



Fragile Planet – Deadly Cities

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Abstract

After 60 years of free India, while we have joined the club of nuclear powers, we are far from the freedom from dangers. The prevailing fragmented and territorial approaches have failed to ensure safe living to the citizens, particularly in the urban areas. It is therefore essential to take stock of the issues of safety and security in our cities and rethink how we can make the life of the people, and the settlements more safe. In this pursuit, an integrated approach is the need of the hour with 'Safety First' as the prime objective.

1. INTRODUCTION

At every step it is required to prepare action plans with respect to risk reduction, insurance and management, review the safety laws, norms and standards and adopt the practices of safety audit, controls, protocols and monitoring. The dictionary meaning of 'safety' is 'freedom from danger'. As such, a safe city or habitat should ensure freedom from all kinds of dangers. According to UNDP (1994) 'Human Security' means 'Safety from such chronic threats' as hunger, disease, repression and protection from sudden and hurtful disruptions in the patterns of daily lives, whether in homes, jobs or community'.

The myth that the cities are the melting pots of various religions, cultures, castes, races and classes lies shattered. The notion that cosmopolitan cities are most liberal, open and progressive has been unveiled by the fact that political interests, poverty and degradation have been giving birth to the criminals, mobsters, and religious fundamentalists.

The image of the mega-cities in India remains that of filthy slums under the shadow of imposing skyscrapers. Their glamour and glitter has been skin deep-along the major roads only. Inside there are slums, shanties and insanitation. The towers have been the symbols of elitism, affluence, luxury and power, while the slums testifying to ever-oozing puss of squalor. The cities have become the nerve centres of crime, smuggling, drugs and human exploitation, including children and women. The slums are controlled by ruthless gangs and mafia outfits, operating in nexus with the politicians and officials. The gloss, glitter and glamour of big business and industry and flamboyant lifestyle of upper crust pretend that the squalor and crime were merely unreal, temporal and natal pains of progress.

With confusion, decay, unemployment and upheaval at each corner, the image of an Indian city is complicated, cluttered and sickening. The pulsing anonymity of

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its vastness and scattered spaces are remote, mysterious and frightening. In fact, these manifest 'inhumane' settlements, that anticipates and even creates the crimes and wickedness. The misery of being poor in a metropolis is the penalty which provokes and punishes the crime.

Mahatma Gandhi, who lived in a much more peaceful era, could see that urban environment could generate crimes and the city as metaphor of hell. In a secular inferno of a city, crimes thrive with turbulent misery. People swallowed by its immensity and deranged by the alienation of their great city, pursue self destructive obsessions. The city appears as a huge portfolio of visual paradox and aphorisms. Sheer size of a city reduces it to an administrative abstraction and a conglomerate of districts and zones.

The effectiveness of frequent riots in the cities is not so much to the rioters as to their political resolution, more than anything else. A city, as a concentration of poor people, is the locus of political power which articulates their lives. They demonstrate, make riots or insurrections, flare up and vandalize. Its frequency and effectiveness depends on the urban structure, how easily the poor and youth can be mobilized, how vulnerable the centres of authority are to them and how easily they may be suppressed. These are determined partly by sociological, partly by urbanistic and partly by technological factors.

The cities transcend the paradigm of social organization. The human destiny is intimately tied up with the fate of their amorphous urban structure. The physical form and manifestation of a city may eliminate certain problems and inconveniences, but power politics and prosperity create as many hazards as they may eliminate. Social situations entailed by new conveniences create new danger of riots, restlessness and wilder excesses of civilized anomie. The order and immutable regularity of a city could provide a mnemonic metaphor.

