



## ACCIDENTS DUE TO DRUNKEN DRIVING IN TRIBAL CULTURE AND PREDICTIVE DEPLOYMENT OF POLICE

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DOI: 10.5281/zenodo.1019367

**Keywords:** Drunken Driving, RADMS, Google Maps, Traffic Black Spots and Mountainous Terrain.

### Abstract

India is a signatory to Brasilia Declaration and is committed to reduce the number of road accidents and fatalities by 50 per cent by 2020. The task of reducing fatalities in accidents in tougher in mountainous terrain compared to the plains due to risky terrain, structural faults in road engineering, difficult annual maintenance, traffic congestion on hilly roads, ignorance of hilly people and drinking habits i.e. drunken driving habits among the tribals. This paper deals with specific issues related to high fatality rate in accidents in extreme hilly district of Kinnaur (Himachal Pradesh) and possible solutions using technology i.e. Google Maps which can be replicated in other hilly districts of India too.

### Introduction

KINNAUR surrounded by the Tibet to the east, in the northeast corner of Himachal Pradesh, about 235 kms from Shimla encloses valleys of Sutlej, Spiti, Baspa and their tributaries. The old Hindustan-Tibet road passes through the Kinnaur valley along the bank of river Sutlej and enters Tibet at Shipki La Pass (Indo – China Border). At many places link roads are carved out of sheer precipice and the valley is hundreds of feet steep vertical drop down. Most of the villages of Kinnaur lie at quite a high altitude, some close to 4000m. At such great heights, most of the accidents result in high fatalities as chances of survival go down due to steep gorges.

Out of the total road accidents which happen in the country, 28.4 per cent happened on National Highways whereas it was 45.9% in the Kinnaur district in the year 2015<sup>[1]</sup>. Ratio of fatal accidents has been far higher in Kinnaur district than compared to the whole state. Amongst the major issues which lead to high fatality rate in accidents in District Kinnaur are primarily high incidence of drunken driving during the annual marriage season (Sep – Nov), poor structural engineering of the hilly roads, traffic indiscipline and lack of traffic staff for strict Motor Vehicle Act enforcement. Predictive policing with the help of Road Accident Database Management System (RADMS) and save many precious lives which was widely appreciated by the public all over the district.

Google Maps was done in District Kinnaur to place the

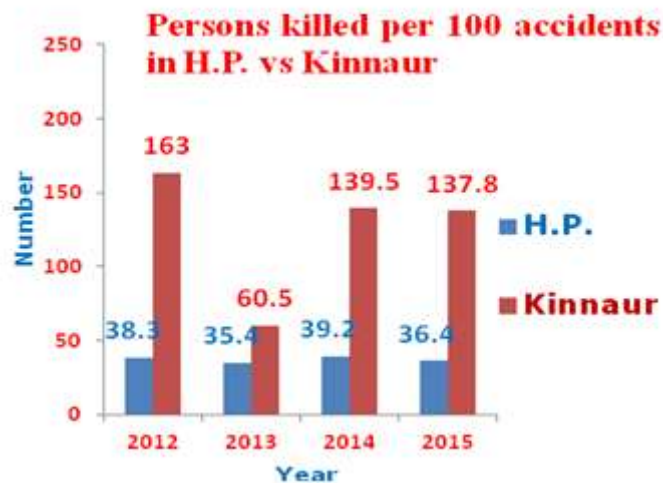


Figure 1: Fatal accidents in Kinnaur District vs State of H.P.

Cops-on-the-Dots' and intelligently target the causes of accidents on specific traffic black spots at a particular time of the day. With intelligent deployment Kinnaur Police was vastly able to reduce the accidental fatalities in the year 2016.

### Situation Before The Drive

Persons killed per hundred accidents in District Kinnaur have been far higher than the whole state of Himachal Pradesh due to very less survival chances after the accident. As the deep gorges are often inaccessible timely first aid to the injured is very difficult which further leads to increase in the accidental fatality tally every year.

Alcoholism has been a social evil among the tribals of Kinnaur District. Alcohol plays such an important role in their life that even the worship of a deity is considered as incomplete without offering of liquor. <sup>[2]</sup>

Acceptance of drunken driving in the name of tribal culture has been the prime cause of heavy casualty during driving over the past many decades.

