one is at Paratwada with professional dog handler trained from the department. The dogs are helping in detection of poisoning spots as well as in search operation of wild animal articles. More dog squads may be recruited based on requirement. The breeds which are suitable for climate of Melghat may be given preference. Dog kennel for the Squad may be established at strategic locations under each Range to effectively utilize the services of the dog Squad.

1.8 THE TIGER CELL

A Tiger cell at district level as detailed below is proposed for Melghat Tiger Reserve

Composition:

1. Superintendent of Police Chairman
2. DCF, Gugamal WL Division Member
3. DCF Sipna WL Division Member
4. DCF, Akot WL Division Member
5. DCF, Melghat WL Division Member
6. DFO, Melghat Tiger Reserve Member Secretary

Duties and Responsibilities:

- Monitoring the investigation of cases relating to tiger and leopards.
- Conduct Surveys on poached animals, identify and document trade routes and Market forces.
- Liaison with crime control bureau and other agencies in respect of tiger/leopard poaching and intelligence sharing.
- Rewards for candid informers, excellent performance, etc.
- Monitoring the human wildlife conflict cases by Tiger

One staff from each Range will be designated to coordinate between Range Office and Division office regarding any issues related to tiger and leopard management. The Tiger Cell will meet at least once in six months. Tiger Cell can invite experts if needed in any of its meeting. The proceedings of the meeting will be submitted to the Field Director.

1.9 STRENGTHENING OF WILDLIFE CRIME CELL

Presently, the wildlife crime cell of MTR is functioning in field Directorate Office.

The duties of the WCC will be,

- Gathering information relating to offenders and modus operandi.
- Maintain a database of criminals and habitual offenders
- To establish an intelligence network
- Monitor the progress of pending court cases related to wildlife offences
- Collaborate with the Wildlife Crime Control Bureau, local NGOs, the Police

department under guidance and direction of senior officers.

The crime cell of MTR is empowered with the following advancement with special approval of the Home Dept., Govt. Of Maharashtra.

- Mobile tracking
- CDR generation.
- Surveillance over Social Networking site for wildlife trade and offences
- Tracking of suspicious Email IDs
- Phone Tapping (with special permissions from the Home secretary Govt. of Maharashtra)
- Recovery of data from Email accounts, Social network accounts and handsets
- Cloning of SIM, spying instruments and softwares.

The following things are proposed for further strengthening of the crime cell like Forensic Lab, Conference Hall, up-gradation of Cyber Cell, website creation, Dog squad etc.

1.10 STAFF WELFARE

The following staff welfare measures are being undertaken for the staff working in Melghat Tiger Reserve.

1. Project allowance for all categories of staff.
2. Women rest houses
3. Supply of medicine kits, mosquito nets, water filters and radio sets to all protection camps.
4. Steps will be taken for providing food allowance or dry ration to all the protection assistants working in side Melghat.
5. Life and health insurance coverage for frontline staff.
6. Pursue for special incentive/allowance for staff those are posted in interior core areas.
7. Periodic health camps