New Delhi, the new capital designed by Edwin Lutyens, provides a classical example of conscious urban structure, evolved on the considerations of safety and security. Its location towards the south of the Walled City was itself a major determinant of securing the new city from the natives. The monumental grid of New Delhi was related to its major function that is the government axis. The flanking and overlapping hexagonal system was local and residential. The monumental grid of royalty, encompassing the Viceroy House and the Central Vista was secured by the hexagonal grid of residential area. The role of the people in public activities had been that of participants as an admiring and applauding audience. The processional Rajpath flanked by the Central Vista had the Viceroy's Palace on one end and India Gate on the other. The desire of the rulers to impress of their folio-de-grandeur is manifested by wide, symmetrical and grand avenues and layout. To secure the royalty and ruling elite from the dangers of native population, a city wall in the form of office complex was built all along Asaf Ali Road. Another tier of security fencing was in the form of the



elevated embankment of railway line, with only two underpasses, viz., Minto Bridge and Harding Bridge. In the event of an insurgency or a mutiny, the army could be deployed along the railway track and the gates could be closed. Further, the segregation of rich and poor within the new capital was systematically maintained towards the south and north of the Central Vista. These barricades ensured ample security for the alien rulers. An unintended effect of new and wide avenues had been provision of an ideal location of popular movements, mass demonstrations and processions.

2. NOTIONS AND REALITY

The planning and growth of the metropolitan cities, including Delhi, have been amorphous and uncontrolled. The planners had their own notions on the sociological aspects of city planning. It was believed that the old cities, slums and high densities were the symptoms of crimes. As a result, large resettlement and mass housing projects were taken up in the new areas. The whole population was divided and distributed in terms of income groups. The land use zoning system was widely adopted for functional segregation of activities. The pattern of functional segregation and single function zoning was based upon the idea of exclusion of undesirables - often from the residential areas.

The pattern of functional segregation by land use zoning has led to the development of sterile and geographical separation of classes. Mass housing and transport have further disintegrated the city as a potential riot centre. Many educational complexes, rehabilitation and large rehousing schemes have been seen as accumulation of potential rioters, particularly those near the major business centres. The universities in the midst of urban concentration are evidently more dangerous than those on the outskirts. Large and dense concentration of poor and homogeneous community areas is more vulnerable than the suburbs with a mixed population.

Table 1: Crimes in Major Cities

City	Violent Crimes	Crimes Against Women
Delhi	4,289	2,428
Mumbai	1,823	1,253
Jaipur	1,817	697
Bangalore	1,643	1,170
Pune	1,369	N.A.
Patna	1,202	N.A.
Kanpur	1,111	861
Calcutta	971	N.A.
Lucknow	847	644
Ahmedabad	042	728

Source: National Crime Records Bureau, 1999

According to the National Crime Records Bureau (NCRB), Delhi had the highest number of crimes (20.7 percent) among major cities in India (1999), followed by Mumbai (11.5 percent) Chennai reported the highest incidence of violence against women, while Lucknow has the distinction of recording the lowest number of cases. Of the 4 super metros, Calcutta emerges as the safest city in relation to crimes against women. Ahmedabad recorded the least violent crimes among ten cities (Table 1).

3. CRIME AND INSECURITY IN DELHI

According to Delhi Human Development Report, 2006, published by the Government of Delhi, public safety



has emerged as a major concern of the residents. The Public Perception Survey 2005 reveals that:

- Only 19 percent of the people feel that the city is safe;
- One-third of the respondents rate levels of personal safety as poor;
- Half the respondents feel that the city is not safe for women;
- Only 6 percent of respondents feel that the workplace is highly secure for women employees;
- Nearly 90 percent of respondents feel that public transport is not safe for women commuters; and
- Only 24 percent felt that Delhi Police is doing good or very good work

The statistics (refer Box 1) point to the unusually high incidence of crime in the city (Table 2). Delhi leads the four metropolitan cities of India in crimes against women (Table 3). For every 100,000 persons, there are fourteen crimes against women in Delhi. In Chennai, it is 7, and in Mumbai and Kolkata, it is 4. The greatest deterrent to crime reportage, especially in cases of crimes against women, stems from deficiencies in the delivery of justice, delays in police and court proceedings and low conviction rates (Table 4 and 5).