Close family ties among the policemen within the district, VVIP culture due to proximity to power and **extremely dangerous roads** (National Highway 05 (Ferozpur, Punjab to Shipki La, Kinnaur which has been termed as the World's Most Treacherous Roads in the World by the BRO), lack of crash barriers on the roads running parallel to the river valleys, single lane link roads, ever increasing LMVs, unauthorized driving by the minors are the other reasons on ground.

### Methodology

#### 1. Mapping of Accidents

Accident mapping of past seven years was done to understand the spatial pattern of accidents and identify the black spots using *Google Maps*, *RADMS Project* and *GVK Ambulance Data*. It was thus revealed that approx 50% of the accidents happened during 6:00 to 10:00 P.M



Figure 2: Time mapping of accidents in Kinnaur District (Year 2011-16).

**2. Identifying Black Spots: Plotting of coordinates**

There were visible clusters i.e. ‘Black Spots’ of accidents when the GPS coordinates of all the accidents of past seven years were plotted in RADMS and Google Maps.

- Major accidents in **PS Reckong Peo** : Within the town radius of 5km
- Major accidents in **PS B /Nagar**: NH – 05 at Choling, Wangtu, Palingi and Nathpa
- Major accidents in **PS Sangla**: Sangla Bazaar and Satluj – Baspa intersection
- Major accidents in the **PS Pooh** : Moorang – Spillow, Ribba area



Figure 3: Accident clusters (Black Spots) in RADMS/Google Maps in all Police Stations of Kinnaur.

**3. Cops On The Dots**

Complete mapping of NH – 05 was done and daily nakas were setup between 4:00 P.M. to 10 P.M. based on roaster by various Police Posts/Police Stations to strictly check for drunken driving. These traffic checking nakas were setup on the Black Spots identified in RADMS and through analysis of GPS coordinates in Google Maps.

In this effort, more than 400 Drunken Driving Challans were done in a short duration of four months, request for suspension of 362 Driving Licenses sent to various RLAs for three months<sup>[3]</sup> as per Honorable Supreme Court Guidelines<sup>[4]</sup> and nearly 158 Licenses suspended by various RLAs. Suspension of Licenses by various RLAs



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and subsequent uploading of judgments on Kinnaur Police Website ([www.kinnaurpolice.com/traffic-unit/](http://www.kinnaurpolice.com/traffic-unit/)) created a huge deterrent among the hooligans/offenders



*Figure 4: Glimpse of Traffic Nakas being setup with special focus on drunken driving even during the snow season*

Highway Patrol was started with help from Hydro Electric Projects (HEPs) in the accidental Clusters of P.S. Bhavanagar i.e. Tranda, Cholling & Nathpa, etc.

#### 4. Preventive Policing

50,000 pamphlets were distributed to people to discourage drunken driving in the weekly Community Policing meetings by all the Police Stations/ Police Posts/ Check Posts door to door



*Figure 5: Glimpse of Community Policing Meetings in snow bound PS Sangla and PP Tapri*

#### Financial Implications

Twelve **Tayal Tech AlcoKing Breath analysers** were purchased from the Materials & Supplies funds of District Police for approx Rs 4.5 Lakhs.

Total money invested in the purchase of New Breath Analyzers was recovered in a short span of four months i.e. Sep – Dec 2016 as fine on drunken driving. Total Fine realized in the MV Act enforcement drive is presented in the table below:



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Table 1: MV Act enforcement fine realized during four months in Kinnaur District.

Sr. No.	Month	Total Challan under Drunken driving	Total Fine in all challan made by Police	Total Fine in all challan made by Court	Grand Total
1.	Sept 2016	84	5,27,400/-	1,56,050/-	6,83,450/-
2.	Oct 2016	153	5,52,100/-	1,64,800/-	7,16,900/-
3.	Nov 2016	104	4,78,200/-	1,66,300/-	6,44,500/-
4.	Dec 2016	59	4,07,900/-	1,80,300/-	5,88,200/-
5.	Jan 2017	37	3,11,400/-	-----	-----
	Total	437	22,77,000/-	6,67,450/-	29,44,450/-

**Results**

With predictive deployment of police on the identified Black Spots there was nearly 40% drop in the fatalities in road accidents in year 2016 compared to 2015 and 67.5 % drop in the fatalities during the Wedding season 2016 (Aug – Dec) in the tribal district Kinnaur in which majority of the community men drink and drive rampantly. It is pertinent to mention that in year 2013 accidents dropped vastly because almost all the roads including NH – 05 were badly damaged due to flash floods/Uttarakhand cloud bursts 2013 tragedy which impacted bordering Kinnaur district too