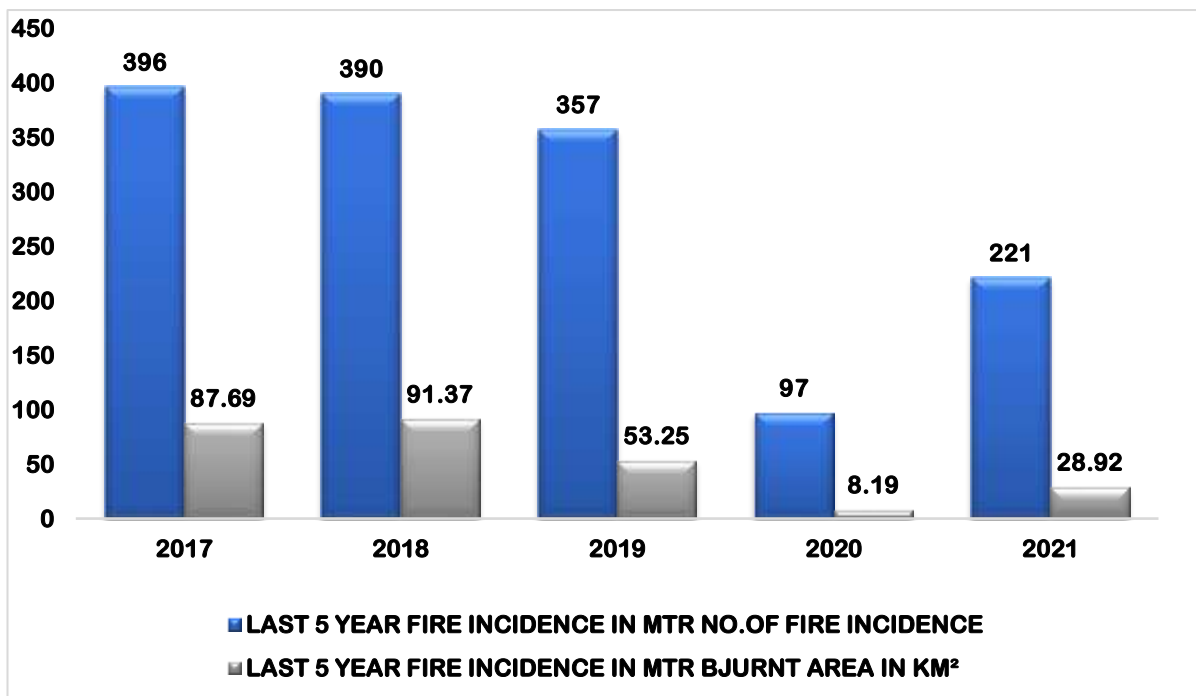
1.11 CAPACITY BUILDING FOR PROTECTION OF TIGER, CO-PREDATOR AND PREY SPECIES

The DCF /Field Director will take the following actions for the upgrading the knowledge of Executive and Protective Staff.

- Conduct regular trainings/ workshops on wildlife management, habitat management, Census and monitoring techniques of flora and fauna, wildlife crime and its legal proceedings, human-wildlife conflict management modern tools and techniques etc. and other relevant aspects.
- All the Beats and camps will be supplied with Standard Operating Procedures (SOPs), Guidelines issued by NTCA, MoEF& CC, Govt.of India, Maharashtra Forest Department, Chief Wildlife Warden, Maharashtra and other Agencies in Marathi language.
- Relevant books on wildlife management and criminal investigation shall be supplied at Beat level.
- The Beat Information System developed for better management at Beat level shall be regularly updated every three or four years.
- All the Range Officers and Anti-poaching camps will be supplied with Toposheet showing the problems areas.
- Every Year after general transfer, the Executive & Protective staff would be placed in the Field after due orientation explaining their responsibility, strategies to be adopted etc.
- The DCF / Field Director will arrange training related to Protection.
- DCF will maintain record of incidents related to poaching, illegal trade, confiscation etc. on tiger and other wildlife species, map location and discuss in annual meetings with Executive, Protective staff and Tiger Protection Force to take suitable measures for future.
- Refresher courses for staff on forest & wildlife laws and other laws relating to forest & wildlife offences will be organised in a regular manner. The training and capacity building data base for each frontline staff shall be maintained at Division level for ensuring training to each and every staff.

1.12 SECURITY AUDITING

The DCF/ Field Director will conduct quarterly security audit and generate report. The audit will include review of offence case detection, fate of prosecution cases up to 5 years back, availability and adequacy of protection infrastructure, equipment etc. The annual report of security audit shall be placed before Steering Committee/ Governing Body of Foundation.



