

Local Government Quarterly

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A Journal of the All India Institute of Local Self-Government

- * Changing Age Structure and Elderly Population in World Regions, India & the USA: A Comparative Analysis of Levels, Trends, Change and Possible Reasons
- ★ The Impact of Green Space along the Transportation Corridor to Mitigate Noise Pollution
- ★ Functions and Strengthening of Women Empowerment in Panchayat Raj System in India
- ★ A Study of Maharashtra's Nagar Panchayat Elections 2021-22

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All India Institute of Local Self-Government (AILSG), established in 1926 has been actively working in the field of urban development management and is a diligent partner in promoting the cause of local governance in India and overseas.

The Institute has been the steadfast friend, philosopher and guide to Urban Local Bodies (ULBs) across the Country. For more than eight decades it has contributed to the principles and practice of urban governance, education, research and capacity building. It has designed and developed a vast array of training literature and courses and trained more than 1.5 million stakeholders in diverse areas of urban governance and urban services delivery.

These activities of the AILLSG are practiced through 30 regional centres located in different regions of the Country. The Institute anchors the Regional Centre for Urban and Environmental Studies (RCUES) of the Ministry of Urban Development, Government of India for Western India region. This Centre is actively involved in building capabilities of municipal officials, staff and elected members from the States of Goa, Gujarat, Maharashtra, Rajasthan and the Union Territories of Diu, Daman, and Dadra & Nagar Haveli by upgrading their knowledge and skills required for effective administration and implementation of various urban development programmes.

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Editorial

Millets: Coarse grains to Nutricereals

Among recent news headlines was the millets dominated lunch hosted by India's Agriculture Minister in Parliament in December for VVIPs from across the political spectrum including the PM, cabinet ministers, and leaders of the opposition. It was an event that received much public interest.

The United Nations has declared 2023 as the International Year of Millets, following a proposal by India. India aims to position herself as a global hub for millets in the years to come. Since then, interest in millet based foods has grown many folds. Inspite of this, recent data on production, demand, and consumption of millets in India, as compared to cereals like wheat, rice and maize are less than encouraging.

At a global level, the world has just 8 more years to achieve various targets under SDG Goal 2 namely 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture'. Some key takeaways from UN-FAO's 'The State of Food Security and Nutrition in the World 2022' present a disturbing picture. The prevalence of undernourishment jumped from 8.0 in 2019 to about 9.3 percent in 2020 and 9.8 percent in 2021; hunger affected 46 million more people in 2021 compared to 2020, and a total of 150 million more people since 2019, prior to the COVID-19 pandemic; almost 3.1 billion people could not afford a healthy diet in 2020, an increase of 112 million more people than in 2019 (a healthy diet has become less affordable due to inflation).

The overarching objectives of SDG Goal 2.0 and its targets, combined with recent setbacks mentioned above call for urgent, concerted actions to improve human well-being on the food and nutrition front. Millets could be a key pillar of such focused action.

Millets are a kind of cereal just like rice, wheat, and maize. Jowar, Bajra, and Ragi, are among the millets more commonly known and consumed in India. Millets as a group have also been commonly called 'Coarse grains', obviously referring to their rough external structure unlike rice, and wheat which have a more smooth and polished surface. However a 2018 notification of the Centre has given a new nomenclature to millets, namely, 'Nutricereals'.

Health benefits of millets

Like all other cereals, millets are a rich source of carbohydrates; but millets also come with more protein, dietary fibre, iron and calcium than rice or wheat. That surely raises the nutrition quotient of millets much higher. Millets are also recommended in the fight against diabetes. Millets have a low Glycemic Index meaning that, as compared to foods higher up in the Glycemic Index Chart, millets have a lower impact on blood glucose levels. Millets are also gluten free, adding further to their appeal among health foods.

Benefits to farmers and the environment

Several findings have pointed out the wide ranging environmental benefits of millets. For example, some estimates suggest that millets consume about 70% less water than paddy. This by itself is a big benefit given that large areas of our country are plagued with uncertain water availability due to inadequate/unpredictable rainfall and depleting groundwater levels. This also makes millets a crop much resilient and hardy and able to withstand the vagaries of weather and extreme climate events. Research also suggests that millets generally take about half the time to grow as wheat. Millets are thus well-adapted to semi-arid conditions and dryland agriculture. They can thrive in high temperatures and unfavourable soil conditions too.

All these translate into big benefits for farmers especially those from the vulnerable categories – with small land holdings, those with less fertile lands, and those with less access to water.

The way forward

The share of millets in the grain production basket of India is not very encouraging. But it was not always so. The Green Revolution focused on production of wheat and rice in order to ensure India's food security which led to the rapid growth of these cereals and the decline in the production of millets. For

example, as per RBI's Agriculture Production – Foodgrains - data, coarse cereals comprised 32.1% of total cereals production in 1964-65. This share of coarse cereals declined to 17.6% in 2021-22. During this time, the shares of wheat and rice took big leaps.

Concerted action is now required in terms of policy interventions to promote the higher production of millets. More importantly, it is necessary to increase awareness levels among the citizens about the all-round benefits of 'nutricereals' to encourage their consumption and thereby create demand. Actions must be taken to restore the prominence of millets among the domestic food basket and lift it in status from a 'fodder crop'. Regular inclusion of millets based foods in the school mid-day meals schemes can be one way of promoting demand while at the same time, improving the health condition of children. Processed food makers could come up with millets based snacks to increase its appeal among the youth.

Indeed one can see change coming about. 'Raagi Dosa' and 'Jowar Dosa' are fast becoming regular features on the breakfast tables of large numbers of Indian households, including those from the upper sections of society. Readymade batter for these is now being sold in premium and health food stores in large cities. Several restaurants in our metro cities now have millets based offerings on their menus. This augers well for the continued well-being of Indians and for climate change adaptation.

In the words of FAO Director-General QU Dongyu, "Millets can play an important role and contribute to our collective efforts to empower smallholder farmers, achieve sustainable development, eliminate hunger, adapt to climate change, promote biodiversity, and transform agrifood systems,"



Changing Age Structure and Elderly Population in World Regions, India, and the USA: A Comparative Analysis of Levels, Trends, Change and Possible Reasons

M. V. Vaithilingam

Abstract

The billion journey of global human population has grown from 1 billion in 1800, 2 billion in 1930, 3 billion in 1960, 4 billion in 1974, 5 billion in 1987, 6 billion 1999, 7 billion in 2011, and expected to reach 8 billion in 2024 and 9 billion in 2039 according to Population Reference Bureau (2011). The proportion of global elderly population keeps increasing in the recent years, which is driven by decreasing fertility, increasing longevity, and the aging of large birth cohorts. Globally, the average number of births per woman declined from 5 to 2.4 births per woman, the infant deaths per 1000 live births from 146 to 26, and the life expectancy at birth increased from 45 years to 72 years during the period between 1950 and 2022. The human age structure determines the size of the productive and dependent populations in a community, and the proportion of elderly population is an additional dependent population along with child population, which needs to be protected as it is an obligation of the younger generation and for moral support. This paper tries to examine the changing age structure and elderly population at global and regional levels in general and India and the United States of America in particular. The results reveal that globally, there has been a decrease of child population (0-14 years) from 34.9% to 25.5%, an increase of working and elderly populations from 60% to 64.9% and from 5.1% to 9.6% respectively. The proportion of elderly population has shown more increase (88.2%) as compared to the working population (8.2%) during 1951-2021. The proportion of elderly population and its change have been pronounced in more developed regions and high-income countries. The increase of life expectancy due to decline of mortality among the elderly has been attributed as the main reason.