Box 1

Crime Statistics for Delhi

- Delhi ranks first among thirty-five cities for crimes against children and 6th in the whole country.
- Delhi contributes to
- 24.4 per cent of all-India crimes; the contribution of Mumbai is 8.8 per cent
- 24.4 per cent rapes
- 33.7 per cent kidnappings
- 17.6 per cent dowry deaths
- 13.3 per cent molestations
- Delhi accounts for 4.8 per cent of crimes against children - as against the national average of 1 per cent.
- The national average for child rape is 0.2 per cent. But in Delhi it is 1 per cent.
- Delhi accounts for 9.2 per cent of all kidnapping. The average for 35 cities is only 2.1 per cent.
- Delhi reports the highest abduction rate among women - 6.2 per cent - in the country.
- Delhi has the highest number of cases pending against policemen - 22.2 per cent.

Source: *Delhi Human Development Report (2006)*, Government of India


Table 2: Crime incidence in Delhi : 2004

District	Crimes against women	Total crimes	Per cent Crime against women
North	165	3418	4.82
North-West	775	9840	7.87
Central	169	3335	5.06
New Delhi	80	2651	3.01
East	500	5528	9.04
North-East	401	3896	10.24
South	641	9672	6.62
South-West	356	5932	6.00
West	431	7343	5.86
Delhi	3543	53,623	6.60

Source : Delhi Police

Table 3: Types of crimes committed against women in Delhi : 2004

Districts of Delhi	Rape	Kidnapping/ Abduction of women & girls	Dowry deaths	Molestation	Sexual harassment	Cruelty at home	Crime against women
North	23	55	06	21	05	55	165
North-West	124	203	29	129	23	267	775
Central	27	41	01	44	12	44	169
New Delhi	08	11	01	34	15	11	80
East	62	125	13	82	06	212	500
North-East	67	120	18	46	06	144	401
South	96	175	21	130	40	179	641
South-West	79	68	11	59	13	126	356
West	58	79	24	46	09	215	431
Delhi	551	881	126	601	130	1254	3543

Source : Delhi Police

Table 4: Disposal of Indian Penal Code (IPC) cases by Delhi Police : 2004

Total no. of cases for investigation (including pending cases)	102,959
Charge found false/mistake of fact, etc.	642
Among cases where investigation was completed : Total	49,761
- Final report true submitted	20,663
- Charge sheets were submitted	28,456
No. of cases pending investigation at the end of year	52,979
Pendency (percentage)	51.5
Conviction rate (%)	49.7

Source : Delhi Police

**Table 5: Disposal of IPC cases by Delhi Courts : 2004**

Total no. of cases for trial (including pending cases)	165,167
No. of cases in which trials were completed:	11,295
Of which convicted cases	5618
Acquitted or discharged	5677
Pending trial cases at the end of year	153,872
Pendency (percentage)	93.2
Conviction rate (%)	49.7

Source : Delhi Police

The elderly and the aged constitute an extremely vulnerable group of people. Growing every year in numbers, 'senior citizens' constitute around 5 percent of Delhi's population. They are increasingly confronted by financial insecurity, loneliness, physical insecurity and absence of effective support structures. A large number of children work as domestic servants in dhabas (roadside cafes), in shops and other occupations. Instances of exploitation and abuse are common. Many live off the streets with little protection from exploiters. Most at disadvantage among working children are girls. The girls are forced to help out with harsh household chores. According to a survey, there are around 102,000 disabled persons in Delhi. Of these, nearly one-third i.e. 36 percent are women. Several disability-related concerns remain insufficiently addressed including ease of physical access in public spaces, inclusion in educational facilities, opportunities for employment and self-employment, and eliminating social stigma associated with certain kinds of disabilities.

Crime statistics point to high incidence of crime against women (Table 3). In 2001, for instance, Delhi recorded 381 cases of rape - more than one every day. In addition, the city registered 113 dowry deaths, 502 cases of molestation and 90 cases of eve teasing. The safety of women cannot be adequately represented merely by statistics on crimes as a large magnitude of insecurities and violence that women face remains outside the purview of such reports. The survey reveals that only 19 percent of the people feel that the City was safe. A significant proportion (33 percent) rated the level of personal safety as 'poor'. Almost half of the respondents felt that the city was not safe for women. New Delhi, followed by Central and South Delhi districts were considered to be relatively safer than the other six districts. JJ resettlement colonies were rated as being 'least safe', followed by JJ clusters and rural areas. Urban villages were rated as the safest in the city.

