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## Review of Petrol Filling Station in Urban Area

### Case Study Amritsar, Punjab

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#### **ABSTRACT:**

Urban areas are more prone to natural and manmade disaster. Because the land uses conformity and over utilization of land resource is its higher side in urban area. More urbanization means need of more new urban infrastructure and burden on existing infrastructure. Infrastructure leads to growth of development but when infrastructure is not place as per planning guidelines then it can create chaotic condition which leads to manmade disaster. Infrastructures have three type which is Social, Physical and Economical. Putting Social Infrastructure component in urban area needs more care if the placements of these components are not according to Norms and standard and planning guidelines then it can convert into Disaster. In social Infrastructure petrol pumps, L.P.G storage areas have more threat to negative out come. As the urbanization increase the requirement for infrastructure is also demanded at higher scale in urban area. If any misshaping occurs at these area then it affect its surrounding area also so there is vulnerable zone around these activity which should be planned according to guidelines.

#### **Introduction:**

India has approx 42,181 petrol stations as of March 2013. Almost 20,000 of these belong to Indian Oil (IOCL), 8,500 each to Bharat Petroleum (BPCL) and Hindustan Petroleum (HPCL). The Punjab State of India has approx 2750 number of Petrol Stations or Retail Outlets as discussed in official language. A lot of Auto LPG Stations and CNG stations have been planned due to high crude prices.

Table 1: Number of Retail outlets and consumer in Punjab

Dealers	AOD	HPCL	BPCL	Total (2012)
Retail outlets (Petrol Pump)	1466	683	559	2708
LPG Distributer	255	80	103	438
LPG Consumer in thousand	3127	1005	1189	5321

**Source: Basic Statistics on Indian Petroleum and Natural Gas**

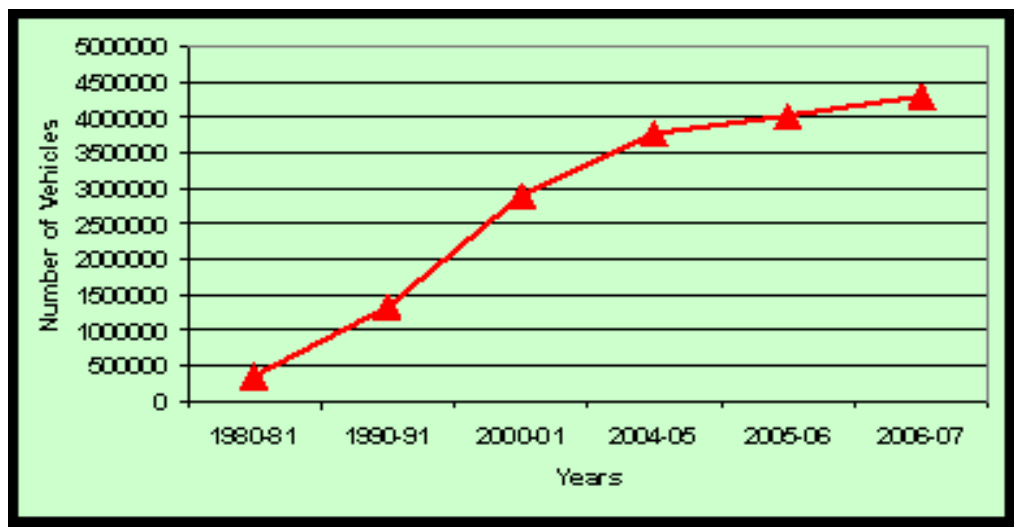
Above table show the different stakeholder and total number of filling station, LPG distributor and LPG consumer. An urbanization increase the demand of fuel also increases. To avoid adverse effect by these facilities there are many Acts and Rule. For example Petroleum Rule 2002, IRC guideline to locate a filling station etc.

