



ENVIRONMENTAL GOVERNANCE IN DELHI

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Abstract:

Cities are highly localized concentrations of population, production and consumption, creating intensive localized resources to disperse the waste and Delhi is one of them being the national capital. The continued growth of urban centre of Delhi is generating more and more pressure on civic services and infrastructural facilities. Increased challenges require a combination of local, regional and global initiatives to reduce Environmental Problem which in turn helps in strengthening the Environmental Governance. Environmental problems emerged as a critical issue of Delhi, which needs high level planning, people's participation and appropriate handling of waste. There is urgent need to implement suitable techniques which would be cost effective, eco-friendly, technically sound and socially acceptable to the people. The main aim of this study is to find methods for improving the quality of air, for managing the problems related to drainage and garbage in Delhi. The present study will be useful in preparing significant involvements requisite for making practices effective; and to know about the long-term investments needed in managing urban infrastructure.

KEYWORDS : Environmental governance , production and consumption.

1.INTRODUCTION

Economic growth is realized by extensive development, which exerts great stress on the environment. How various societies deal with environmental problems is termed as 'Environmental governance'. It involves interactions among formal and informal institutions and the stakeholders in the society. This influences how environmental problems are identified and dealt with (Singh et al. 2006). It is also related to how policies are formulated to combat these environmental issues, and programmes are implemented. Environmental governance should extend to all environmental resources, namely air, water, forests, biodiversity and so on. Environmental governance should include issues ranging from supply, demand and quality management and should encompass all stakeholders ranging from users, regulators, suppliers and so on at village, district, region, state and national levels. India has a long history of environmental conservation.

The rapid socio-economic growth in Delhi has been accompanied by environmental problems. At low per capita income levels, economic growth has led to excessive environmental degradation. As income rises, demands for improvements in environmental quality, as well as resources available for environmental investment, increase. As a result, environmental degradation levels off, and gradually declines once the level of economic growth has passed a certain turning point. Effectiveness of environmental policy is considerably influenced by roles of various actors such as local governments, citizens and industries as well as the central government within its society. In order to realize an immediate and rapid development, Delhi carried out a development strategy pillared by construction of small and medium sized industries accompanied by big malls, skyscrapers, and networks of flyovers.

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Environmental problems began to appear when small and medium - scale industrial complexes were constructed. Environmental pollution, centered in cities, has not been effectively controlled. Affected areas of ecological deterioration in some regions are expanding. As in the industrialized states, environmental protection in Delhi has been growing with the numerous environmental problems and evidence of their damages to our habitat and public health.

A forest of smoke stacks became a symbol of modernization. A crowd of unplanned out-of-date processes and indigenous flyovers were built, which resulted in extensive ecological degradation. The causes of environmental problems are much correlated with social and economic development. Primary environmental problems in Delhi include extensively polluted rivers, lakes and reservoirs to varying degrees. More than 50 percent of the ground water in urban areas is polluted. Near-shore pollution has not been effectively controlled. Soil erosion as a result of desertification and deforestation makes ecological environment in some regions more fragile. Loss of biodiversity threatens some endangered species.

1.1 Study Area

The National Capital Territory (NCT) of Delhi is the largest metropolis by area and the second-largest metropolis by population in India. It is the eighth largest metropolis in the world by population with more than 12.25 million inhabitants in the territory. There are nearly 22.2 million residents in the greater National Capital Region urban area (which also includes Noida, Greater Noida, Ghaziabad, Gurgaon and Faridabad along with other smaller nearby towns). It consists of nine revenue districts i.e. Central Delhi, North Delhi, South Delhi, East Delhi, North East Delhi, South East Delhi, South West Delhi, New Delhi, North West Delhi and West Delhi. Delhi located on the banks of the River Yamuna has the third highest tree-cover among cities in India. Though the area of whole Delhi is not so bigger but its physiographic varies from area to area. The present urban eco-system of Delhi is the outcome of various historical and political processes. The past ruler developed the city at different sites according to their desires. The geographical setting of Delhi has closely influenced the growth and development of its social, economic and cultural environment. Delhi was one of the world's ten most polluted cities in the 1990s, with vehicles producing 70 per cent of the polluting emissions.