Introduction

The study of age structure is an important aspect of population research as it has significant impact on population size and other socioeconomic and health conditions. Population ageing is now recognized as a global issue of increasing importance and has many implications for health care and other areas of social policy. However, these issues remain relatively under-researched, particularly in poorer countries, and there is a dearth of specific policy initiatives at the international level. For example, the 1994 International Conference on Population and Development agreed to 15 key principles for future policy, but none of these even make indirect mention of the aged (International Conference on Population and Development, 1995, Documents). Programme of action of the 1994 International Conference on Population and Development (Lloyd-Sherlock, 2000). The world population is experiencing a historical shift from the mostly young age structures of the past, towards larger proportions of middle-aged and older persons in the present and future decades, and this shift is driven by the demographic transition from high to lower levels of both fertility and mortality. The world population continues to grow older rapidly as fertility rates have fallen to very low levels in most world regions and people tend to live longer. As there is a limited number of studies on population ageing in a comparative manner, this paper tries to examine the changing age structure, elderly population, and possible reasons for changes at global and regional levels in general and in India and the United States of America in particular, being developing and developed countries for a comparative purpose.

Literature review:

Globally, there is a considerable increase in the proportion of elderly population including in the developing countries like India. People worldwide are living longer. Today most people can expect to live into their sixties and beyond. Every country in the world is experiencing growth in both the size and the proportion of older persons in the population. By 2030, 1 in 6 people in the world will be aged 60 years or over. At this time the share of the population aged 60 years and over will increase from 1 billion in 2020 to 1.4 billion. By 2050, the world's population of people aged 60 years and older will double (2.1 billion). The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million. While this shift in distribution of a country's population towards older ages - known as population ageing started in high-income countries (for example in Japan 30% of the

population is already over 60 years old), it is now low- and middle-income countries that are experiencing the greatest change. By 2050, two-thirds of the world's population over 60 years will live in low- and middle-income countries (WHO, 2022). According to the Central Intelligence Agency (2021), the top 10 world countries in the proportion of child population are Niger, Uganda, Angola, Mali, Chad, Democratic Republic of the Congo, Malawi, Zambia, Mozambique and Benin ranging from a high to low of 50.58% to 45.56%; bottom 10 countries are South Korea, Taiwan, Japan, Singapore, Hong Kong, Qatar, Germany, Bosnia & Herzegovina, Macau, and Italy ranging from 12.02% to 13.45%; top 10 countries in the working population (15-64 years) are Qatar, United Arab Emirates, Bahrain, Singapore, Azerbaijan, Macau, Maldives, Seychelles, Kuwait, and Taiwan ranging from a high of 85.97% to a low of 71.86%; bottom 10 countries are Afghanistan, Albania, Algeria, Angola, Antique & Barbuda, Argentina, Armenia, Aruba, Australia, and Austria ranging from 56.7% to 66.2%; and the top 10 countries in the proportion of elderly population (65+ years) are Japan, Germany, Greece, Finland, Italy, Puerto Rico, Malta, Slovenia, Croatia, and Estonia ranging from a high of 29.14% to a low of 21%; and the bottom 10 countries are Qatar, UAE, Somalia, Zambia, Angola, Uganda, Benin, Chad, Democratic Republic of the Congo, and South Sudan ranging from 1.19% to 2.53%.

Population of the elderly in India has been increasing steadily since 1961 as it touched 13.8 crore in 2021, growing faster due to decrease in death rate, according to a study by National Statistical Office (NSO). As per the study the population of elderly India had been increasing steadily since 1961. During 2011 to 2021, the general population has increased by 12.4 per cent while the elderly population has risen by 35.8 per cent. Age-wise distribution of population exhibits that there is an increasing trend in the proportion of population belonging to the age group 60 years and above from 7.4 per cent in 2001 to the projection of 13.2 per cent in 2031. It has projected that while the general population in the country will rise by 8.4 per cent during 2021 to 2031, the population of elderly in India will grow by 40.5 per cent. The growth in the elderly population became faster mainly due to decrease in the death rate because of various health interventions after the Census 1981 (Economic Times, 2021).

Life expectancy in India has increased by more than 10 years in the past two decades, while globally children born in 2015 were expected on an average to live till 71.4 years, a new UN report revealed. The increase in life

expectancy over the years has resulted in an increase in the population of the elderly (Forum IAS, 2017).

The young-old show strong performance in attention, memory, and crystallized intelligence. In fact, those identified as young-old are more like those in midlife than those who are 85 and older. This group is less likely to require long-term care, to be dependent or poor, and more likely to be married, working for pleasure rather than income, and living independently. Chronic diseases, such as cardiovascular disease, hypertension, and cancer, are among the most common (especially later in this period), but because they are linked to lifestyle choices, they typically can be prevented, lessoned, or managed (Barnes, 2011). Overall, those in this age period feel a sense of happiness and emotional well-being that is better than at any other period of adulthood (Carstensen, Fung, & Charles, 2003).

The increase of elderly population results into various health problems of the elderly. Geriatric care has never been given due importance in the medical curriculum. Most medical students have no formal training in this field of medicine. Even the paramedical staff and nursing staff are not taught about elderly care. There are very few medical institutions in the country that impart specialized education for graduates in Geriatric

Medicine. Most of the care is imparted through private hospitals, home care organizations, nursing homes and NGOs. Dr Charu Dutt Arora, Consultant Physician and Infectious Disease Specialist, Head AmeriHealth, Asian Hospital says, "During my postgraduate training in the USA, I found a remarkable difference in how elder care is imparted. Our 80+-year-old patients used to have an amazing social life. Their health issues were holistically tackled by medical doctors, nursing staff, social workers, nutritionists, and behavioral therapists. Here, we are trying to bring a similar style of care through AmeriHealth for such patients at their homes" (Bidhuri, 2022).

The reasons for high proportion of child population as compared to as that of working population and elderly population attributed are low level of education, lack of knowledge about family planning, cultural influence and religious belief, early age at marriage, and gender preference. For example, Nigeria is a country overpopulated and having more proportion of child population. A study (Kolub, 2018) reveals that low level of education in family planning and increased birth rate in Nigeria are linked. Even at present one may observe great number of illiterates and those who continue to follow the customs of their ancestors. They have almost no knowledge about family planning. People get their

children married at the very early age, as a tribute to the traditions. In some areas to have many children is a part of tradition. In the world of modern technologies, one can still find tribes, whose cultural feature is lots of children. One will be surprised to know that many cultures in Nigeria appreciate male babies rather than female ones. If a female baby is born into a family, the couple continues attempts until they get a male child (Kolub, 2018).

The increase of elderly population is caused by falling mortality rates most notably among people over 65, are leading to the increase in the number of older people in the population; and low fertility rates - low fertility rates mean that there are fewer young people entering the population. In the UK, the mortality rate of women in their early 80s declined from about 120 per thousand in the 1950s to 75 by the 1990s and fell from around 160 to 125 per thousand men in the same period. There are reasons for this development, such as better lifestyles, advancements in medicine, the availability of better healthcare and improvements to the environments people work in (Klusener, 2019).

Objectives

The major objectives of this study are: (1) to study the levels, trends and change of child, working and elderly populations among geographical regions; more developed and least developed countries; high income, middle income, and low-income countries, India, and the United States of America during 1951-2021; and (2) to understand the possible reasons for changes in the respective populations.

Data and Method

This paper uses the data from World Population Prospects 2022 by United Nations, Population Division, United Nations Department of Economic and Social Affairs during 1951-2021. The variables used in this study are: (1) percentage of child population (0-14 years), (2) percentage of working population (15-64 years); (3) percentage of elderly population (65+ years) during 1951, 1961, 1971, 1981, 1991, 2001, 2011, 2021; and (4) percentage change of child, working and elderly populations during 1951-2021. The reasons for high and low levels, and increase, and decrease in the proportions of child, working and elderly populations have been collected from various relevant literatures to support the quantitative results. Bivariate analysis was carried out to realize the objectives of the study.