Public Perception Survey 2005 of the GNCTD reveals that the lowest income groups facing considerable economic insecurity also felt most unsafe in the city. Most women in Delhi do not feel safe either in their workplace or while commuting. Only 6 percent of respondents felt that the workplace was highly secure for women employees. Around 45 percent of respondents felt that the



workplace was not at all safe for women. 90 percent of respondents felt that public transport was not safe for women commuters. Only 24 percent felt that Delhi Police was doing ‘good’ or ‘very good’ work, 40 percent felt that their performance was average, and around 31 percent felt that the performance of the Delhi Police was ‘poor’ or ‘very poor’. The Public Perception Survey reveals that only one-fourth of the respondents felt that Delhi Police was doing good work while more than one-third felt that Delhi Police was not doing enough to protect women in the city.

The factors that make Delhi unsafe are common to other cities as well. These include:

- A poor urban environment - dark or badly lighted streets, derelict parks and empty lots, badly maintained public spaces, inadequate signage, lack of public toilets;
- Empty streets at night because of early closing of shops and businesses or lack of a tradition of street life;
- Poor public transport and rude, unhelpful behavior of bus drivers and conductors;
- Insufficient presence, unresponsive and aggressive attitudes of police and civic authorities;
- Isolation from neighbors and lack of community life;
- Traditional notions of privacy and refusal of the police to intervene in situations of domestic violence;
- Ideas and beliefs about appropriate behavior, leading to reluctance to protest in cases of public violence; and
- Lack of respect for women and women’s rights, leading to cases of violence being ignored or trivialized by the general public or authorities.

The number of people killed on Delhi’s roads (Table 6 and 7) has been steadily increasing, which in 2004 was 1,812.

Table 6: No. of vehicles, Road Length and People Killed on Delhi Roads

Year	Vehicles (lakh)	Road length (kms)	Population (lakh)	People killed in accidents
1971	2.17	8380	43	NA
1981	5.61	15490	62	1072
1991	19.23	22487	94	1778
2001	35.89	25948	137	1842
2004	44.00	25,948	160	1812
2011*	60.00	27,000	1820	-

*Projected

The main reason for higher fatalities is unsafe crossing of road and heavy movement of commercial goods vehicles. Half the fatalities (748) in 2004 were by commercial vehicles. A major reason for increasing accidents has been increasing vehicular density on Delhi roads.

4. ONGOING APPROACHES

The approach to urban safety has been mainly through legal framework (a plethora of complex laws on all



kind of crimes, violations and unsafe practices exist in India), and their enforcement through the executive (Police, Government Departments) together with the intervention of the judiciary. Isolated para-legal, community based and non-governmental attempts have, by and large, failed to make a dent in the problem in providing a strong safety-net in an institutional manner. There is a need to support such efforts and promote community participation in safety and security as given below:

- Neighbourhoods and school watch groups, community mapping, safety consulting and counseling;
- Tourist and women Police;
- Community Scouting, Surveillance, Volunteering and Training;
- Use of Amateur radio, telecast, electronic surveillance, video-graphy (CTV), GIS and Satellite imagery;
- Drug / HIV / Trauma and Legal Assistance;
- Mother and Child Centres, Crèches, Anganwari, Stress Relief Clinics;
- Old Age Centres; and
- Facilities and amenities for Special Persons

It is necessary to examine closely the prevailing concepts of city planning, land use zoning, slums, infrastructure services and energy efficiency, together with equitable access to urban services, amenities and resources. A basic need is to facilitate employment generation in the cities along with reducing the need for travel by a close home-work relationship and decentralization. All those factors impinge upon the safety and security of the people. A greater degree of safety can be achieved through city planning and design of public spaces and by promoting social and gender integration.