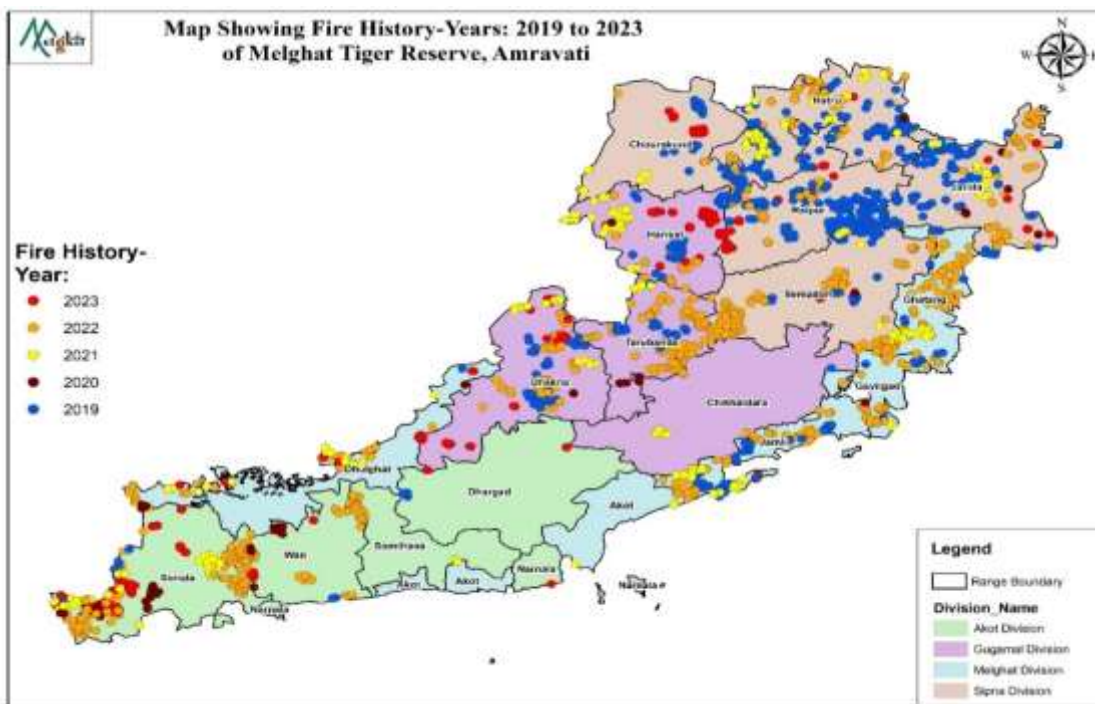
1.13 THEME PLAN FOR FIRE MANAGEMENT

The forest fires along-with unregulated grazing have been acknowledged as the main causes of degradations of forest eco-systems and wildlife habitat. It directly affects the fodder availability and also kills the helpless wild animals especially the micro-fauna, reptiles, etc. It also exposes the soil to erosion and, hence, causes habitat degradation in the process. Due to deciduous nature of the forests, the grasses, weeds and falling leaves and twigs forms a thick layer of undergrowth which is highly inflammable in nature. The availability of water also becomes scarce during summers causing further hardships in its timely check and control.

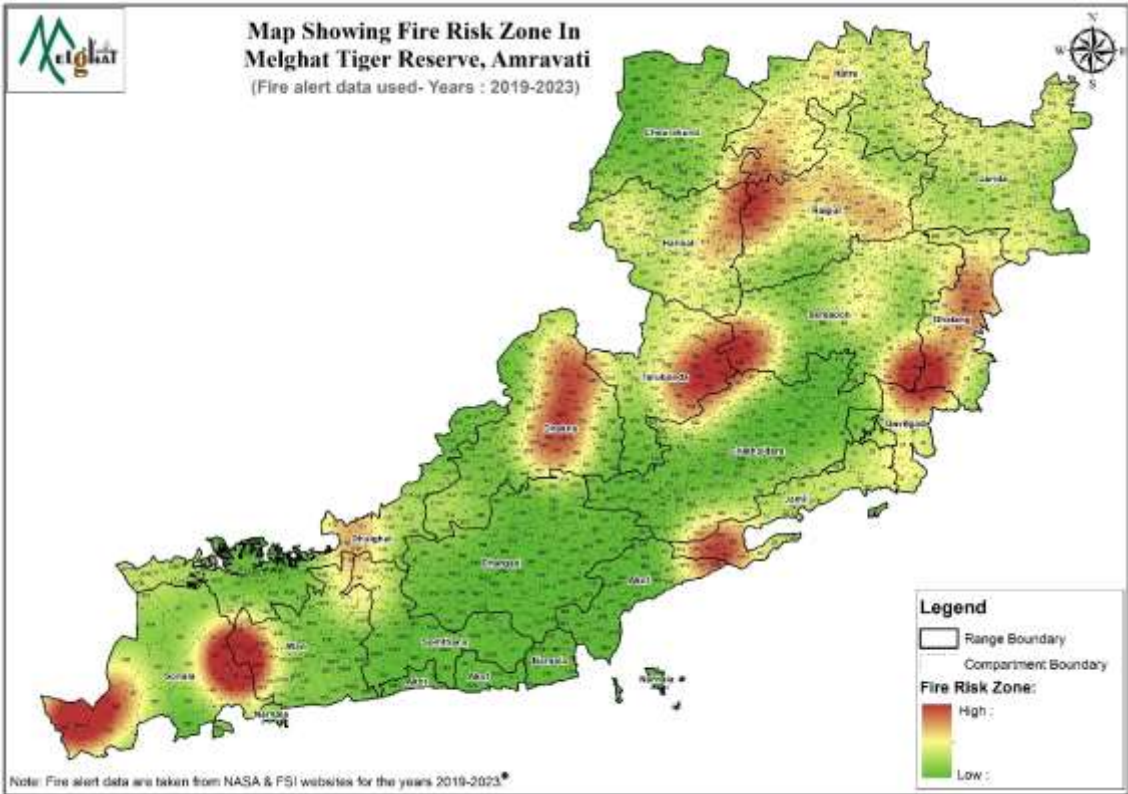
All fires originate through human agency. Majority of them are caused by locals for promoting new flush of grass for cattle grazing, clearing of forest floor in order to facilitate NTFP collection like Tendu, Mahua, collection of gum from Salai (*Boswellia serrata*). Many of the fires are set as a means of revenge against forest department for not allowing cattle grazing, firewood collection and prosecuting under forest offence. Any delay in engaging local tribal as fire watchers during fire season is also leading to fire as this work with department is one of the major and easy sources of income for those people. Sometimes fire accidentally breaks out during annual fire line creation operation due to strong wind or insufficient attention

Normally, the period from 15th February to 15th June (till the on-set of monsoons) is observed as the fire season, every year. Because the area is basically dry deciduous forest and there is lot of combustible material on the ground which can get ignited rapidly.

Based on the burnt area or fire incidences, POR cases booked, closeness to village, temples, roads etc. the fire vulnerability Map of MTR should be prepared. Intensive fire control measures including involvement of EDCs should be carried out in vulnerable areas. Temporary fire watch towers and camps need to be situated in places of high sensitivity as per the map prepared.