Table 2: Consumption of Petroleum products in Punjab

Products	2008-2009 (M.ton.)	2009-2010 (M.ton.)	2010-2011 (M.ton.)
Petrol	440521	444135	505037
High speed	2453551	2486121	2703565
LPG	494426	510904	540696

**Source: Statistical Abstract of Punjab (2010-2011)**

There is rapid increase in the petrol and high speed petrol from 2005 to 2008 because of increase in the number of vehicles in the Punjab. The consumption of LPG is also increase from 2008 to 2011. A comparison of number of vehicles in Punjab with other states indicates that the State is amongst the top ten in India. The negative outcome of this growth is increase in air pollution and more demand of petroleum product. To fulfil this requirement new filling station come into map, but many of them not follow any guideline and rule and regulations.



*Figure 1: Showing the growth of vehicle in Punjab*

**Fire related properties of petroleum products:** According to Petroleum Rule-2002 there are three classification of petroleum according to their flash point:

**Class 'A' Petroleum:** Liquids that have flash point below 23°C.

**Class 'B' Petroleum:** Liquids that have flash point of 23°C and above but below 93°C

**Class 'C' Petroleum:** Liquids that have flash point of 65°C and above but below 93°C.

If the flash point is lower than the probability of occurrence of fire is higher. Hence, class petroleum (motor spirit, naphtha) is more fire prone than class C petroleum (fuel oil). A study conduct in Bhopal city for Lower Flammability (LFL) of petrol and diesel determine 600 meter area as a maximum threat zone from the point of source. It has been found that within a 100 metre radius of a petrol pump, people are vulnerable to cancer because of the high level of pollution. Airborne chemicals, coming mostly from unburned fuel evaporating during refilling of the stations' storage tanks, during automobile refuelling and from spillage, are to blame for this health hazard.

Table 3: Petrol Pump storage capacity and distance to be kept

<b>Petroleum in litters</b>	<b>Desistance to be kept at all times (mtr.)</b>
Not exceeding 2,500 litters	12 meter
Exceeding 2,500 litters but not exceeding 25,000 litter	15 meter
Exceeding 25,000 litters but not exceeding 50,000 litters	Above 15 meter

**Source: Petroleum Rule 2005**

## **GUIDELINES FOR SETTING UP OF MOTOR-FUEL FILLING STATIONS**

### **Guidelines as per IRC: 2005**

#### **Basic Principles:**

The governing consideration is to minimize, as much as possible, interference to normal flow of traffic on the road by vehicles using the amenity and also to ensure safety.

General Conditions of Sitting:

1. The Clear distance between two adjacent fuels filling stations (these will also include fuel filling-cum-service station) should not be less than 300 Metres.
2. Fuel filling stations should be well distributed on both sides of the road so that vehicles do not have to cut across the traffic to reach a fuel filling station. The fuel filling station on opposite sides shall be staggered.
3. Sitting of fuel filling stations near existing check barriers should be avoided. They should be at least 1 km away from the check barrier.
4. The distance between the tangent points of the curves of the side road and that of the fuel filling station measured in a direction parallel to the centre line of the road should not be less than 100 metres and the station should be located only in the outbound direction. However, on expressway and arterial road having dual carriageway, the distance from the junction should not be less than 300 metres.

#### **Frontage:**

For free flow of vehicles into and out of the fuel filling station, the site should permit construction of wide entrance and exit with easy access. It is, therefore, desirable to have the longest possible frontage, the minimum being 30 metres. The minimum Entry and Exit width should be 9 metres.

**Area:** (As per NBC Clause 6.6.3.3 – Part III Development Control Rules and General Building Requirements) the size of the petrol filling station shall not be less than:

- A. 31 X 17 M in the case of petrol filling station with kiosk without service bay
- B. 37 X 31 M in the case of petrol filling station with service bay

**Buffer Strip:**

- I. A buffer strip of at least 12 metres long and 3 metres wide should be provided.
- II. The outer edge of buffer strip should be along the outer edge of road land boundary for rural sections and that of footpath or cycle track or service road, if any, for urban sections. However, the future widening of the road should be kept in mind so that there is no obstruction to the improvement to the road. In all such cases, the distance from the outer edge of buffer strip from the centre line of the carriageway should not be less than 7 metres for National Highways and State Highways and 6 metres for other roads where no cycle tracks are required now or in future and this distance should not be less than 12 metres where cycle tracks exist or may be required in future. In case of dual carriageway, these distances should be measured from the centre line of the nearest two lanes of the carriage. Further, in the IRC guidelines a separate norms has been fixed for the filling station in the Urban Area w.r.t the availability of land in the urban area. As per the revise norm for urban area filling station can be installed on the area of 20x20 mtr. size. Further the distance parameter from one fuel station to another will kept as same.