Being the political and economic hub of northern India, the city attracts workers – both blue collar and white collar – from all parts of India, further enhancing its diverse character which further increases the work load of Municipal Corporation and Environmental Governing Institutions. As operation cost on infrastructure became hard to maintain due to dilution of the concept of city as a unit of settlement which occurs due to urban sprawl and increasing mobility of population. Many non-residents might be using the facility without paying for it, which in course of time aggravates the already existing problem of Environmental. Governance and production of waste and its sprawling which further causes Environmental problems. Also Delhi is a diplomatic hub, home to the embassies of 160 countries. Delhi has a large expatriate population as well.

The primary objective of this study is to identify critical issues in environmental governance and provide methods to promote environmental governance effectively and plan for better governance. We have made an attempt to develop a methodology to enhance public participation. Requirements of environmental agreements and co-ordination with regional initiatives have been analysed. We have tried to find out how existing pattern of governance is not effective in all parts of Delhi and what are the major loops or fouts of governance of environmental institution? The main causes of lopsided and ill environmental governance in different parts of Delhi have been discussed.

2. RESEARCH METHODOLOGY

2.1 Data Base

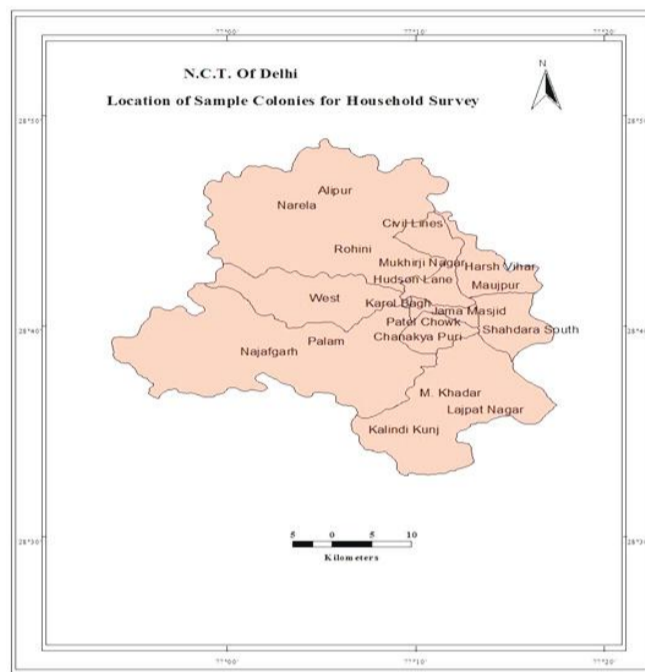
To achieve the above objectives both secondary and primary data have been collected for testing the hypothesis and to study environmental governance and its role in environmental conservation.

The secondary data were obtained from various agencies, institutions, journals, reports and websites. Stages for administrating and governing by the administrative body of environmental institution have been taken from the Ministry of Environment and Forests. Sources and bodies which furnished the secondary data are:

- Ministry of Environment and Forest
- Delhi Jal Board
- Institute of Economic Growth
- Central Water Commission
- Government of Delhi.
- Association of Organizations on Nature and Environment

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The primary data for research study was collected through field survey. A field survey was conducted in all the nine district of Delhi. For household survey a total of 180 samples were chosen from all the districts and 9 samples were taken from different environmental governing institutions. Widely asked questions in this field survey were on basic information, NGO, EIA Report, and other environmental related issue etc. Satisfactory response and people's feedback s are the essential parts of any questionnaire survey. The response of the local people on various aspects of governance and environmental institution in all district were of much use in this research work.



Source: Census of India 2001

Figure 1. Locations of sample colonies of household survey

To have an in – depth assessment of the reality we have chosen many parameters on causes and impact aspects were chosen. In the first part of the structured questionnaire we included closed ended questions requiring respondent's personal information like name, age, education, income, qualification etc. The second part of the questionnaire was based on public opinion. In the third part, we have tried to know officer's opinion in which a fair inquiry of aims and objective of Environmental Governance and priority area. Respondents were found to be willing to reply and satisfactorily answered the queries.

2.2 Data Analysis

Systematic presentation of data is the core of any research work. Keeping the aims and objectives of the research in mind, the data collected from various sources was first tabulated using Microsoft excel. Once the tables were prepared the graphical representation was done to enhance data analysis. We represented primary data mainly in the form of bar graphs, line graphs and pie diagrams whichever found appropriate. Governance diagrams were drawn in the form of line graphs of different years. Further, we compared primary data with the available secondary data. The governance pattern of environmental institution were analyzed to find where the loops or foul causes exist and where and why the gap in the information gathered from both sources lies.