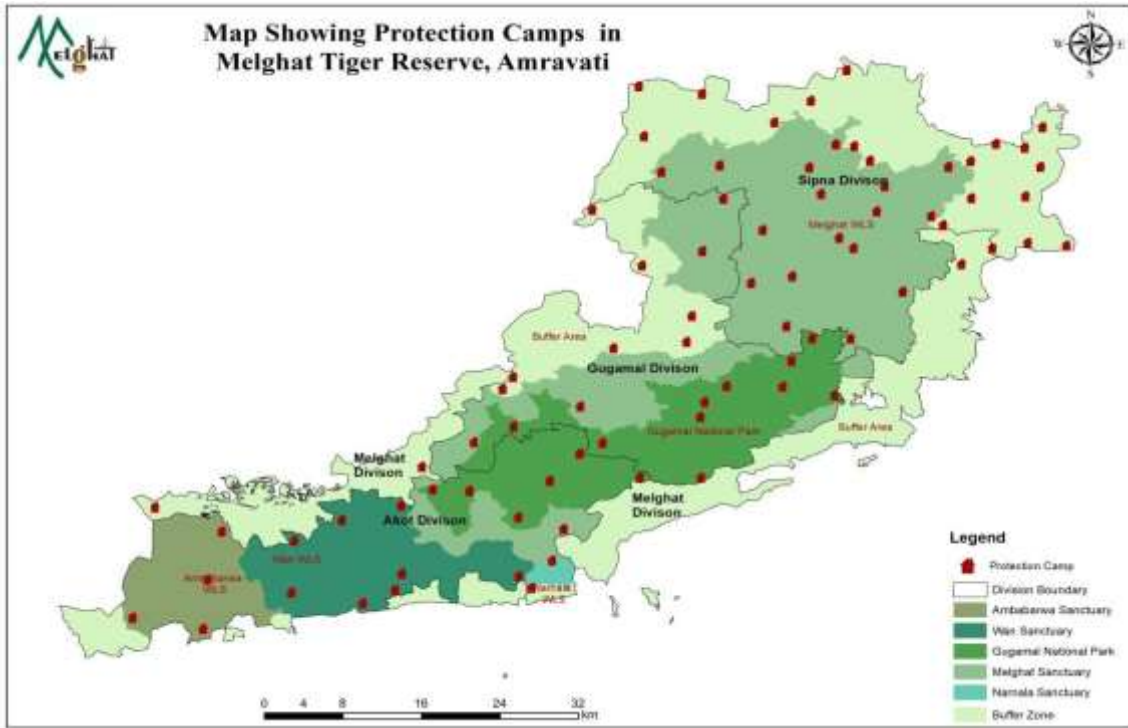


Map-1(c): Forest fire history of MTR



Map-1(d): Forest Fire Risk Map/ Fire Sensitivity map of MTR

Fire Detection



Map-1(e): Protection camp of MTR

Fire detection is done through a network of watch towers. Effective use of FSI & NASA website for detection of fire points on near real time basis. e-Eyes (see theme plan for protection) will be established at strategic locations for effective fire detection. The list of Watch tower has been furnished in **Annexure-4**.

Maintenance of Fire line

In Melghat Tiger Reserve 4296.795 km. of fire line is present and it is annually maintained by cutting the bushes in the specified width and burning after drying. Every year, the maintenance of fire line is done from the month of 15th of December– 15th of February. However it also occurs many a times that parts of MTR are wet even after February 15(due to unseasonal rains) and in these pockets, fire line operations need to continue after intimating to the Field director, maximum upto ten days.

However due to dry deciduous tracts dominated by teak, leaves continue to fall well into March-April and hence regular maintenance of fire lines need to be incorporated in plans. Adequate funds are necessary to take up fire line maintenance at appropriate time too. The details of fire line has been discussed in Chapter-4 & list of fire lines has been furnished in **Annexure-3**.

These Fire lines shall be classified into, the following categories in order of priority.

a) A -Class Fire lines: These Fire lines comprise of the external boundary of the MTR. The prescribed width is 30 Meters. These are the prominent Fire lines, which have been prescribed for clearing, burning and maintenance every year on priority basis.

b) B -Class Fire lines: These Fire lines includes internal boundaries and roads within the MTR areas. These Fire lines help localize the fires in areas of its origin. The prescribed width is 12 meters. In case of roads 6 Meters along both sides. These Fire lines have also been prescribed clearing, burning and maintenance, every year.

c) C -Class Fire lines: It includes the remaining Fire lines including the internal boundaries of compartments and coupe lines. Its prescribed width is 6 Meters. These Fire lines have been prescribed for maintenance on the basis of situational necessity and the availability of funds.

However in addition to traditional fire lines, in mountains tracts with high fire risk, belts of fire lines can be taken along ridge lines to reduce the possibility of fire spread.