4.1 Planning Re-orientation

In the wake of the changing scenario, there is a need to have a fresh look at some of the concepts of planning. This needs vision and bold action, beyond the conventional planning notions, such as population control, regional planning, eradication of slums, hierarchical formation of communities, development satellite towns, low density development and the like. In fact one of the best examples of inter-communal integration after the independence of the country is witnessed in the selective development of the old empires, like Lucknow, Bhopal, Hyderabad and Jaipur as the new capitals of newly formed states. A strategy of population redistribution and development could be tried in threatened and vulnerable states and cities. The strategy has to be preventive rather than being

Table 7: Dangerous Roads of Delhi

Most Dangerous Roads	People Killed
Ring Road	182
Outer Ring Road	104
GTK Road	78
Rohtak Road	60
Najafgarh Road	50
BM Road	39
Mathura Road	32

Source: Traffic Police (2005)



curative. As such the distribution of population and growth are to be redirected so as to maintain a sensitive balance between homogeneity and heterogeneity. For this planning action alone may be grossly inadequate, but has to be imbued with the political apparatus.

In this context, it may be worthwhile to consider moving the capitals out of the mega-cities. As the centres of power and politics, these not only demand high security, pre-empting the general needs of the common man, but continuously generate riots, processions and disturbances. A capital city should be an exclusive seat of the government, rather than being a hotchpotch of industry, services, business, sports, education and health.

At the city level there is a greater need to integrate land use activities, different communities, vocations, professions and income groups in a composite manner. The urban structure has to be evolved keeping in view the geographical features combined with the man-made form to provide a safe and manageable form. The security has to be built-in and self-managing, rather than being dependent upon the security, police force and outside help. For this, in the urban context, 'decentralization', 'homogeneity and heterogeneity' are the keywords. Planning as sociological function should adapt to the demands of safe and manageable cities. Physical planners are required not to know 'about' the society but to know 'the' society.

Reinforcing the central parts of the urban areas while integrating their economic, political and cultural dimensions can contribute to better urban organization and vibrancy, with the much required access of disadvantage social groups. Many cities and urban areas offer possibilities of creating a poly-nucleated and poly-centric structures as the prime generators.

Several research findings have highlighted the negative economic, social, and environmental impacts of the urban sprawl. The famous Kenworthy and Newman curve has shown that cities with a low density have much higher energy and social costs. A coherent spatial policy should encourage the revitalization of existing inner areas. High priority needs to be given to the upgradation of the infrastructure and security. At the same time, there is a need to promote a higher level of mixed use in place of single use zoning.

World over the concept of 'smart growth' is gaining acceptability which is based on the premise of mixed land use. When homes are located within the walking distance to grocery stores or employment centres, alternative to driving such as walking becomes viable. The mixed land use also provides a more diverse and sizeable population and wider commercial base to support the public transit. The acceptability of smart growth among town planners has resulted in transformation of many cities on the concept of mixed use as a means to conserve energy and also to reduce the number of private vehicles on roads. While the separation of



land uses was intended to protect the communities from polluting industries and businesses, it has led to a pattern of development in which stores, housing and schools are often placed so apart that they can only be reached by motorized transport. Improved environmental regulations and private sector innovation mean that many businesses are now cleaner than they were many decades ago when zoning was first introduced to separate place of work from houses, thereby eliminating much of the need for their strict separation from homes and commercial establishments.

A mix of land uses provides a more diverse population and a wider commercial base to support public security of an area by increasing the number of people on the street. Furthermore, a mix of land uses helps streets, public spaces and retail stores again become places where people meet, thus helping to revitalize community life.

4.2 Multi-Dimensional Issues

Ongoing fragmented, compartmentalized and sectoral jurisdictions have failed to tackle the problem of urban safety and security. There is a need to adopt a unified approach to the various aspects of safety, embracing the following in a composite and comprehensive manner:

- City Planning - Structure, Form and Zoning;
- Cultivating Safety Culture and Behavior;
- Environmental Health and Safety (including pollution control, safe drinking water, disposal and management, sanitation, noise control, reducing carbon emission and toxins, climate change, etc);
- Occupational Health and Safety;
- Safety against violence, crimes and human abuse;
- Travel and Transport Safety;
- Safety from Disaster, fire and emergencies;
- Energy Safety; and
- A Holistic Action Platform

4.3 Cultivating Safety Culture and Behavior

The components of safety culture are the following:

- **Workplace Environment:** The state of the workplace environment, such as, means of access, physical plant safety, house-keeping, safe place of work.
- **Competence and Training:** The competence and training of those involved including the ability to understand, apply and respond to safe systems of work.