There are some limitations of this study. The knowledge of Environmental Governance is limited by paucity of observations, sparse network of Environmental Governance Institutions and lack of data. There was limitation in surveying entire area for primary survey because of shortage of time. As there is large amount of secondary information required, the scope of the study depends upon the availability of data.

2.3 Governance

Governance is hierarchical, like government, and in some of the international financial institution parlance, is still in part a code term for the quality of government. Still, there is recognition, in part sparked

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by Lamont's (1996) study of Italy, that good government requires a good relationship, perhaps participatory, with "civil society". In turn civil society relies on "social capital"-self-organizing capacity within society independent of government (or other hierarchies such as the Catholic Church).

Environmental Governance is genuinely driven by the following requisite factors besides ministerial organizational structure:

- Institutions
- Non - Governmental Organizations
- Public Participation
- Role of Corporate Sector and Private Parties

2.3.1 Institutions

In institution agenda formulation and implementation are both components of the policy process. How agenda formulation and implementation work in a country is heavily dependent upon the structure of the government and the formal and informal institutions that dictate how actors relate to each other. Despite so many expenditure and appropriations in these sectors the people of Delhi are not happy with the modus operandi of the government. According to the primary data 61 per cent people are not satisfied with the Environmental Governance of the Delhi government, while 20 per cent are satisfied which they says on the basis of comparison of other cities, where as 19 per cent people have no close vigil on the Environmental Governance of the Delhi government, they are callous about it as shown in Figure 2.

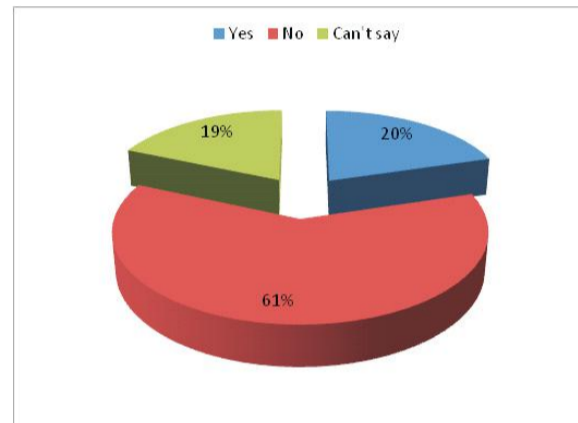


Figure 2: People's satisfaction on environment governance of Delhi

Source: Based on Primary Survey 2011

2.3.2 Non Governmental Organizations

Environmental NGOs play an important role in educating and informing the public. Environmental NGOs and civilian environmental movements have continuously increased their number and sphere of activities since the late 1980s. The definition of environmental NGOs and the relationship between the government and environmental NGOs are different in each state. Once environmental NGOs were not formally recognized, but rather regarded as strong opponents of government policies. Environmental NGOs themselves chiefly acted as a watchdog for government policies and institutions. The Government of Delhi has launched several programs to improve the relationship between the public and private sectors. The main purpose of this program is to promote and assist various NGOs in the conservation, preservation of environment and pollution control activities. Non Governmental Organization play a vital role in the popularization of Government policies and various measures being taken by the government department for controlling the degradation of environment. NGOs also play an important role in the identification of local problems. The objectives of the schemes are to utilize the expertise available with Non-Governmental Organizations, which are engaged in environment related activities, for developing various programs and activities for promotion, conservation and preservation of environment of National Capital Territory of Delhi.

The relationship between environmental NGOs and the government has changed a lot since the mid-2000s. According to primary data very few are people familiar that there is NGOs in there locality to look after the environmental problems besides the government's department of environment, i.e. merely 21 per cent of the total people of Delhi knows that there is NGO/Governing Institution in there locality while 46 per cent people are saying that there is not any institution like that till know but there is such institutions.

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33 per cent are don't know anything about it (fig 3).