Results and Discussion

Child population

The percentage of global child population to the global total population was 25.5% in 2021. It was

highest in Africa (40.3%) followed by Asia (23.5 %), Oceania (23.1%), Northern America (18%), and Europe (15.8%) in 2021 among the geographical regions of the world. It was higher in least-developed countries (39%), low-income countries (42.1%), India (25.7%) as compared to moredeveloped countries (16.1%), higherincome countries (16.2%), and the USA(18.2%). The percentage of global child population decreased from 34.9% in 1951 through all the succeeding decades 1961, 1971, 1981, 1991, 2001, 2011 in the world, and it shows the same pattern of decrease in all the geographical regions, across developed and other countries and across various income level countries of the world, USA and India (Fig. 1a, 1b, and 1c).

The percentage change of global child population during 1951-2021 was 26.6%. It has been pronounced in Latin America and Caribbean (42.9%) followed by Europe (39.9%), Asia (37%), Northern America (35%), Oceania (24%) and Africa (3.1%) among the geographical regions of the world, and highest in more-developed countries (41.5%), high-income countries (42.3%), the USA (33.6%) as compared to least-developed countries (5.8%), low-income countries (0.7%) and India (32.5%) (Fig. 4a).

Working population

The percentage of global working population (15-64 years) to the global

total population was 64.9% in 2021, an increase from 60% in 1951. It was highest in Latin America & Caribbean (67.5%) followed by Asia (67.1 %), Northern America (65.1%), Europe (64.8%), Oceania (64.2%), and Africa (56.2%) among the world geographic regions (Fig. 2a). It was higher in more developed-countries (64.3%), middleincome countries (66.1%), and India (67.5%) as compared to leastdeveloped countries, higher-income countries, lower-income countries, and the USA (Fig. 2b and Fig. 2c). There is an increase of 0.9% - 3.2% in world and the geographical regions, except Africa and Latin America and Caribbean, where an increase is shown (0.9% and 1.8% respectively) during 2011-2021.

The percentage change of global working population was 8.2% during the past 70 years (1951-2021). It was more among Latin America and Caribbean (21.6%) followed by Asia (14.5%), Oceania (2.9%), Africa (2%), Northern America (1.6%). But Europe showed a decrease of 1.4% during this period. It was higher in least-developed countries (3.8%), middle income countries (12.4%), and India (14.8%) as compared to more-income countries (a decrease of 0.8%), higher-income countries, lower-income countries, and the USA (1.2%) (Fig. 4b).

Elderly population

The percentage of global elderly population (65+ years) to the global

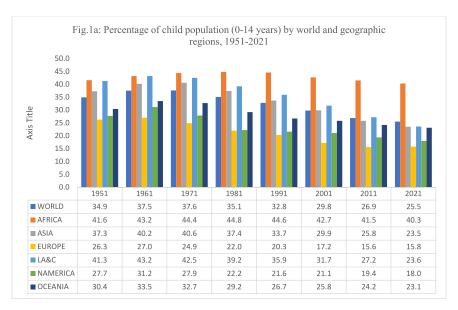
total population was 9.6% in 2021, an increase from 5.1% in 1951. It was highest in Europe (19.4%) followed by Northern America (16.9%), Asia (9.4%), Latin America & Caribbean (9%), Oceania (12.7%), Asia (9.4%), and Africa (3.5%) (Fig. 3a). There is a gradual and significant increase of elderly population in world and geographical regions. It was higher in more-developed countries (19.6%), high-income countries (18.9%), and the USA (16.7%) as compared to leastdeveloped countries (3.6%), middleincome countries (8.5%), low-income countries (3.1%), and India (6.8%)(Fig. 3b and 3c).

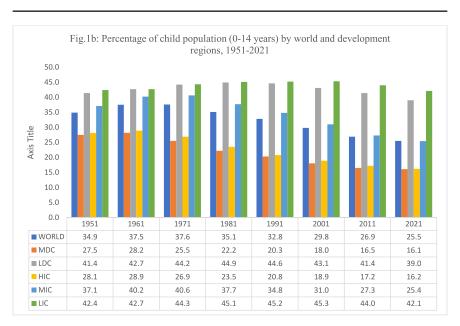
The percentage increase of global elderly population was 88.2% during the past 70 years (1951-2021). It was more in Latin America and Caribbean (179.6%) followed by Europe (142.5%), Asia (129.1%), Northern America (103.7%), Oceania (76.8%), and Africa (5.3 %) among the geographic regions of the world. It was higher in more-developed countries (154.5%), higher income countries (139.2%), and India (118.3%) as compared to least-developed countries (9.1%), middle-income countries (107.3%), and low-income countries (-3.1%), and the USA (100.3%) (Fig. 4c).

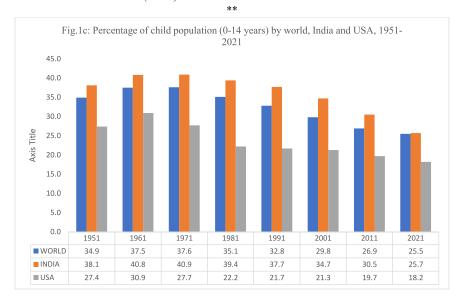
Conclusion

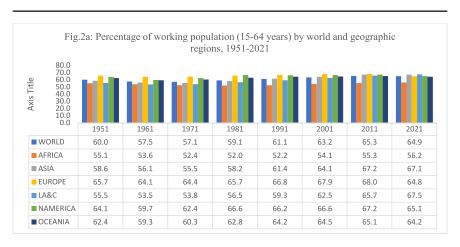
As there has been an increase in the elderly population, there is a decrease in the child population and working population across the world. The percentage of global child population was more than a quarter in 2021, a decrease of 27% from 34.9% in 1951. It was highest in Africa and lowest in Europe among the geographic regions, higher in least-developed countries, low-income countries, and it was more in India as compared to their counterparts and the USA. Its percentage change was more in Latin America and Caribbean and lowest in Africa, higher in the more-developed countries, high-income countries, and the USA as compared to their counter parts and India. The percentage of global working population (15-64 years) to the global total population was more than two-thirds in 2021, an increase of 8.2% from 60% in 1951. It was highest in Latin America & Caribbean and lowest in Africa among the world geographic regions. It was higher in more developed-countries, middle-income countries and India as compared to their counterparts and the USA. There is an increase of working population in the world and geographical regions, except Africa and Latin America and Caribbean, where an increase is shown during 2011-2021. The percentage increase of global working population was 8.2% during the past 70 years (1951-2021), and it was highest in Latin America and Caribbean, except Europe, which showed a decrease during this period. It was higher in least-developed countries, middle income countries,

and India as compared to their counterparts and the USA. The percentage of global elderly population (65+ years) to the global total population was 9.6% in 2021, an increase of 88.2% from 5.1% in 1951. It was highest in Europe and lowest in Africa. It was higher in moredeveloped countries, high-income countries, and the USA. The percentage increase of global elderly population was 88.2% during 1951-2021. It was highest in Latin America and Caribbean and lowest in Africa, and in more-developed countries, higher- income countries, and India. The reasons for increase in the proportion of elderly population are attributed to increase in the life expectancy at birth due to medical advancement in the more developed regions, and income countries like USA. It is attributable to high proportion of child population are low level of education, lack or insufficient level of knowledge in family planning, low age at marriage, and gender preference in the least developed region, low income countries like Nigeria. The developing countries including India need to pay attention to the challenges of health problems of the elderly population.