- **Motivation and Behavior:** The development of motivational and behavioral influences including the use of more direct strategies to identify unsafe behavior and attitudes and to motivate employees.

Safe behavior strategies are aimed at cultural change. Encouraging desirable behavior, by acknowledging such behavior is necessary. Evidence indicates that one of the most powerful methods of encouraging safe behavior is to provide social rewards in the form of praise or recognition. A hallmark of behavior based safety programmes is safety incentives or safety awards programmes.

(a) Environmental Health and Safety

According to World Health Organization (2007) four million children under the age of five die every year due to environmental hazards including polluted air or water, or exposure to chemicals. Poisonings, acute respiratory infections, diarrhea diseases and malaria carried by mosquitoes, which thrive in dirty water account for most of the toll. About 30 percent of illnesses and deaths in children occur due to environmental factors. Environmental hazards include a wide range of causes and effects, such as:

- Ozone Depletion;
- Global warming and climate change;
- Water Pollution;
- Air Pollution including Sound Pollution;
- Toxins and Wastes; and
- Radioactive Pollution

In order to restrict the damage to the environment caused by the anthropogenic activities and thereby retard the process of climate change, it becomes absolutely essential to abide by various policies, plans and protocols for environmental protection, so that the development is sustainable. This includes the following actions:

- Reduce the discharge of pollutants, attain environmental quality standards as early as possible in order to secure a pleasant and clean environment;
- Reduction of nitrogen oxide and carbon emissions;
- Install de-nitrification equipment, incineration plants, promote use of low-emission cars, restraint the volume of car traffic;
- Promotion of measures to improve the quality of water;
- Reduction of car noise and promote the use of electric cars;
- Tackle global environmental problems through technical cooperation;
- Support environmental protection activities conducted by civic organizations;
- Develop urban environment improvement projects, such as, recycling of used paper, utilization of urban exhaust heat and planting greenery; and



- Helping citizens to review lifestyles and environmental awareness educate and train leaders of environmental protection activities, hold exhibitions, conduct studies and surveys.

The concept of Environmental Impact Assessment is emerging to be one of the most important tools in the overall planning of a development project. It helps in identifying the adverse impacts, which can be mitigated at an early planning stage and helps to achieve a sustainable development.

(b) Occupational Health and Safety

Occupational health and safety is defined as 'conditions and factors that affect the well-being of employees, temporary workers, contractor personnel, visitors and any other person in the workplace'. The International Labor Organization has contributed to the development of vast knowledge on occupational safety and health measures over decades. It has published the 'Guidelines on Occupational Safety and Health Management System ILO-OSH-2001, International Labour Office, Geneva'. The Bureau of Indian Standards (BIS) has published various standards on the subject. OHSAS 18001:1999 is an Occupational Health and Safety Management System Specification developed by a number of international co-operating organizations.

Many organizations are seeking certifications for QMS (ISO9001), EMS (ISO 1400), OH&SMS (OHSAS 1800). Seamless integration of these diverse management systems into one coherent system is necessary as a policy. A common holistic framework provides opportunities for continually improved performance through underlying risk management principles (activity -risk - effect) in each management area - quality, environment, occupational health and safety.