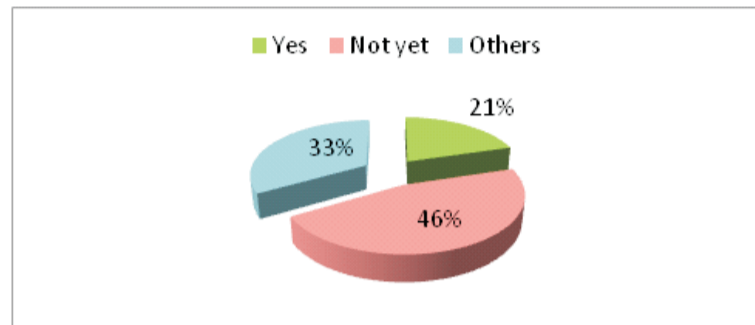
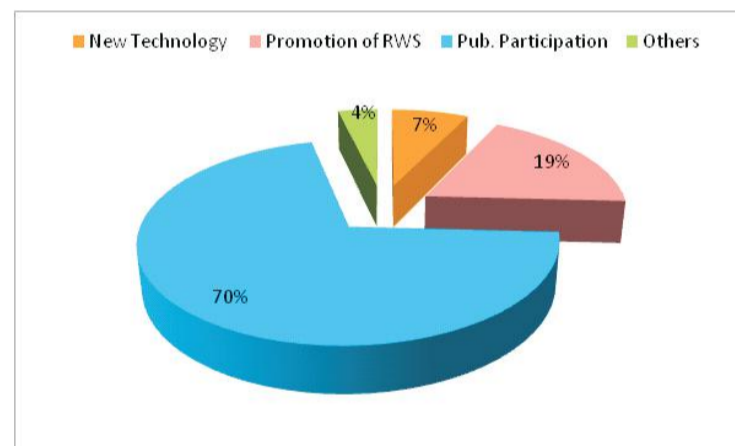


Figure 3: NGO/Institution in locality
Source: Based on Primary Survey 2011

2.3.3 Public Participation

Any governance plan can only be successful if the people take initiative and participate in its working as well as implementation. For the behaviors polluting or damaging the environment, the social groups and citizens can generally use the ways such as prompt stopping the behavior, reporting to the mass media, administrative complaint and justice litigation, and no matter which way taken, the control of illegal behavior against the environment is effective. The public can so convey their opinions and suggestion on environment through the people's representative and the political consultative conference as well as the local authorities (e.g. Zila Parishad and Panchyat) at all levels. The Minister of Environment and Forests expresses huge concern about the working of the NRCP. Both NGOs and public spirited citizens together can be greatly significant in managing the environment. NGOs and citizen groups should be strengthened so that public opinion and their participation in development activities can be improved. The National River Conservation Programme (NRCP) shows a lack of public involvement and suitable social action.

During the survey when it was asked that what is the best strategy for environmental management 70 per cent of the total population of Delhi proposed that public participation is the best strategy while 19 per cent people supports promotion and contribution of Resident Welfare Society (RWS) as the best strategy where as 7 per cent and 4 per cent of the total population suggest that innovation of new technology and promotion of local recreational sites is the best strategy respectively for environmental management (fig. 4).

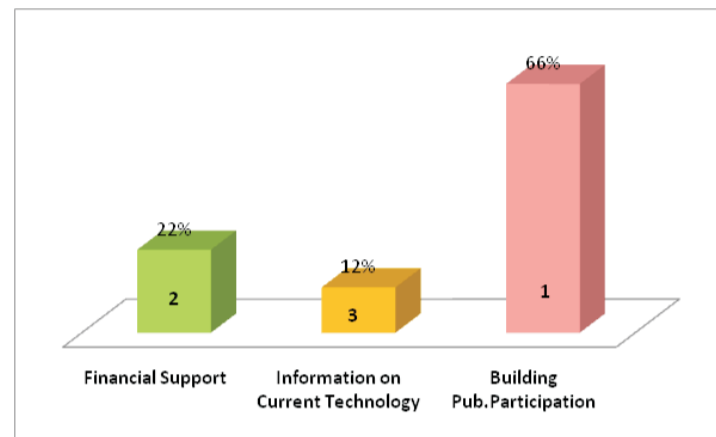


Source: Based on Primary Survey 2011
Figure 4. Strategy for Environmental Management

When it was asked by the officers that what type of support their governance institution needs; they gave first priority to the building of partnership and public participation than financial support. All political power in democracy stems from people. Central therefore to governance is empowerment of people by increasing their control over governance. The irony of a discourse on empowerment of people is because "As the colonial state had consciously distanced itself from the people, and as that distance did not

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significantly narrow in the post independent era, tradition of consultation of and participation by the people did not develop (fig. 5). So in good environmental governance the role of public participation cannot be ignored.