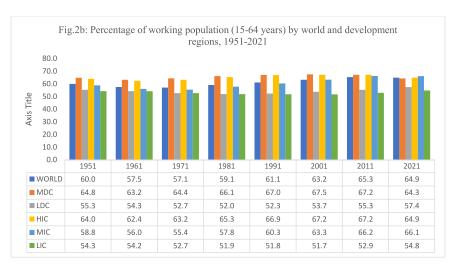


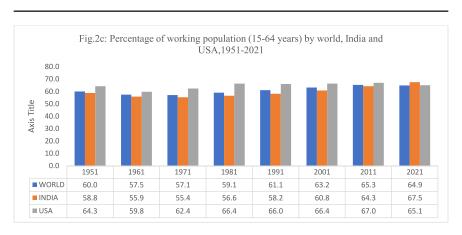




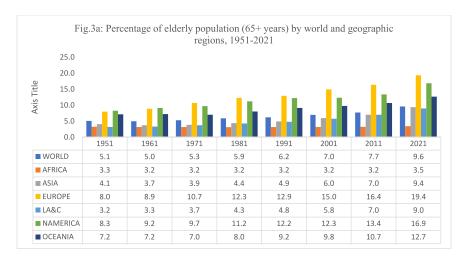


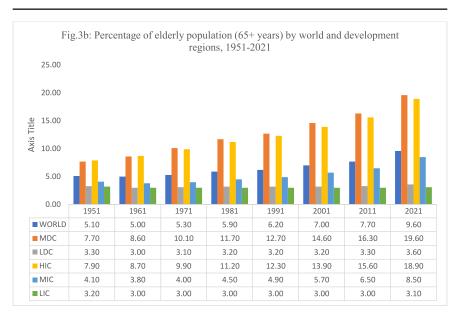
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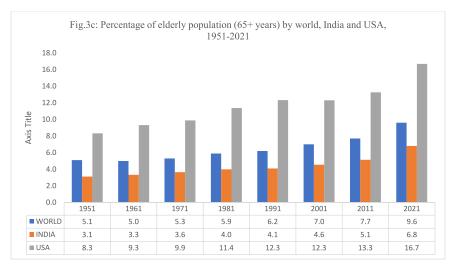


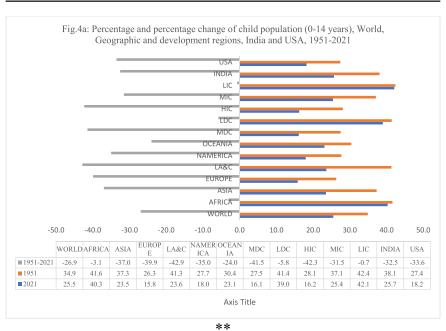
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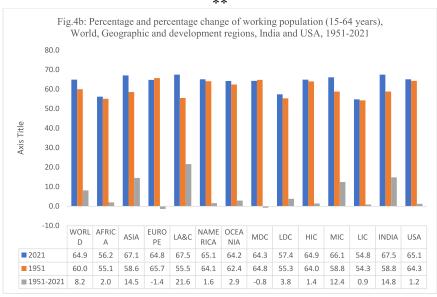


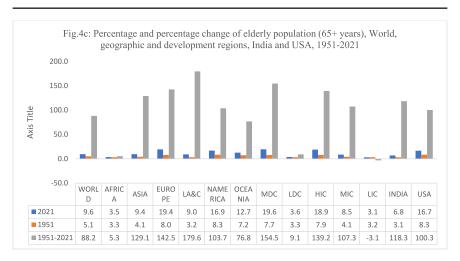


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References

- 1. Barnes, Marian. (2011). Abandoning care? A critical perspective on personalization from an ethic of care. Ethics and social welfare, 5 (2): 153-167.
- Bidhuri, Arushi. (2022). Geriatric Problems At An Increase In India; Common Age-Related Diseases That Need Immediate Attention.
 https://www.thehealthsite.com/diseases-conditions/geriatric-problems-at-an-increase-in-india-common-age-related-diseases-that-need-immediate-attention-868578> 10 January 2023.
- Carstensen, et. al. (2003).
 Socioemotional Selectivity
 Theory and the Regulation of

- Emotion in the Second Half of Life. Motivation and Emotion, 27, 103-123.
- 4. Central Intelligence Agency (CIA). 2021. CIA World Factbook 2020-2021. New York: CIA.
- 5. Economic Times. (2021). Lower death rate pushes elderly population growth to 13.8 cr in 2021: Study. The Economic Times, 15 August.
- 6. Forum IAS. (2017). Increasing old age population of India. 16 S e p t e m b e r https://blog.forumias.com/indias-population-greying-likely-to-increase-to-18-4-pc-by-2025> 10 January 2023.

- 7. Klusener, Edgar. (2019). Growing older- the impact of an ageing population on society. https://sites.manchester.ac.uk/global-social-challenges/2019/06/growing-older-the-impact-of-an-ageing-population-on-society> 10 January 2023.
- 8. Population Reference Bureau. (2011). World population data sheet 2011. Washington, DC.: Population Reference Bureau. <a href="https://www.prb.org/wp-thtps://

- content/uploads/2011/07/wpds-2011-population-data-sheet eng.pdf>10 January 2023.
- United Nations. 2022. World Population Ageing: 1950-2050. New York: UN Population Division.
- 10. WHO. (2022). Ageing and health. https://www.who.int/news-room/fact-sheets/detail/ageing-and-healt 10 January 2023.

APPENDIX- TABLE

			d the USA		I	
Year	Child Population	Working Population		Elderly		Total
-		Population	Vauna Old	population Oldest Old	Centenarians	-
-	0-14	15-64	Young Old 65-84	85-99	100+	-
	WORLD	13-04	03-64	63-99	100+	
1951		1 526 196	124 573	5 073	16	2.542.42
1961	887 273		148 336	6 151	16	2 543 13
1971	1 149 244	1 764 618	192 943	8 557	21	3 068 37
1981	1 417 150	2 151 483	252 181	12 991	29	3 770 16
1991	1 587 464	2 671 938	312 713	20 640	53	4 524 62
2001	1 770 592	3 302 194		30 374	107	5 406 24
	1 859 114	3 937 228	403 850		180	6 230 74
2011	1 903 772	4 621 872	501 333	45 820	330	7 073 12
2021	2 015 023	5 132 999	692 916	67 764	593	7 909 29
1051	MDC		60.340	2.604		
1951	224 138	528 207	60 318	2 691	10	815 365
1961	258 745	579 548	75 151	3 986	16	917 446
1971	256 817	649 611	95 786	5 792	24	1 008 02
1981	240 452	716 174	118 564	8 257	39	1 083 48
1991	233 159	768 789	133 523	12 580	74	1 148 12
2001	214 377	805 335	156 374	17 475	118	1 193 67
2011	204 445	834 280	177 321	24 385	230	1 240 66
2021	205 847	820 420	216 284	33 178	388	1 276 11
	LDC					
1951	83 345	111 211	6 423	139	0	201 119
1961	106 613	135 724	7 378	180	0	249 896
1971	141 554	169 022	9 647	223	0	320 44
1981	183 063	212 045	12 712	333	1	408 15
1991	234 597	275 221	16 204	512	1	526 53
2001	292 193	364 363	20 745	793	2	678 09
2011	357 819	477 839	27 295	1 178	4	864 13
2021	428 572	631 133	38 217	1 643	4	1 099 56
	HIC					
1951	195 545	444 616	52 520	2 304	8	694 99
1961	227 453	490 668	65 309	3 388	9	786 82
1971	236 264	555 774	82 108	4 954	16	879 110
1981	225 588	627 160	100 625	7 260	32	960 66
1991	215 552	692 098	115 964	11 251	66	1 034 93
2001	209 594	744 052	137 522	16 192	118	1 107 47
2011	204 358	798 251	162 055	23 380	237	1 188 28
2021	202 119	808 061	202 925	32 058	404	1 245 56
	MIC	000 001			101	121000
1951	638 571	1 013 855	68 173	2 667	8	1 723 27
1961	855 510	1 190 564	78 523	2 645	12	2 127 25
1971	1 092 395	1 490 796	105 106	3 452	12	2 691 76
1981	1 246 918	1 911 217	144 074	5 516	20	3 307 74
1991	1 406 798	2 437 370	186 959	9 062	39	4 040 22
2001			253 367	13 704	61	4 686 47
2011	1 454 426	2 964 912	321 634	21 707		
2021	1 448 325 1 502 483	3 513 182 3 913 142	466 129	34 680	90 187	5 304 93 5 916 62