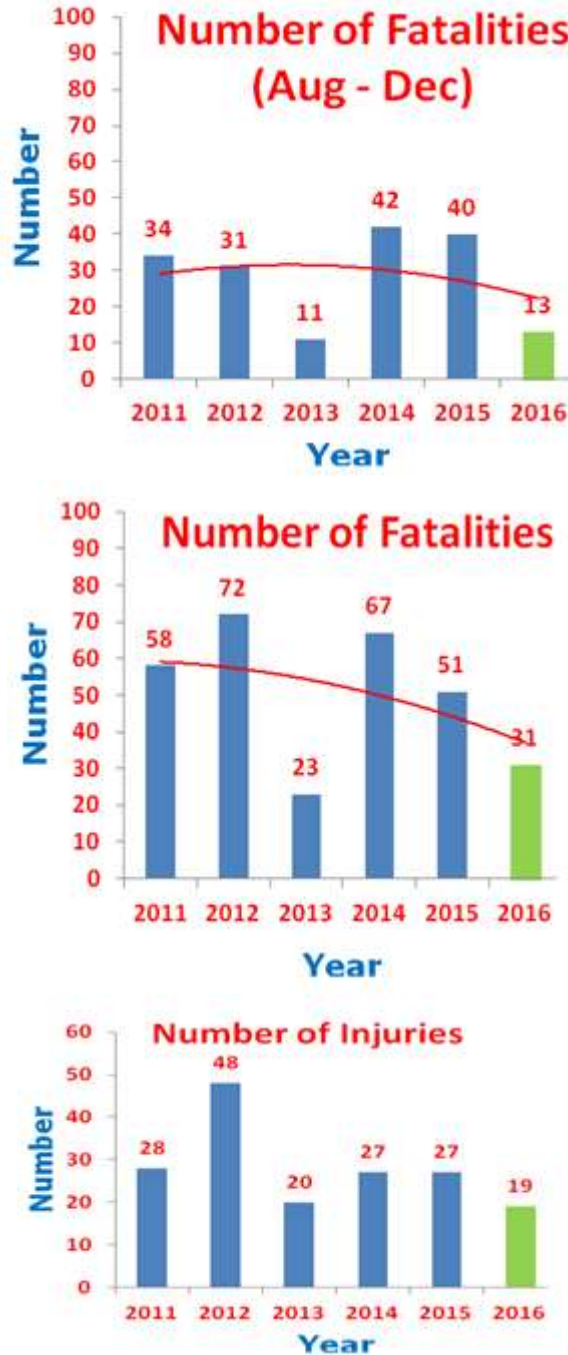


Figure 6: Results achieved in year 2016 with drop in accidental fatalities, injuries and fatal accidents

**Feedback Of Public**

The drive against the drunken driving has gained huge appraisal from the public. In a survey conducted on a strength of 100 people (drivers across all ages) of Kinnaur. 99% of the people agreed that the cases of accidents due to drunken driving have reduced drastically in the period 2016-17. Predictive deployment of police and challans on drunken driving has helped in saving the lives of many innocent people.



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### Recommended Measures For Roads

While taking survey of the roads of Kinnaur, it has been found out that there are errors in the road design. The error of each black spot is unique.

In the lower Kinnaur, speed breakers preceded by cat's eye must be put on the National Highways. Convex mirrors are required at the turns on the link road to Nichar and speed breakers must be made on the roads having downward slope at the turns.

In upper Kinnaur roads are very narrow. The width of road must be increased supported by the retaining walls. The tarring of the road must be completed with simultaneous construction of crash barriers. The crash barriers must be painted with reflector paints near the passing points as well as black spots. Speed breakers preceded by the cat's eye must be placed near the blind turns.

### Conclusion

It has been concluded from the Drive against drunken driving that with predictive deployment of traffic police on Black spots identified through use of technology i.e. Google Maps it is pretty much possible to reduce accidental fatalities in mountainous terrain like Kinnaur especially where police force is very much scarce in numbers. Practice of drunken driving can be very much reduced, in public interest, if targeted both with a strict enforcement on traffic indiscipline on road and reformatory door to door community policing

### References

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