Creation of awareness:

Round the year relationships need to be maintained with locals but from October, active measures need to be taken. Arrangement of sports events, playing of movies in villages etc need to be taken to keep people occupied. Also regular flying of drones at different time intervals in peripheries of sensitive areas to create a sense of deterrence in minds of villagers can be tried.

Provision of Award/Reward/incentives:

The motto will be to prevent forest fire by motivating and winning the heart of the people through incentives. VEDCs will be engaged and incentives shall be given to the committees/villages showing active involvement in fire protection in their area. The list of VEDCs, Organisations, Institutions and individuals with commendable effort in wildlife and forest protection shall be nominated for Division, District, State and National level awards.

Deployment of fire watchers:

Sufficient numbers of fire watchers will be deployed on the fire lines those will patrol over the area to give information on incidences of fire to the nearest camps.

Deployment of informers:

In the villages accustomed to *poaching* by kindling fire, spies are to be engaged to keep track of the poachers and pass on the information to the concerned forest officials in the field.

Engagement of local communities

EDC members shall be engaged as fire watchers and rewards mechanisms shall be constituted for fire detection and fire control efforts. Villages with zero fire incidents shall also be rewarded financially.

FIRE FIGHTING MEASURES

Technological intervention.

1. Remote Sensing and GIS Application.

- The GIS Cell & Divisional control room shall monitor the Satellite data on forest fire points available on various online platforms like Van Agni Geo portal of Forest Survey of India (FSI), BHUVAN Forest Fire Disaster Services of Indian Geo Platform of Indian Space Research Organisation (ISRO), Fires Information for

Resource Management System (FIRMS) of National Aeronautics and Space Administration (NASA) of USA. These Platforms utilize the data obtained from sensors on Satellites like Aqua-MODIS, Terra-MODDIS, S-NPP VIIRS, JPSS, NOAA-VIIRS, etc. Monitoring fire points by the Fire Cell of the MTR will save the delay in prompt action to combat forest fire. The fire points will be contained before they expand to large scale forest fires.

- Fire vulnerable grids, Beats, villages shall be mapped periodically to prepare fire vulnerability map.
- Mohua flower (*Madhuca latifolia*) collection is one of the major causes of forest fire. All mahua trees shall be mapped using GIS for control burning operation before onset of fire season.

2. Thermal Scanner

- Thermal Scanner may be used to detect the smouldering fire in standing dead trees, fallen logs on the ground and also the fires that are not visible to the naked human eye. This would reduce the repeat fire points by satellite at the same locations.

3. Drones

- Drones may be deployed to detect and plan out fire fighting operation on ground especially in difficult inaccessible terrain. It would also be helpful in assessing the area damaged by forest fire.

4. Fire Blowers.

- Fire blowers shall be deployed to create fire lines by blowing away the leaf litter on the ground which would prevent further spread of fire in forest.

5. Others

- Other advanced state of the art technologies may be deployed to minimise damages caused by forest fire as well as to avoid any casualty during fire fighting operation.

Coordination with Line Departments and District Administration.

A Comprehensive District Action Plan under the Chairmanship of the Collector and District Magistrate, Amaravati, Akola & Buldhana may be made for better coordination in case of combating forest fire. Modern equipment, technological advancement and other resources are being effectively

utilized for fire fighting with proper training and mock drills to the frontline staff and fire watchers. Widespread awareness campaigns are also organized with help of various stakeholders or line departments including sports activities in the fringe villages & to create awareness amongst the villagers in and around the Tiger Reserve.

Post-fire operations

In spite of all the precautions, if fire break out, immediate steps to be taken to extinguish it and the burnt area to be measured and mapped out, the loss to be assessed and the reasons for fire along with responsibility need to be fixed.

Safety

Fire-fighting is a hazardous task. Every precaution shall be taken to prevent injury to the fire-fighting crew. The fire-fighting crew shall be properly equipped with a first-aid kit. Fire-fighting crew shall be supplied with fire-resistant clothing. Fire fighting mock drills shall be organised before the onset of fire season to prevent injury to staff while dousing fire.

Monitoring and evaluation:

In order to monitor the programme, control rooms in the Division and Range Offices will be used. In the MTR headquarters a daily monitoring register has been kept where all the cases of fire incidence along with the action taken will be reported. After the fire season is over, post fire assessment needs to be done. Outstanding performance of any officer/ staff/ labourer/ village committees will get suitable recognition.

Fire burnt area information need to be generated will be utilized while planning fire protection for the ensuing year.

Table No-7(e): pro-forma for reporting the fire burnt area(NEED TO PUT MH PROFORMA)

Sl. no & date	Range	Locality	Extent affected by fire in ha	Nature of damage	Loss if any	Whether fire has been put off	Remarks

1.14 THEME PLAN FOR WILDLIFE HEALTH SURVEILLANCE

The National Wildlife Action Plan (2017-31) highlights the need to maintain surveillance for both endemic and emerging diseases, and counter the potential spread of zoonotic diseases by way of interactions between wild animals, humans and domestic animals. The common diseases infecting the wild animals are the Rinder pest, Canine distemper, Bovine tuberculosis, Anthrax and Foot and Mouth disease.