Table 1	: Child population, workin			nd total populat	ion, World, Region	ons, India,
Year	Child Population	and the USA Working Population		Elderly population		Total
		•	Young Old	Oldest Old	Centenarians	
	0-14	15-64	65-84	85-99	100+	
	LDC					
1951	50 522	64 683	3 750	97	0	119 053
1961	62 268	79 041	4 311	112	0	145 732
1971	83 124	98 741	5 422	141	0	187 427
1981	108 471	124 723	6 989	196	0	240 379
1991	140 519	160 780	9 007	293	1	310 600
2001	186 642	212 692	11 802	424	2	411 562
2011	242 311	291 334	16 010	641	3	550 300
2021	302 322	393 438	21 588	905	3	718 255
	AFRICA					
1951	96 731	128 095	7 449	208	1	232 484
1961	125 895	156 060	8 967	255	0	291 178
1971	166 590	196 602	11 550	344	1	375 086
1981	222 193	257 828	15 152	482	1	495 655
1991	292 188	342 142	19 978	731	2	655 040
2001	358 335	454 121	25 947	1 057	4	839 464
2011	448 957	598 775	33 365	1 572	7	1 082 676
2021	562 331	782 982	46 172	2 178	13	1 393 676
	ASIA					
1951	523 937	824 114	55 533	2 056	4	1 405 644
1961	693 373	968 324	62 372	1 826	3	1 725 899
1971	892 223	1 218 992	82 534	2 316	4	2 196 068
1981	1 004 390	1 566 013	114 014	4 053	10	2 688 480
1991	1 102 082	2 007 081	153 338	7 328	24	3 269 853
2001	1 133 079	2 427 038	213 686	12 319	58	3 786 180
2011	1 100 503	2 870 130	277 986	20 867	138	4 269 624
2021	1 102 414	3 151 498	405 883	34 500	281	4 694 576
	EUROPE	0 101 400			201	7 007 070
1951	145 718	364 551	42 425	1 861	5	554 560
1961	165 463	391 926	51 641	2 670	11	611 711
1971	164 312	425 531	66 796	3 823	14	660 476
1981	153 075	457 630	80 588	5 116	20	696 429
1991	146 737	483 235	85 801	7 797	33	723 603
2001	124 852	493 337	98 412	10 229	49	726 878
2011	114 884	501 743	107 323	13 544	95	737 590
2021	117 939	482 908	125 595	18 583	148	745 174
	LA & CARIBEAN	702 300	123333	10 303	140	173114
1951	71 381	95 845	5 298	257	2	172 783
1961	97 502	120 914	7 217	293	2	225 927
1971	124 718	157 961	10 500	428	2	293 609
1981	145 291	209 062	15 052	805	5	370 214
1991	161 952	267 159	20 436	1 280	13	450 840
2001	161 952	331 351	28 449	2 057	25	529 913
2011			38 573	3 344		
2021	162 651 154 557	392 581 442 550	54 242	4 706	30 43	597 180 656 098

x 7	61.11.15		d the USA	T1 1 1		m
Year	Child Population	Working		Elderly		Total
-		Population	Young Old	population Oldest Old	Centenarians	-
-	0-14	15-64	65-84	85-99	100+	
	NORTHERN	13-64	65-84	85-99	100+	
	AMERICA					
1951	45 575	105 537	12 987	646	4	164 750
1961	61 582	117 779	17 031	1 046	5	197 442
1971	62 756	140 334	20 246	1 557	8	224 901
1981	55 726	166 793	25 636	2 409	17	250 581
1991	60 374	185 114	30 858	3 317	34	279 696
2001	66 644	210 939	34 568	4 404	42	316 598
2011	67 630	234 089	40 542	6 008	57	348 326
2021	67 504	244 482	56 048	7 144	101	375 279
2021	OCEANIA	244 402	30 040	7 144	101	313218
1951	3 931	8 055	881	44	0	12 910
1961	5 427	9 616	1 108	62	0	16 213
1971	6 551	12 065	1 317	91	0	20 023
1981	6 789	14 613	1 738	128	1	23 268
1991	7 260	17 464	2 302	187	1	27 214
2001	8 173	20 442	2 78 9	309	2	31 715
2011	9 146	24 553	3 544	484	3	37 730
2021	10 278	28 579	4 976	652	8	44 492
	INDIA	20010				11102
1951	138 887	214 664	11 003	367	1	364 922
1961	186 176	254 983	14 791	401	0	456 352
1971	233 206	315 989	20 309	495	0	569 999
1981	280 757	403 631	27 480	999	2	712 869
1991	335 505	516 954	35 000	1 477	5	888 942
2001	374 160	655 697	46 744	2 360	10	1 078 97
2011	384 000	809 037	61 212	3 358	15	1 257 62
2021	361 569	950 246	89 914	5 796	39	1 407 56
	USA					
1951	41 279	96 781	11 943	592	4	150 598
1961	55 359	107 054	15 708	962	5	179 087
1971	56 305	126 557	18 617	1 421	8	202 908
1981	50 157	149 814	23 452	2 215	16	225 654
1991	54 548	166 003	27 938	3 040	31	251 560
2001	60 763	189 603	31 070	3 996	39	285 470
2011	61 971	210 253	36 224	5 377	51	313 877
2021	61 479	219 312	49 835	6 283	90	336 998



The Impact of Green Space along the Transportation Corridor to Mitigate Noise Pollution

Ashmili Pramod Jadhay

Abstract:

A number of studies conducted throughout the world have identified an increase in the occurrence of adverse health effects for the population residing, working or going to school near major roadways. The use of conventional high cost highway noise abatement method similar to free standing walls have made the mitigation of many impacted sites economically unfeasible. A solution which may prove to be more economically reasonable for such sites is the use of strategically planted evergreen vegetation to form a dense barrier between the impacted area and the highway. The purpose of this research is to determine how varying planting intensities of roadside vegetation (green infrastructure) affect the reduction of road traffic noise. The vegetation along the roadside is monitored, ranging from minimum planting to moderate and dense plantings. The results showed that

when vegetation is increased from a minimal to a moderate planting intensity, traffic noise is reduced by 50%, and there is no further improvement in noise reduction as vegetation is extended to a dense intensity. It has been observed that a specific depth of vegetation barrier is capable of lowering traffic noise. The paper aims to look at the effectiveness of setbacks, determining that the wider the setback distance, the finer the noise reduction, and that a particular depth should be determined as the threshold for an efficient tree belt.

Keywords: Green infrastructure, Noise pollution, noise abatement methods, vegetative barrier.

1 Introduction

There has been a consistent increase in traffic noise in recent years, with the increase in urban and suburban populations which has caused hearing problems among the citizens. Noise pollution in cities around the world is primarily caused by traffic emissions. (Abhijith et al 2017). Managing and controlling noise pollution proves out to be very costly as well as a tedious process by the conventional abatement measures (Harris and Cohn 1985). Applying green infrastructure approaches to the urban fabric has been proposed as a possible urban planning strategy for addressing noise pollution and strengthening city sustainability for ever-increasing urban populations. (Abhijith et al 2017). The major goal of this research is to find a long-term solution for minimizing urban noise utilising vegetation, developing traffic noise reduction strategies and verifying such strategies through in-situ tests. By comparing the researches relating to use of green infrastructure in the urban planning and transport academic field, this paper comprehensively presents the pollution scenario of different cities and the sustainable methods with which the pollution can be curbed.