Source: Based on Primary Survey 2011

Figure 5: Need of the Environmental Governance Institution

2.3.4 Role of Corporate Sector and Private Parties

Corporate Sector and Private Parties on their part have been building networks with those in other countries and states to undertake interventions that address local environmental problems. There are many of these groups. Although only a few eventually stand out in terms of their credibility, consistency and advocacy. And because most are engaged in activities that complement or pose alternatives to government action, many tend to coordinate their activities and, when doing policy advocacy, seek (like the case of government agencies) for a consensus among themselves to jointly push an common agenda. So even the role of Corporate Sector and Private Parties are very important as they have money to invest and if invested in collaboration with the government that will become productive for all including them. As the cost of regeneration is high, there is an end to mobilize sources either through corporate sector or some other sources. The Government is looking at suggestions regarding Corporate Sector participation in the land, forest and Environmental Governance sector with caution.

3. KEY ISSUES AND GOVERNANCE STATUS

Although the city has become a huge centre of commerce, industry and education after Independence, the pollution has immensely increased due to the rise in population and growth in economic activities. The construction of government departments and office complexes has led to the spread of the city. Regulations of Land use have been disregarded. The problem has intensified due to sustained immigration. The population was 132 lakhs nearly in 2001. Out of which, about 30 per cent of the population resides in squatter settlements. The vehicular population has increased phenomenally, from 2.35 lakhs in 1975 to 26.29 lakhs in 1996, and have touched 60 lakhs in 2011. Today we have three times more vehicles in Delhi than Mumbai. The total air pollution load consists of 67 per cent vehicular pollution (approximately 3,000 mt per day). Another kind of air pollution is generated by small industries and coal based thermal power plants. The three power plants in Delhi generate 6000 mt of fly ash per day. 16 drains when discharged releases about 1,900 mld of municipal sewage and waste water into the river Yamuna. Municipal solid waste generation is estimated to be 5,000 mt per day. In some localities noise levels have attained frightening levels.

High increase in the quantity of solid wastes and increased pressure on land, there is a limited scope for disposal through landfill sites. There is an urgent need to adopt other "best practices" in disposal technologies which include vermiculture, incineration, pelletisation, aerobic composting, etc. The private sector should be assigned a bigger role. In recent times, the problem of managing plastic wastes has also come in light and the increasing hazards to human health from bio-medical wastes. A systems approach in managing solid wastes is also necessitated in view of the variation in the composition of garbage from area to area.

Delhi is found to have 630 hospitals and nursing homes. It is estimated that 30 mt of medical wastes is generated every day. The State Government and the Delhi Pollution Control Committee is still to

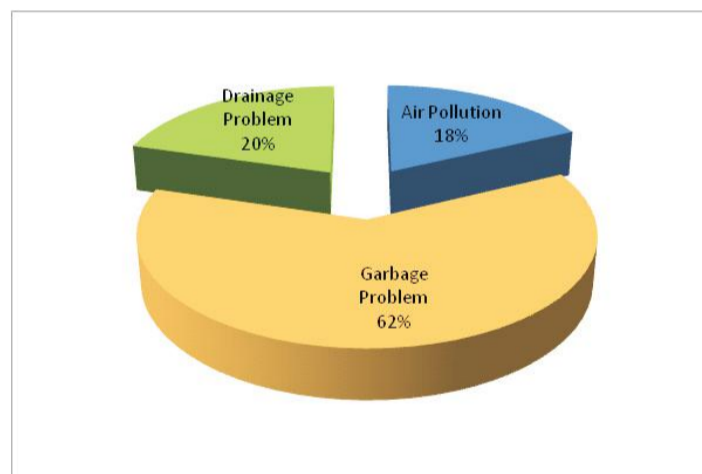
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inventories the industrial units in Delhi generating hazardous wastes as defined in the Hazardous Wastes (Management and Handling) Rules. The hazardous waste also has to be characterized. Most of the hazardous waste generating units in Delhi is functioning without authorization required under Rules. Delhi needs such a facility urgently (Table 1).