(c) Safety against Crimes, Violence and Human Abuse

Government of Delhi jointly with Jagori and Centre for Women's Development Studies, New Delhi have made the following recommendations for making Delhi a more secure city:

- Improve urban infrastructure - lighting, signages, pavements, and parks;
- Signage in all public places giving details of help line numbers and persons to be contacted in case of harassment;
- Provisions of clean and well-lighted toilets in all public areas;
- Ensure adequate infrastructure in resettlement colonies, particularly affordable and clean toilets and drinking water points;
- Provide night-shelters for homeless women;
- Ensure services for mentally ill women and women with disabilities;
- Sensitization of bus drivers and conductors and signage on buses;



- Improve the quality of services, including help lines, medical facilities, legal aid units, shelter homes and counseling centres;
- Enforce government guidelines on prevention and redress of sexual harassment at the workplace;
- Disseminate information on government commitment to women's safety and available services;
- Training for women in self-defense;
- Strengthen community-level women's organizations;
- Gender sensitization for resident Welfare Associations to enable them to respond to cases of domestic violence in their areas;
- Collaboration between Resident Welfare Associations and women's organizations;
- Sensitization of media persons to issues of women's rights;
- Formulation of a code of ethics in reporting cases of violence;
- Public campaigns on women's safety;
- Dissemination of information on available infrastructure and services;
- Training for police to equip them to deal sensitively and appropriately in cases of violence and ill actions of women's right to safety;
- Recruitment and placement of women police officers in each police station;
- Collaboration with women's NGOs for help desk in police stations;
- Increase the number of PCR vans and police personnel;
- Collaboration between senior officials and women's organizations to monitor and address violence against women - women's organizations could be invited to regular monthly review meetings taken by Police Commissioner;
- Review of the functioning of the Crimes Cell to ensure that it responds appropriately to the needs;
- Development of a health structures;
- Promote 'Community Health Promotion with the help of RWAs / Public and Private Sector;
- Building a desirable environment for all children through the coordination of the entire society, families, schools, communities, administration, etc;
- Strengthening the functions of the child raising centres, maternity centres, mother care centres, etc;
- Enable disabled people to live in the community;
- Subsidize medical expenses;



- Improvement of emergency signaling systems, install communications equipment at household level for physically disabled people;
- Housing for disabled people with home care services;
- Community welfare centres for disabled people;
- Promotion of housing measures, Welfare / Recreational Centres, Home Help Services, Nursing Homes and life care for elderly people; and
- Build model institutions to conduct comprehensive services for people suffering from senile dementia - from counseling to nursing and building of welfare-medical institutions, including hospitals for elderly.

4.4 Safety of Structures and Construction

As ensuring safety of structures is a fundamental engineering imperative, the safety of the persons at work is a basic human right. Nearly all accidents and the resulting losses are preventable. This needs continuous monitoring and sustained research, which involves collecting information about where things have “gone wrong” and also where a high performance has been achieved in safety. It is often the non-adherence to safety norms and the lack of the preventive measures that lead to accidents at construction sites. A major area of focus should be to check and retrofit the non-engineered buildings, mostly existing in the inner city, old areas, villages and unauthorized colonies.

There is a need to focus on strategic issues of how to prevent and avoid accidents on sites and preventive measures to be taken during the work. Experience shows that often construction accidents are poorly investigated. It is necessary to investigate the cause of the accident and why it happened. Safety during construction requires ensuring stability of structures, as well as safety of the work force and the machinery at site. Adequate steps should be taken to prevent such mishaps or failures and to contain its aggravation, at construction site, power project, roads, rails, buildings, mines, embankment or other projects.

Safety may be endangered due to geological failures, landslides, embankment failures, flooding, earthquake or other natural disasters, human and machine failures, and lack of adoption of safety norms/carelessness, leakage of gases or radio-active radiations. Safety in tunnels and cavities may be endangered due to sudden rock falls, water and or gas inflows, geological failures, inadequacy of ventilation, etc. Failures at excavation sites may take place due to slope failure, inflow of water, inadequate measures taken during blasting, etc.

During recent past, India has experienced a number of destructive earthquakes, floods, tsunami and other disasters. The field research about seismo-electromagnetic earthquake precursors indicates that these are manifested about 15 to 25 hours before the occurrence of any major to large earthquake (magnitude



M>6.5 or so). If advance information is available, it is possible to reduce the death toll during earthquake and other disasters.