2 Need of Study

Green infrastructure in urban centres has been advocated as one of the cures to urban noise pollution. The pollution caused by noise and emissions from vehicles should be reduced for a sustainable environment. A solution that may prove more economically reasonable for these sites is the use of strategically planted evergreen vegetation to form a dense barrier between the highway and impacted area. Planners can incorporate such a noise control feature directly into landscaping schemes and thereby reduce noise problems, while enabling significant saving in expenditure as compared to constructing free-standing barriers (Harris and Cohn 1985). Also, the aesthetic value of this solution is quite obvious as trees prove to be the ever attractive feature of the urban design.

3 Noise and its measurements

For the aim of delivering noise guidelines for different sections, the State Government has split the region into industrial, commercial, residential, and silence sectors/zones. Sound levels in any region or zone must not exceed the noise levels stipulated in the schedule for ambient air quality.

Table 1: Permissible Noise Levels in different zones

Area	Category of	Limits in dB (A) Leq			
Code	Area/Zone	Day Time	Night Time		
A	Industrial Area	75	70		
В	Commercial Area	65	55		
С	Residential Area	55	45		
D	Silence Zone	50	40		

Source: Central Pollution Control **Board**

3.1 Physical techniques to reduce noise impacts

In between noise source and noisesensitive zones, noise barriers can be installed. A noise barrier is a physical barrier that stands between the noise source and the receiver, interrupting the noise path. Such barriers can be made out of different substances:

- sloping mounds of earth, called berms
- walls and fences which are made of various materials including concrete, wood, metal, plastic, and stucco
- regions of dense plantings of shrubs and trees
- combinations of the above techniques

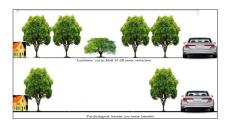
Barrier walls, on the other hand, have proven to be quite costly as a noise abatement method.

3.2 Plantings:

A barrier made out of specified evergreen foliage is a logical option. The amount of noise attenuation provided by vegetation is determined by the height of the trees and the width of the vegetation belt. FHWA (Federal Highway Administration, U.S. Department of Transportation) demonstrated that Installing 61 m (200

ft.) of dense foliage can reduce noise by about 10 decibels (Harris and Cohn 1985). When the vegetation belt is situated relatively close to a noise source or the region to be protected, it is much more effective. When it is placed halfway between the source and the receiver, it's less efficient. Because vegetation must mature for several years to be effective, the FHWA does not consider it an effective noise abatement tool. Nonetheless, the Federal Highway Administration (FHWA) continues to promote planting trees along highways since it has positive psychological influences on society in addition to being good for the environment. In addition to the acoustic effects of vegetation many studies have shown that the visual aspects of vegetation affect soundscape perception significantly (Hong and Jeon 2013).

Figure 1: Noise effectiveness and psychological effects of vegetation



Through the literature review and additional measurement data, it can be concluded that a relatively narrow expanse of dense evergreen foliage can reduce noise levels created by highway traffic by a significant amount. While the 2 to 3 dB deductions obtained in this study are not dramatic but they are substantial when considered in conjunction with the psychological effects of shielding the highway from view (Harris and Cohn 1985). It is reasonable to assume that with a properly planted and maintained shrub system, an additional reduction in noise levels would result.

It is recommended that:

- Individual plants be properly spaced so they will have sufficient room to develop into mature shrubs before being pruned and trimmed to form a dense hedge;
- ii. Proper row spacing to be maintained so that no two rows are allowed to grow together.

The magnitude of the effect is also determined by the amount of foliage and the concentration of the vegetation. The denser the vegetation, the less abatement is detected.

3.3 Impact of green infrastructure on noise quality in street canyons:

The depth of the vegetation barrier has a linear relationship with noise absorption. Many classic noise-reducing methods cannot be used in a congested urban environment due to safety and visual limits, or because they are ineffective. Noise barriers with a

low height are appropriate for urban roads. Sound pressure levels along pathways have been demonstrated to be reduced by using vegetation thick (0.64 m) and low (0.96 m) barriers. Noise abatement is severely minimal along the building façades that front the street canyon. On average, a 5 dBA noise reduction is seen along the pathways in the best case scenario, which consists of three inter-lane barriers (relative to the absence of such small barriers). Here, traffic is assumed to be equally distributed.

Green-façade systems are the only building envelope greening measure that could be significant to reduce noise in streets and squares where there is no geometrical shielding between (part of) the noise source(s) and the receiver positions. Planting climbing plants up and across the facade of a building, either in garden beds at the base or in containers positioned at different levels across the building, creates a green facade. The averaged reduction in noise was determined to be 2.5 dBA when all of the façade's brickwork components (acoustically harder brickwork) bordering a 19.2-m wide street were covered with a green façade material.

3.4 Effect of green infrastructure on noise quality in open roads:

The distance between road traffic noise shielding (in dBA) and the depth of the tree belt has a linear relationship (which is orthogonal to the road). On the premise that the tree belt is correctly planned, computational results show that even a narrow tree belt can be reasonably successful in lowering road traffic noise. To achieve significant road traffic noise reduction, high-biomass density should be targeted in a tree belt that is adjacent to the biological limitations.

Tree belts that are contiguous and thick actively isolate the air below and above the canopy. —. Because pollutants are accumulated on the vegetation as it percolates through the canopy, the air below the canopy will always be clearer than the air above it.

Figure 2 shows the flow of air around dense crowns and how it causes relatively lower ground level pollutant concentrations. Larger stretches of trees along the roads reduce nocturnal temperature inversion occurrences, which would otherwise result in much higher noise levels during the noise sensitive period of the night. During the day, there is a negative atmospheric effect.

3.5 The negative effect of green infrastructure:

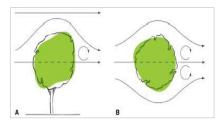
Depending on the urban and vegetation characteristics, green infrastructure has both positive and negative effects on air quality at street levels. – . In a street canyon

environment, high-level vegetation canopies i.e. trees led to deterioration in air quality.

Trees can limit wind speed in a street canyon, resulting in less air exchange between the air above the roof and the air within the canyon, resulting in a build-up of pollutants within the canyon. It increases the amount of polluted air that individuals are exposed to. Also, trees if planted in street canyons can cause rattling of leaves and increase noise level considerably—.

Therefore, scenario analysis should be done before designing the green infrastructure for any street or road.

Figure 2: Flow of Air around the Tree Canopy



3.6 Category of road and extent of pollution along them:

Pollution varies with the density of an area, the type of noise created and the extent of noise created. Noise disturbs 66 percent of inhabitants in high-traffic areas, while just 33 percent of residents in low-traffic areas believe automobile traffic to be completely unpleasant. Parking near residential buildings and a lack of parking spaces were deemed to be a source of discomfort by 41 percent of the population (Istrate et al 2014).

Four case-studies as follows are presented taking into account the road technical categories:

1. Urban highway with an admissible noise level of 85 dB:

The parameters were measured during the day to assess traffic noise levels in residential areas. The readings for Leg at the measurement position are 80.6 dB (A), which is below the limit. However, even if the noise level is within the 85 dB (A) threshold, it might have an impact on acoustic comfort in residential areas. At the measurement time, the close residential area was unprotected against the noise where the reading came out to be Leq = 75.7 dB (A)instead of 50dB (A) or less, as required for residential (Kim et al 2019) (Istrate et al 2014). As a result, it is advised that some steps be taken in this region to reduce the noise level to a level that is suitable for residential use.

2. Reconnection road with an admissible noise level of 70 dB:

Here the admissible limit is 70 dB (A). This road is influenced by commercial activities.

There is a negative effect on close residential area.

3. Collecting road with an admissible noise level of 65 dB:

As can be seen, the measurements resulted in a Leq = 67.9 dB. (A). Because of a value of Leq = 47.8 dB, the nearby residential neighbourhood used as a reference does not require any specific efforts to minimise noise levels (A).