Table 1: Salient Activities for Controlling Industrial Pollution

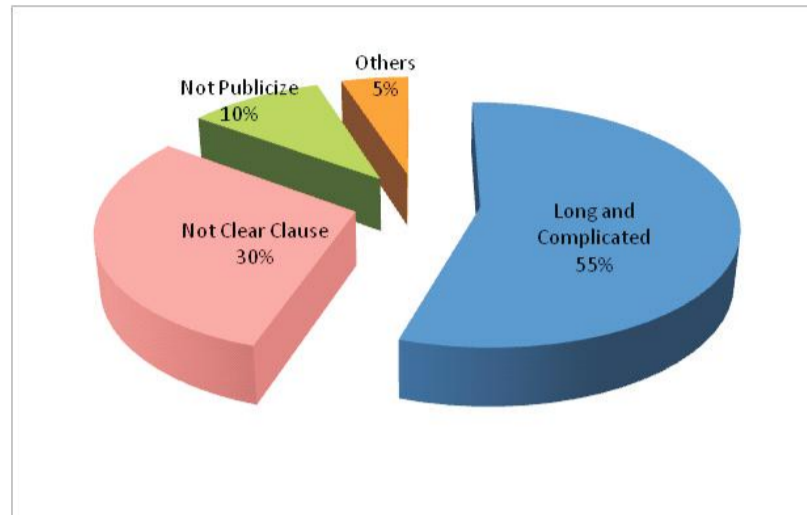
Activity	Responsibility	Time frame
The three coal based power plants should switch over to beneficiated coal.	DVB/NTPC/MoC/MoP	31.12.98
Till availability of beneficiated coal, superior quality of coal (D Grade) should be used.	NTPC/DVB/MoP/MoC	31-12-97
Strict enforcement of pollution control measures applicable to industrial boilers.	DPCC/Factory Inspectorate	
Shifting of polluting industries from non-conforming to conforming areas	Delhi Admn./DPCC	According to Court
Construction and commissioning of 15 CETP Companies	DPCC/DSIDC	31-12-98
Inventorisation of hazardous waste units: characterization of wastes.	GNCTD/Indl. Asso./DPCC	Immediate
Common facilities for treatment, storage, disposal and incineration of hazardous waste.	GNCTD/DPCC	31-12-98
Notification for mandating fly ash utilization.	MoEF	31-12-97
Provision for dry collection and storage facilities for fly-ash should be made in three power plants.	DVB/NTPC/MoP	31-12-98
Cleaner production cell should be set up for SSIs in the Deptt. of Industry, Govt. of Delhi for promoting clean technologies/waste minimization.	DSIDC	31-12-97
To ensure installation of pollution control devices by all air polluting industries.	DPCC	31-12-97

During the survey garbage disposal problem was identified as the critical environmental problem as 62 per cent of the total population of Delhi identified it as a critical environmental problem in their locality while 20 per cent people are affected from drainage problem and the rest are affected from air pollution (fig. 6).



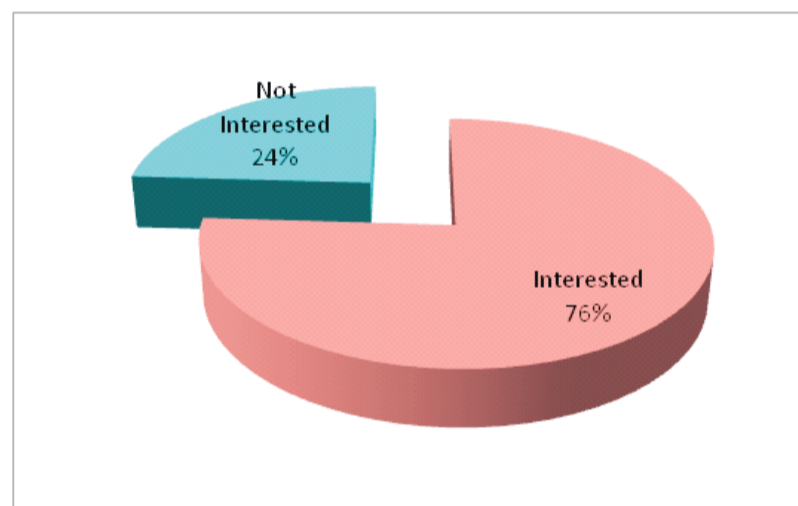
Source: Based on Primary Survey 2011
Figure 6 : Problems identified by percentage of people

Why the municipal agencies as well as the Environment Ministry have not been able to deliver satisfactory results may be due to the reason that there is an organizational deficiency, lack of regional grievance office, poor co-ordination among various departments, and financial constraints (fig. 7).



