

Fighting forest fires

The recent [wildfire tragedy in Theni in Tamil Nadu](#), in which 20 trekkers lost their lives, once again brings into focus forest fires in India. Over the past few years, we have realised that these fires are not spontaneous; human beings set off fires. This tragedy raises several other issues — of approaches in fighting fires and ways of mitigating damage.

When a fire anywhere in the world is detected by NASA's MODIS (Moderate Resolution Imaging Spectroradiometer) and VIIRS (Visible Infrared Imaging Radiometer Suite) satellites, the Forest Survey of India (FSI) analyses the data by overlaying the digitised boundaries of forest areas to pinpoint the location to the exact forest compartment. The resolution of these satellites are up to 375m x 375m, which means that such fires can be detected if their extent is above half the pixel, i.e. about seven hectares. The FSI relays news of the fire to the concerned State, so that the Divisional Forest Officer (DFO) in charge of the forest where the fire is raging is informed. A few years ago, the time lapse between spotting the fire and the news reaching the DFO was five to six hours, but this has been reduced to about two hours recently. The frequency of the two satellites orbiting the earth has also been increased from twice daily to once in three hours.

Meanwhile, news of the fire would have reached the DFO from his guards in watchtowers and on patrol. The DFO decides whom to deploy. Usually, there is a master fire control room which is informed and which sends firefighters from local fire crew stations to fight the blaze.

There are four approaches to fighting forest fires. The first is what may be called technological, where helicopters or ground-based personnel spray fire retardant chemicals, or pump water to fight the blaze. These are expensive methods and make sense when one is protecting a human community, but are usually not practised in India.

The second is to contain the fire in compartments bordered by natural barriers such as streams, roads, ridges, and fire lines along hillsides or across plains. A fire line is a line through a forest which has been cleared of all vegetation. The width depends on the type of forest being protected. Once the blaze has burnt out all combustibles in the affected compartment, it fizzles out and the neighbouring compartments are saved.

The third is to set a counter fire, so that when a fire is unapproachable for humans, a line is cleared of combustibles and manned. One waits until the wildfire is near enough to be sucking oxygen towards it, and then all the people manning the line set fire to the line simultaneously. The counter fire rushes towards the wildfire, leaving a stretch of burnt ground. As soon as the two fires meet, the blaze is extinguished.

The fourth approach, which is the most practical and most widely used, is to have enough people with leafy green boughs to beat the fire out. This is practised in combination with fire lines and counter fires.

The lesson to be learnt is that if combustibles are removed or burnt under supervision, a fire can be controlled. This is why there are usually no deaths from burns among personnel fighting forest fires. The danger is asphyxiation, since a vast quantity of smoke is generated, and the lack of oxygen in the immediate vicinity of tall flames can cause breathlessness. Once a person loses consciousness due to asphyxiation, the danger of being burnt alive becomes real, especially if one is alone. Dehydration is also an issue when fighting flames more than a metre high.

The British introduced a system of controlled burning of undergrowth in safe seasons (say, during winter), so that by summer there would be nothing left to burn. This is an extremely destructive

practice, since it wipes out insects, small reptiles, seeds, herbs and bushes.

The question is, what can still be done to mitigate the damage caused by forest fires? While communication and response time have been cut down, the actual numbers of Forest Department personnel that are sent to put out fires are woefully inadequate. The fact that they manage to achieve some control speaks for their enthusiasm. A fire often has a front of several kilometres and a few jeeps full of men are entirely inadequate to fight such a blaze. We need to vastly increase the number of firefighters as well as equip them properly with drinking water bottles, back-up supplies of food and water, proper shoes or boots, rakes, spades and other implements, light, rechargeable torches, and so on. They could also be paid better. Seasonal labour could be contracted during the fire season. With adequate training, they would serve to fill gaps along the line. Local villagers would be the best resource.

The constraint is funds. Vast amounts of funds are used for frivolous purposes like 'planting forests'. In practice, they are mostly diverted to corrupt officials and political parties. After more than half a century of planting forests there is little to show for the funds spent on this activity. Instead, those funds would be more than sufficient to cover the cost of a well-equipped and well-paid forest protection force. More Forest Department field staff could be hired to put out fires during the fire season and to patrol the forests during other times. This is the only way to prevent accidents such as the Theni tragedy.

I believe it is not correct that Indian citizens require permission to enter reserve forests for recreational purposes, as distinguished from the perfectly sensible need to inform concerned authorities or owners about one's presence in areas under their charge, whether a reserve forest or a private orchard. The rules preventing entry to the public were intended to stop removal of resources, so that the forests concerned would be held in reserve against contingencies like war, when large quantities of both timber and firewood were required. Since recreational visitors remove no resources, there is no valid reason for them to obtain permission to climb a publicly owned hill in India, which has been entrusted to the Forest Department to protect. Therefore, the Forest Act of 1927 is urgently in need of revision, since at present it embodies the spirit of colonialism. Conversely, there is no need for paved paths or tourist 'facilities' within reserve forests. These are not tourist attractions. Mass tourism can be nothing but detrimental to forests.

Increasing the field staff of Forest Departments by discontinuing the claimed 'forest plantations' would help control forest fires, which in turn would help rejuvenation of fire-stressed forest ecosystems. This would help indigenous forests grow back. Giving access to the public to reserve forests in their present state would have a salutary effect on the quality of life of our citizenry and the quality of field researchers available within the country.

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