4.5 Travel and Transport Safety

Annually more than eighty thousand lives are lost on Indian Roads due to traffic accidents. With less than 1 per cent of the world's vehicle population, India accounts for 6 per cent of world's road accidents and 10 percent of world's road fatalities. With rapid growth in vehicle ownership ambitious road development plans, and India having one-sixth of the world's population, the road transport demand is growing very fast; and therefore the consequent safety hazard is likely to be a potential threat to the entire community.

Road safety problem in India, which has grown to disaster proportions, is not only a socio-technical problem, but has created a serious public health issue. Road Safety Audits are seldom undertaken. The countries which have been able to successfully reverse the trend, tackled it through structured programmes as part of national mission. Multiplicity of modes in transport and low level of education, incompatibility of the road use behavior make the problem extremely complex, and it requires innovative solutions. A serious effort by thorough scrutiny of the existing and planned road infrastructure, safety audit and strengthening and revamping the institutional framework for targeted levels of road safety is the first step towards ameliorating the situation. A proper accident data record system is a pre-requisite. There is a need for a holistic action plan and implementation of an effective management system to make a breakthrough in such a huge problem. In urban areas it is essential to ensure road safety, streamline road safety, streamline road traffic and reduce traffic accidents through the promotion of the improvement of roads with emphasis on space for pedestrians, and through the upgrading of traffic control capability. Immediate needs are:

- Safety oriented planning and engineering specifications, norms and practices;
- Improvement of sidewalks, cycle tracks, underpasses & overpasses; and
- Upgrading of traffic control systems - introduce multi-functional and sophisticated new systems including signal control.

4.6 Safety from Disasters, Fire and Emergencies

Natural disasters, such as earthquake, hurricane, floods, landslides, volcano eruption cannot be prevented. However, by prudent planning and preparedness to meet and organize the relief measures, it is possible to minimize the loss of property and human lives to a great extent. It is essential to establish support systems to deal with major disasters, including the organization of information, assistance and training. Fire, traffic accidents, outbreak of infectious diseases, collapse of structures, stampede, etc; are some of the man-made disasters. The



loss due to these disasters is manifold loss of human lives, loss of property, disruptions in the daily life. These disasters take place mainly due to the carelessness of the man, improper planning and not observing the preventing measures. There is a need to adopt safety standards, along with inculcating safety behavior and practices to minimize such risks.

Fire prevention steps are to be built in at the design and planning stage and in the layout of the building/plant, and process control. Elimination of fire hazard should be ingrained in the handling of fires, explosives and process operating instructions, as well as maintenance and engineering practices. Besides these safeguards, the education and continuous training regarding the elimination of fire hazards, is an important element for the effective management of fire safety.

4.7 Energy Safety

- Promote effective use of resources, promote energy saving at facilities and promote area air-conditioning to realize an energy-efficient city;
- Promoting the utilization of exhaust heat at incineration plants and sewerage treatment facility;
- Promote use of non-conventional sources of energy;
- Replace coal based power generation to CNG / non-polluting alternative fuels;
- Observe strictly safety controls and instructions;
- Check transmission and distribution losses; and
- Incentivize decentralized power generation and energy conservation.

Since safety and security are multi-dimensional issues and require multi-pronged actions, the priority should be given to set up a City Emergency Response and Safety Centre in every city and district. The objective of City Emergency Response and Safety system is to establish a common platform to provide instant response, rescue and relief to the citizens by coordinated action of different departments. Digitization and networked technology is applied to build up a unified command platform and information network platform, which offers comprehensive emergency rescue services including police, fire, medical emergency, traffic and others. It may also include travel complaints, judicial assistance and price complaining system. Besides, it also aims at building an emergency response management platform to deal with natural and man-made disasters.

5. CONCLUSIONS

After 60 years of free India, while we have joined the club of nuclear powers, we are far from the freedom from dangers. The prevailing fragmented and territorial approaches have failed to ensure safe living to the citizens, particularly in the urban areas. As the United Nations is celebrating the World Habitat Day, 2007 with theme, 'A Safe City is a Just City', this is a good opportunity to take stock of the issues of safety and security in our cities and rethink how we can make the



life of the people, and the settlements more safe. In this pursuit, an integrated approach is the need of the hour with 'Safety First' as the prime objective.

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