Source: Based on Primary Survey 2011
Figure 7: Officers' view on Environmental Law

In the primary survey it has been found that even in Nation Capital 24 per cent of the total population of Delhi is not interested about what is happening and what should be happened in Environmental Governance which is heinous when the desire of the country is to enlisting itself in the list of developed countries (fig. 8).



Source: Based on Primary Survey 2011
Figure 8: Interest of the people on Environmental Governance

So public participation is very necessary to bridge the gap of organizational deficiency and financial constraints in government machinery which will also help in fighting corruption and in doing good governance.

4. ENVIRONMENTAL AGREEMENTS AND CO-ORDINATION

4.1 Analysis of required agreements for co-ordination of regional initiatives.

While doing survey in whole Delhi it was find that in most of the places garbage disposal was a major problem. About 62 per cent of the total people have garbage disposal problem. Although some of them have simultaneously said that the frequency of visit by garbage collecting staffs of Municipal Corporation of Delhi is in general, good but the main problem is related to the main place of throwing the garbage and placing the producing garbage of the houses.

Due to growing pressure on land in Delhi and the projected increase in the quantum of solid

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wastes, the scope for disposal through landfill sites is limited. The consumption of too much land is increasing the danger of ground and surface water contamination. In recent times, the spotlight has also been on the problem of managing plastic wastes and the increasing hazards posed to human health from bio-medical wastes.

In Delhi, according to a rough estimate about 3,000 mt of air pollutants are emitted on daily basis. These air pollutants include 67 per cent emissions from vehicles, 13 per cent from coal based thermal power plants, 12 per cent from industrial units and 8 per cent from domestic. The atmospheric concentrations of air pollutants show a rising trend.

5. CONCLUSION

Municipal garbage increased many times over the years because of increase population, urbanization, standard of living, changing life style and food habits and so on. Collection of garbage is weakest in whole chain of management, which further aggravates the problem. Delhi, being the most urbanized, polluted and densely populated is facing a number of civic and infrastructural problems. Lack of waste collection efficiency, about 15-25 percent of garbage remains uncollected and becomes breeding grounds for vectors, rodents, mosquitoes and flies posing severe health hazards.

The study has used both primary and secondary data for the fulfillment aims and objectives. Two detailed field surveys have been conducted through structured questionnaires one for households and another for officers of environmental institutions. Total 54 households of various income groups have been interviewed from nine districts of Delhi selected on random basis and 9 from officers of Jal Board. Apart from primary data, secondary data have been gathered from many institutions and organizations such as MCD, NDMC, CPCB, NEERI, GNCTD, NIUA, TERI, Census of India, NGOs and so on. Data was processed with various syntactical techniques and represented by a number of tables, diagrams and maps. Environmental governance in Delhi is mainly governed by Environment Department of Delhi government. NGOs, Public Participation, Corporate Sector, Private Parties and local bodies are the other necessary component which genuinely drives environmental governance. Public participation is the important strategy for Environmental Management.

People's participation has become a standard rhetoric in India today. Different actors interpret it differently. One view is that participation means getting people to agree to and go along with a project already been designed for the more to get support of a few leaders. It must be therefore understood as a process by which the people are able to identify their own needs and share in the design, implementation and evaluation of the participatory action. Thus various elements of participation are decision making at various stages, control and management of funds and resources, share in usufruct and final produce and certainly of benefits.

6. SUGGESTIONS

Special attention should be paid to the needs of the areas where the poorest live for identifying commensurate reforms and investments. The role of improved household domestic practices and self-help schemes needs to be highlighted. The status of pollution in Delhi will require constant updating through quantitative information relating to environmental quality and related parameters. Environmental epidemiological studies would be needed to assess the impacts of pollution on human health. A system will have to be institutionalised for collecting and analysing data on the environmental health of the poorest, e.g., data on upper respiratory and gastro-intestinal illness. The costs and benefits of existing municipal and waste collection and management systems needs to be reviewed, including equipment installation, their utilisation and maintenance, using the existing data and field observations. This should be possible through the above mentioned World Bank project, which can also verify the data and physical and chemical analysis about solid waste, and study the impact of leachates on the adjoining surroundings, including water bodies. Monitoring results need to be standardised to facilitate ease of comparison, with the aim of increasing public awareness about environmental quality.

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