Now there are two type of situation in the urban area pertaining to the fuel filling station i.e. if a petrol pump installed before the commencement of the guidelines and now part of urban area does not fulfil the current norms and second is that if a petrol pump installed in urban area before the designing of the sector layout then the road design will affect the current norms. Therefore in both the conditions these petrol pump are need to be bring into conformity with the norms of the IRC guidelines as public safety is involved in this.

To show the situation in the urban area the case study of the Amritsar town has been carried out which is as follow;

**Case Study of Amritsar:** Amritsar city situated in Northern Punjab State of North-Western India lies about 15 miles (25 km) east of the border with Pakistan. Amritsar is an important city in Punjab and is a major commercial, cultural, and transportation centre. The population of city Amritsar is 10,16,079 as on 2001. In 1991 the growth rate was 19.16 which reach 42.67 in 2002. Total population density as on 2001 was 7,137 people per sq/k.m<sup>1</sup>

**Filling Station in Amritsar city:** There are 26 filling stations in Amritsar.

Dealers	Number of filling Station
IOC	12
BPC	6
HPC	5
IBP	3

Source: <http://www.ppda.co.in/>

**Review of Filling Stations:** Guideline given by IRC, Punjab Urban Development Authority (PUDA) and MORTH is use for review of filling station. Ministry of road transport and Highway issue a letter on 25.09.2003 in which check list for install a new filling station along highway has been prescribed. This check list is applied on the filling station and many have not fulfilled the guideline of MORTH. In Amritsar Master Plan the study of

<sup>1</sup> Amritsar Master Plan 2010-2031

filling station is completely neglected and there is no data given regarding the filling station and requirement of future requirement of filling stations. The chapter related to disaster management plan in Master plan of Amritsar also examined to review the existing filling stations located in the city.



Figure 2: Showing the location of these petrol pump on Google image and in Amritsar old city plan

The petrol pump located on the Crystal Chowk and petrol pump located on the Railway Station at Amritsar town has not even fulfilled the single norms of the IRC Guidelines. These pump located right on the road junction where no boundary of the petrol pump has been marked. Further the people use to cross the road through this petrol pump. The petrol pump located near Railway Station has very dangers as it is very near to the railway line. The railway electric lines are passes just near to the petrol pump. Therefore there are very strong possibilities of occurrence on any mishapping due to these petrol pumps. These two pumps does not comply with any of the norms i.e. in terms of minimum site area required, distance from road junction, fire safety, distance from one petrol pump to another etc.

The main problem in these type of the petrol pump is that there are no clear-cut proposal for brining then in conformity with the IRC norms mentioned in the development plan. For e.g. if a petrol pump after designing the sector or carve out a road not fulfil the norms then why not these pumps are asked to shift them self on the other site which is conforming the norms and development plan provisions. The Disaster Management Plan provided in the development plan need to address these issues and will provide a clear cut proposal to bring these pumps in conformity to the norms.

Further the Petroleum Authorities before sanction the LOI to the petrol pump site shall also need to check that whether the site has been fulfilled all the norms of the IRC guidelines. Hence, in order to prevent manmade disaster the petrol filling station will be as per the norms prescribed by the IRC guidelines issued by the MoRTH.

**REFERENCES:**

1. Indian Road Congress Guidelines, 2005 issued by the Ministry of Road Transport and Highway
2. Master Plan of Amritsar, 2010-2031
3. Petroleum Rules, 2002
4. Statistical abstract of Punjab (2007-2008)
5. Municipal Corporation, Amritsar
6. Punjab Urban Development Authority (PUDA)
7. <http://www.puda.co.in/>