Objectives of Management

- Ensure that cattle in periphery areas are vaccinated for FMD, Lumpy, and any other bovine diseases. In case of spread of Bovid diseases in villages, monitor wild Bovids like Gaurs for chances of infection.
- Feral dogs are generally vaccinated with 9 in 1 vaccines, vaccine for Canine Distemper etc but all these require annual recapture which can be costly. So Anti-Birth Control is a better option.
- Detect the disease causing pathogens in time and check the spread of infectious diseases in the MTR areas and its zone of influence.
- Make people aware about the infectious diseases common to livestock populations and precautionary measures to check its spread to other cattle and wild animals.
- Devise mechanism to ensure regular periodic surveillance of wild animal's health Management Prescriptions.
- Veterinary team headed by a wildlife veterinarian shall be created and will be entrusted with the responsibility of wildlife health surveillance. The veterinary team would prepare and execute the wildlife health program, comprising, components such as the health standards, information management and dissemination, render technical advice and coordination of resources.
- To assess the 'infection load' and spread of diseases, the veterinary team shall conduct periodic surveys to estimate cattle populations, collect blood and tissue samples (during post-mortems of animals that die due to natural causes or road accidents) and dung samples from cattle and wild herbivores, and get the samples

analysed for prevalence of diseases. These efforts will be aimed at creating a baseline on the prevalence of FMD and other diseases in the region, investigating the cause of mortalities of wild herbivores, and finding ways to reduce the interface between wild and domestic animals.

- Water sources and habitats frequented by wild animals', especially, the ungulate species shall be kept free from domestic cattle.
- Undertake annual vaccination of all the livestock populations, compulsorily, in buffer zone areas and the enclaved villages for common diseases such as the Render pest, Foot and Mouth disease, Anthrax, Rabies, Canine distemper, etc. to prevent the spread of these diseases.
- A basic stock of requisite equipment, drugs, tranquilizers, sedatives, narcotics, anaesthetics, anti-dotes etc. shall be kept to deal with contingencies, in this regard.
- Field staff shall be trained by animal husbandry department or Nagpur veterinary college so that they can know the symptoms of major diseases in wild animals and can take remedial measures in time. The field staff shall be trained to enable them to collect samples of scats and excreta of wild animals as well as to provide first aid to wild animals, in case of accidents.
- Liaison with outside agencies such as NGOs, Zoos, and Agricultural Universities to facilitate wildlife health surveillance. Local animal husbandry department and Nagpur veterinary college can be involved in health management programme.

Gaur Health monitoring

Experts believe that gaurs are more prone to infectious diseases due to their genetic similarity to domestic cattle. Past records also indicate that gaur populations have succumbed to epidemics of FMD, rinderpest and anthrax, and went locally extinct (for instance in Bandavgargh TR).

Hence intermixing of gaur and cattle population needs to be monitored based on radio collaring to help understand spatial overlap and disease transmission probability.

Protocol for surveillance shall be formed and dung samples needs to be collected periodically and analysed for TB and other diseases.

1.15 THEME PLAN FOR CONSERVATION OF AVIFAUNA

Melghat tiger reserve has a diverse population of bird life with 265 species. Because of the role it plays in its conservation, it is categorized prominently under Global Important Bird Area (IBA).

Species like Lesser kestrel, Forest owlet, Green munia, White Backed Vulture and Long Billed Vulture are reported from here. The congregative bird species include Blossom Headed Parakeet, Rose Ringed Parakeet. Biome Restricted species conforming to Biome 10:B24 Indian Peninsula Tropical Moist Forest include Crimson Fronted Barbet and Malabar whistling thrush whereas the Biome 11: Indo Malayan Dry Zone includes 39 bird species.

Ecologically sensitive animals like Flying Squirrel is abundantly seen here which is an example of close canopied and dense forest of old growth. Inhabitation by Grey Hornbills also supports this authentication. Pied hornbill is also reported in the area. MTR is home to 14 species of owls. Forest owlet, once thought to be extinct, has reappeared here in one of the prominent forests of the reserve, where it was rediscovered after a significant gap of many years. Long billed and White Backed Vultures had been reported in past nesting in Panchbol , Bhimkund, Dolar, Patulda areas. Over time the sighting of the vultures has not been reported. MTR is also home to honey badgers though no study has done so far regarding their habitat, ecology and population.

Objectives of Management

The prime objectives set forth for management of avifauna of the MTR under this Theme Plan have been prescribed, as follows,

- Identify threatened species of birds i.e. forest owlet, vultures, etc.
- Conserve the avifaunal bio-diversity of the MTR by protecting its habitat conditions, especially, the water bodies, riparian areas, edges, nallas, streams and meadows.
- Prepare inventory of avifauna of the MTR and its seasonal variations.
- Generate awareness about the conservation value and ecological role of avifauna in maintenance of natural habitat conditions and ecological balance.