4. Local road with an admissible noise level of 60 dB:

Any noise source can have a large impact on the Leq value in this case. The top limit, according to the standard STAS 10009-88 – Urban Acoustics, is Leq = 60dB (A). The criticalities that occur in a nearby residential area indicate that the limit has been somewhat exceeded.

All of these measurements were taken within the boundaries of a residential area. As a result, we may establish that road noise is still the most significant source of noise for the environment, followed by industrial and residential noise. Hence, to check this ever-increasing pollution level there is a crucial demand for abatement techniques for preventing further deterioration.

Case Study:

A study was conducted along the BRTS route in Surat city to investigate the

influence of roadside vegetation on the decrease of road traffic noise at various planting intensities. To study the effect, a simulation was created by comparing two areas having similar land use characteristics, similar average traffic flow, similar vegetation type and climatic conditions. This research examined sites with varied planting intensities along roadways with similar vehicle characteristics. The 3D simulation space used in this study (Van Renterghem et al 2012) is a simplified approach for modelling sound propagation in two orthogonal planes.

Descriptions of the test sites are shown in table below:

Locations selected along Surat BRTS route having same traffic flow have been modelled for the planting schemes of following type:

- a. Minimal planting (which is used as reference) to measure the unobstructed noise level where vegetation is minimal to nothing (Bhatar Char Rasta)
- Sparse to medium planting (Veer Narmad Convention Hall), as well
- c. Dense Planting (Someshwar Junction)

Table 2: Description of test sites

Site	Description of the Site location				
Highway (With Vegetation)	Open field; a thin screen of ornamental shrubs as high as				
i. Sparse to medium	car roofs with some ornamental trees rising above it.				
planting	Open field deep belt of mature trees. Cover at vehicle				
ii. Dense Planting	height provided mainly by thick tree trunks.				
Highway (Without Vegetation)	Open, recreational ground with housing/ industrial				
	estate, minimal screening by small shrubs.				

Figure 3 : Examples of sparse to medium (left), and dense (right) roadside vegetation





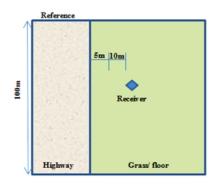
Figure 4: Example of Minimal or no Vegetation type

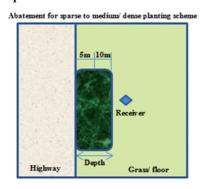


Readings required are taken with the help of instrument named 'KIMO-LDB23' on which the Leq was measured. Leq is the parameter for monitoring sound level at various setback distances and at the source. At a height of 1.5 metres above the ground, receivers are placed from the source to a distance of 5 m and 10 m from the highway's border. The Aweighted Leq, Lmax, and L10 sound

pressure levels are calculated using noise level descriptors. At each receiving point, the instrument is monitored for 15 minutes. The average flow of traffic (per minute) is also taken into account, and traffic is assumed to be free-flowing at 70 km/h (average mean noise level generated by traffic across vegetation intensities and setback distances).

Figure 5: Examples of reference and abatement experimental set ups for numerical predictions





The recordings included are for setbacks at the source, as well as 5m and 10m from the source. The goal of this research is to determine the best planting pattern for noise reduction as well as the appropriate depth of the vegetative belt. Regardless of the vehicle type, these readings are consistent. The higher the setback distance, in combination with data on all vehicle kinds, the lower the degree of noise pollution.

4 Results:

The table below shows a comparison of noise measurements from various planting strategies. There was also a per-minute average rate of traffic flow shown. The results represent the average noise measurements taken at each location. The traffic statistics in the table indicates that the rate of traffic flow was pretty consistent across multiple

sites over the measurement periods. This made it a lot easier to compare the impact of noise abatement with different vegetation intensities. The readings taken are irrespective of the vehicle type (LMV, trucks, etc.)

The higher the setback distance, the lower the degree of noise pollution was proven using data from all vehicle kinds. The total reduction in noise levels with increasing distance from the source is 1.3 dBA with minimum planting (which is regarded as the reference).

However, as the vegetation intensity varies from sparse to medium, the total reduction in noise level is determined to be 50% at a distance of 10 from the source, i.e., 2.6 dBA. As a result, a vegetation belt with a 5-meter span is suitable for reducing traffic noise.

Table 3: Mean noise measurements at each site

Site	Location	At source dB (A)	Difference between source and 5 m	5 m from source dB(A)	Difference between 5 m and 10 m	10 m from source dB(A)	Total Reduction (dB) A	Average Vehicle rate per minute
Minimal Planting scheme	Bhatar Char Rasta	75.1	0.5	75.6	0.8	74.8	1.3	8.1
Sparse to Minimal Planting scheme	Veer Narmad Convention Hall	74.9	1.3	73.6	1.3	72.3	2.6	8.2
Dense Planting Scheme	Someshwar Junction	73.9	0.8	73.1	1.4	71.7	2.2	7.7

Noise levels are reduced by 2.2 dBA when dense vegetation is present. These data show that, regardless of planting intensities, there is likely to be a setback threshold beyond which there would be no additional advantage in noise abatement. The maximum potential for noise abatement was found in a medium-to-sparse vegetation barrier.

Dense, interlocking vegetation, on the other hand, isn't always the best way to reduce noise (Kalansuriya et al 2009).

5 Conclusion

Through the literature review and additional measurement data, this study has demonstrated:

- Vegetation provides considerable reduction in noise pollution created by traffic. Vegetative barriers when mounted properly cause approximately 58% acoustic energy reduction which is almost equal to 2.6 dB.
- Even without an additional reduction in noise levels, the results obtained in this study when combined with the nonquantifiable psychological factors associated with screening the highway from view, suggests that selected vegetative barriers are a viable alternative to the freestanding wall under special

circumstances. This alternative becomes even more attractive when the substantially lower initial cost is considered.

- A belt of width not less than 1.5 m and not more than 5 m is ideal for achieving higher noise and air pollution.
- It is evident that considerable pollutant removal is obtained by designing the vegetative barrier close to the pollutant source and a better result is obtained by selecting trees which are evergreen or are immune to seasonal changes.
- In both street canyon and open road circumstances, a combination of vegetation and solid passive air pollution control measures has the ability to reduce pollutant concentrations and enhance personal exposure conditions more effectively than any single intervention.

Understanding the bottom line of the study, it is evident that using green infrastructure for reducing the pollution effect is the most efficient and sustainable method which can be achieved at a cost time lower than that of artificial barriers. Adding to the affordability, this alternative enhances the outlook of the city and makes transport corridor aesthetically appealing.

References

- 1. Abhijith K V., Kumar P, Gallagher J, McNabola A, Baldauf R, Pilla F, Broderick B, Di Sabatino S and Pulvirenti B (2017) Air pollution abatement performances of green infrastructure in open road and built-up street canyon environments A review. Atmospheric Environment 162: 71–86.
- 2. Harris RA and Cohn LF (1985) Use of vegetation for abatement of highway traffic noise. Journal of Urban Planning and Development 111(1): 34–48.
- Hewitt CN, Ashworth K and MacKenzie AR (2019) Using green infrastructure to improve urban air quality (GI4AQ). Ambio. Springer Netherlands. Available at: https://doi.org/10.1007/s13280-019-01164-3.
- 4. Hong JY and Jeon JY (2013) Designing sound and visual components for enhancement of urban soundscapes. The Journal of the Acoustical Society of America 134(3): 2026–2036.