Management Prescriptions

The prescriptions for conservation of the rich Avi-fauna of the MTR and its habitat have been prescribed, as follows.

- A detailed research project shall be commissioned in association with reputed institutions such as BNHS, WII, SACON, to study the habitat, ecology and population status of endemic and threatened avifauna. Base line data will be generated from the research and long term continuous monitoring of critical parameters will be carried out.

- Large size trees, cliffs, escarpments and caverns shall be identified and protected to provide sites for roosting and nesting of threatened and endemic species. Vegetation along streams, rivulets and nallas shall be monitored for roosting and nesting behaviour of avifauna.
- Nesting trees of threatened species such as forest owl will be marked, geo tagged and protected.
- Streams and water courses shall be identified with a view to improve habitat conditions by creating water pools and niches and planting amphibious, aquatic and bank vegetation along them.
- Training shall be imparted to the frontline staff in identifying birds, birdcalls, bird signs, bird estimation and avifaunal biology.
- Viable symptoms of any epidemic affecting native fauna shall be monitored and reported at regular intervals to ensure the safety of native fauna.

Re-populating MTR with vultures

Scavengers such as vultures eliminate harmful substances from the environment, mitigating the spread of disease that may otherwise impact not only local food webs, but potentially human health and the economy.

Vultures, which exclusively eat dead animal carcasses, are particularly effective at removing pathogens and toxins in the environment because they rapidly consume carrion before it decays and their stomachs contain an incredibly potent acid that destroys many of the harmful substances found in dead animals.

According to previous records and surveys in vidharba, there were four species of vultures i.e Egyptian vulture (*Neophronpercnopterus*), Indian White backed Vulture (*Gyps bengalensis*), Indian vulture (*Gyps indicus*) and Red headed vulture (*Sacrogypsicalvus*). There were two breeding colonies reported from the high cliffs around Chikaldera. In 2012 Cinereous vulture (*Aegyptius monachus*) was reported from MTR. Since last decade no sighting of vultures was recorded in Melghat. The reason for the disappearance of vultures from Melghat is not known.

Prescriptions

- A long term plan for reintroduction and conservation of vulture in MTR will be formulated in association with BNHS, WII or Vulture Research Centre, Pinjore after relevant guidelines for translocation are followed.

- The potential roosting and nesting sites of the vultures shall be identified and protected.
- In the villages present in side and in the vicinity of MTR, awareness creation regarding ill effects and illegal use of NSAID such as Diclofenac for cattle will be conducted regularly and the availability and use of such drugs will be monitored and reported.

1.17 THEME PLAN FOR CONFLICT MANAGEMENT

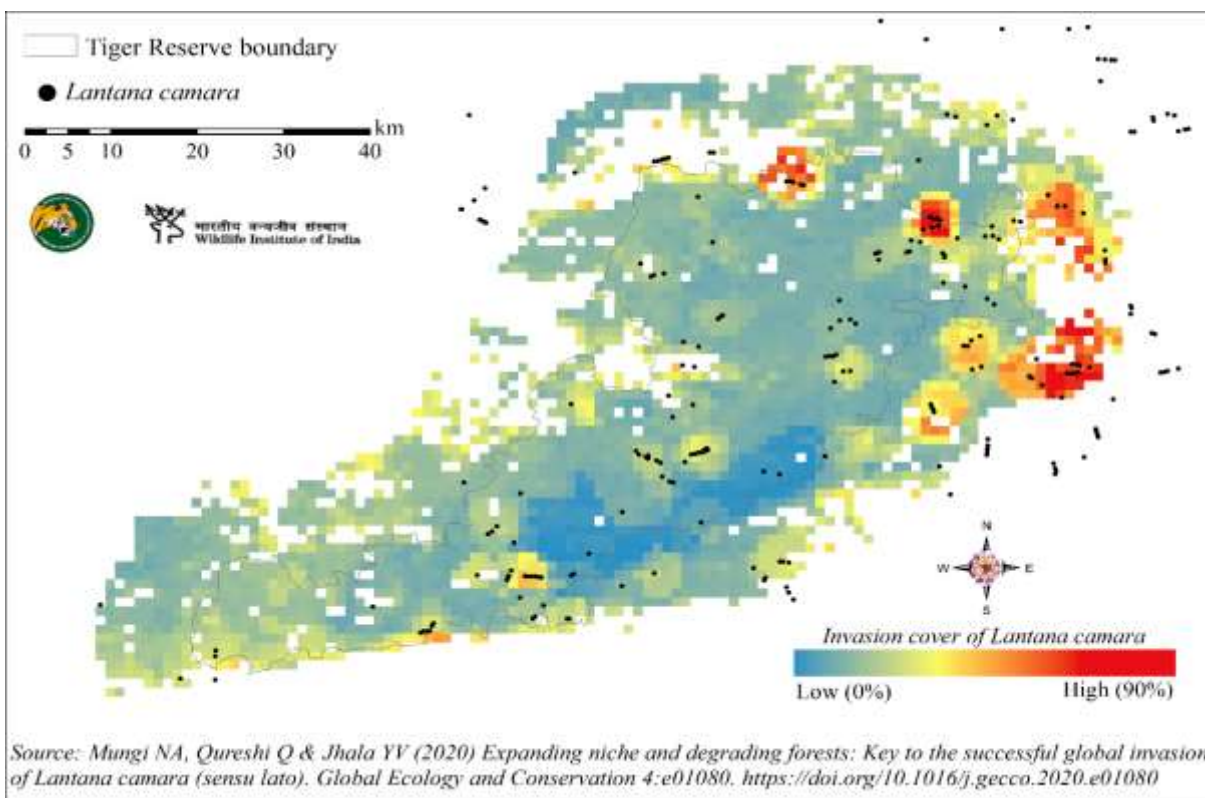
Human-wildlife conflict has been part of human existence since time immemorial. It has been depicted in cave painting and has also been finely portrayed in folk lore. These conflicts are a real stumbling block for conservation and need to be dealt with very carefully to minimise their ill effects. Human-wildlife conflict normally presents itself in the form of crop damage/raiding, loss of life and property, cattle lifting and spread of fear. The main species identified with conflict are sloth bear, ungulates, blue bull, wild boar and large carnivores. Keeping in view the complexity of situation and the past experiences the following measures are suggested.

- The human-wildlife conflict hot spots should be identified and sensitivity map will be prepared. Special micro-plans should be prepared for these areas along with the EDC's. The emphasis should be on mitigation of conflict with active support of villagers.
- Sloth bear is the animal most in conflict in Melghat. Almost all cases of sloth bear attack are due to surprise chance encounter at very close range during dawn or dusk hours and especially during monsoon season. Awareness creation regarding behaviour and activity patterns of sloth bears is crucial for avoiding conflicts. Sloth bears are also attracted by garbage dumps in human settlements during pinch periods. So emphasising on importance of keeping the villages free of garbage is very important.
- Loss of human life and property is hard to predict. Thus creation of rapid response teams seems to be the only option. Rapid Response Team should consist of a small group of well-equipped and trained employees stationed at strategic locations.
- These teams should compulsorily be given training in emergency healthcare, disaster management, crowd management, animal rescue, use of modern technique like camera trapping, modern communication, and UAVs.
- Help of local NGO's can be sought in making the villagers aware of dangers of entering in a wildlife rich area, animal behaviour and the precautions required to be taken by the villagers.

- Ex-gratia distribution mechanism should be swift and transparent to pacify the victims and to avoid retaliatory killings. A mobile application will be developed for registering conflict cases and real time tracking of status of compensation payment.
- Some important drugs like – anti-venom, anti-rabies etc., which are not readily available in the market should be kept in stock at identified locations. Local villagers should be given access to these drugs to win support for conservation.

1.18 THEME PLAN FOR LANTANA ERADICATION

The existing plan of Lantana eradication work will be continue with the same prescription, However, some the salient actionable points for lantana eradication is being recommended in this Plan, which can be implemented religiously,



- Removal of Lantana shall be done following Dr. C.R Babu prescription (Root stock cutting method).
- Removal need to be started after onset of monsoons (as removal is easier on wet lands).
Due to fund shortages and improper planning, Lantana is often removed in the meadows

only, leaving the hilly areas untreated. As a result, the seeds of these species on the hilly areas are washed into the meadows during the rainy season, defeating the purpose. So parallel to lantana removal in meadows, adjoining hill slopes need to be treated for effective invasive control.

- iii. Also once Lantana is removed, experience suggests that other invasive species like Hyptis (Ran tulas) takes over. Hence active sowing/broadcasting of palatable grass seeds, bamboo and other fast growing fodder species can be done to consolidate the land. However invasive species are bound to come the next year, hence planning for removing other invasive species along with second year lantana removal needs to be done.
- iv. Establishment of a proper grass nursery at *Lantana* invaded ranges is advised for regular supply of the seeds to the restoration site. Seeds of grasses like *Dicanthium annulatum* (*marvel*), *Apluda mutica* (*Moti tura*), *Heteropogon contortus* (*Kusal*), *Themeda quadrivalvis* (*Gondal*) etc can be collected from the field during fruiting season and broadcasted with seed ball. For best result, the entire inflorescence can be cut and tightly bundled and placed it in the restoration site at regular interval and germination shall be monitored during monsoon.
- v. All operation shall be made in time bound manner. Any scheduled operation should not be skipped because of unavailability of funds. Ad hoc arrangement of funds shall be made from the Tiger Conservation Foundation for the same.
- vi. Rigorous monitoring shall be made with proper photography and laying vegetation plot periodically.