- 5. Istrate IA, Oprea T, Rada EC and Torretta V (2014) Noise and air pollution from urban traffic. WIT Transactions on Ecology and the Environment 191: 1381–1389.
- Kalansuriya CM, Pannila AS and Sonnadara DUJ (2009) Effect of roadside vegetation on the reduction of traffic noise levels. Proceedings of the Technical Sessions 25(June 2014): 1-6. Available at: http://192.248.16.1 17:8080/research/bitstream/70130 /3262/1/2009Paper19.pdf.
- 7. Kim YH, Hwang IH, Hong JY and Lee SC (2019) Effects of vegetation on soundscape of an urban religious precinct: Case study of Myeong-dong cathedral in Seoul. Building and Environment. Elsevier 155(March): 389–398. Available at: https://doi.org/10.10 16/j.buildenv.2019.03.046.
- 8. Van Renterghem T, Botteldooren D and Verheyen K (2012) Road traffic noise shielding by vegetation belts of limited depth. Journal of Sound and Vibration. Elsevier 331(10): 2404–2425. Available at: http://dx.doi.org/10.1016/j.jsv.2012.01.006.

Functions and Strengthening of Women Empowerment in Panchayati Raj System in India

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This article will equip the readers with a theoretical and conceptual understanding of how can women be empowered in the Panchayati Raj System through Constitutional Amendment provided by Scheduled Tribes, Scheduled Castes, and Women's reservation. Before the 73rd Amendment Indian history reveals that women did not havebig space in the political system but through the reservation, the presence and participation of women in Panchayati Raj Institutions have brought about a formidable change in their position within the social set-up. The 73rd Amendment Act has resulted in the entry of a large number of women into decision-making bodies in rural areas creating economic independence, selfreliance, political, social, and legal awareness, self-confidence, and a positive attitude towards women. The local governance structures represent the institutional mechanism to provide and promote democratic decentralization at the grassroots level. Article 40 of the Indian Constitution recognizes the importance of village panchayats and enjoins upon the State to take steps to organize village panchayats and endow them with powers and authority as may be necessary to enable them to function as units of self-government. After the 73rd Amendment, panchayats shall be given powers and authority to function as institutions of self-government. The powers and responsibilities to be delegated to Panchayats at the appropriate level are: (a) preparation of the plan for economic development and social justice (b) implementation of schemes for economic development and social justice with 29 subjects given in the Eleventh Schedule of the Constitution and (c) to levy, collect and appropriate taxes, duties, tolls, and fees. This paper is an attempt to understand women's empowerment after the 73rd Amendment functioning as a unit of self-government.

Key Words: Constitutional, amendment, women, reservation, empowerment, Scheduled Tribes, Scheduled Caste

'The progress of our land towards our goal of democratic socialism cannot be achieved without the active participation of our mothers, wives, sisters, and daughters."

S. Radhakrishnan

'Real change in India will come when women begin to affect the political deliberation of the nation.'

Mahatma Gandhiji

The status of women is a barometer of the democratization of any state, an indicator of how much any society is tolerant and civilized towards its womenfolk. The empowerment of women is a much-talked subject these days. Empowerment is a multidimensional process that enables the individual or a group to realize their full identity and power in all spheres of life. These days it is interpreted in terms of equal status, opportunities, and freedom to develop oneself. Empowering women through increased rights and duties as well as access to resources are decisive steps being taken by many countries including one of the largest democracies of the world i.e., India towards the upliftment of its womenpopulation. In the words of K.N. Vijayanthi, 'the empowerment of women and the improvement of their status, particularly in respect of education, health, and economic opportunities, are highly important ends in themselves'. It also enhances their decision-making capacity in many vital areas.² However, except for countries like Seychelles, Finland, Norway, Sweden, and Denmark, the percentage of women parliamentarians to the total membership in parliament is quite low.3 The situation in India is hardly different from what it is in other parts of the world. Even after 74 years of the working of the Constitution, we find that women are still fighting for their right for gaining equality of status and securing a role for themselves in the highest decision-making bodies. The slow pace of progress may not appear that slow if we recollect that on the voting front, it had taken almost an effort of a century for women to get the right to vote and be elected. New Zealand was the first country to give women the right to vote in 1893 and Finland was the first country to give the right to contest elections to women in 1906. And by the end of the twentieth century, more than 95 percent of the countries in the world have granted this most fundamental democratic right to its female population. The history of decentralization in India goes back to the colonial period. It started with Ripon Revolution in 1882 which aimed at the management of rural areas under British Rule. For its various district,

tensile boards were set up with nominated members to look after health, roads, and education at the lower hierarchical level. Decentralization received a boost with the constitution of the Royal Commission on Decentralization in 1907. The Commission recognized that 'throughout the greater part of India the village constitutes the primary territorial unit of Government organization' and from the villages are built up larger administrative entities.⁴

Objectives of the Study

The present study attempts to find out the emerging pattern of leadership in PRIs.

- 1) To understand women's participation through constitutional obligations.
- To know the level of women's awareness about their powers after reservation.
- To know changing dimensions of awareness of women after the 73rd Amendment
- 4) To examine the role of the 73rd Constitutional Amendment in women's participation in PRIs.

The village remained the first unit of administration; the principal village functionaries – the headman, the accountant, and the village watchman –

were largely utilized and paid by the government.⁵ The Commission also visualized certain difficulties in the success of such an effort, like caste, religious disputes, and the influence of landlords. The Commission recommended the village headman as ex-officio chairman of Panchayat, as being the ex-hypothesis of the most influential person in the village. The functions recommended for the Panchayats were:

- Civil and criminal jurisdiction of petty cases;
- Village sanitation and expenditure on certain minor works;
- Construction and maintenance of schools;
- Selected Panchayats to be given the management of small fuel and fodder reserves:
- Management of village cattle, ponds, and markets of purely local importance.

The Commission further recommended that 'the work of Panchayats should be free from interference by the lower government subordinates. But it was criticized for its bureaucratic control i.e. district board controls. Still the process of decentralization can be assumed to have taken its first shape with the Royal Commission. Next, come to Montague

- Chelmsford Reforms that made local self-government a 'transferred subject' under the scheme of diarchy. Under these recommendations, six states passed Acts. However, the district boards and village councils were dependent on centralized bureaucracy for power and resources. Hence, their role as the local unit of administration and rural development remained nonfunctional.⁷ Decentralization in the real sense of the term started in India when it became an independent democratic nation-state and began realizing in concrete terms the principles of the modernity project. Various programmes and institutional schemes were introduced under the initiatives of decentralization to achieve its goal. One such programme is known as the system of Panchayati Raj. In the beginning, the Panchayati Raj system was introduced as an institutional arrangement to bring about development in the villages through the participation of local people.8

Political Participation of Women

The concept of political participation is closely involved with the concept of power. Since politics is a study of an exercise in power, any political participation should mean participation in the exercise of power, the power to effectively influence decision-making processes and policies to reverse the existing situations wherever they are

disadvantageous and to bring about the necessary social changes. Hence, political participation is much more than physical participation in formal institutions and structures, though physical participation in formal political institutions is very much necessary for itself and as a means for influencing decisions. There are further, instances of women when put in a position of power, have been the first ones to cut off policies and schemes especially helpful for women. One also finds there is no correlation between the extent of participation in formal institutions and the extent of development of women in society. The political participation of women in India hence would have to combine a few components like (a) the extent, level, and nature of women's participation in the political processes of India, by way of both formal and informal institutions, (b) the impact and significance of such participation for women's rights and living conditions and (c) types of woman related issues that were raised in the course of this participation.9

Administrative power

The framework for devolution should be appropriately backed by the effective autonomy of the three tiers of Panchayati Raj.

 The State Government has prepared the framework for devolution and should simultaneously recognize the existing District Administration, to enable the PRIs to have their own identity and role in the development process.

- The State Government should also encourage different line departments to take up appropriate measures to integrate their activities with PRIs. The departments of the Central Government should review the guidelines of the Centrally Sponsored Schemes indicating the role of panchayats in the implementation of such schemes.
- Administrative power between three tears should be assigned by the State Government as per the framework given.
- The issue regarding the convergence of schemes should be further pursued so that PRIs can have greater flexibility in responding to local needs.
- Keeping in view the principle of Subsidiary, the State Government may devolve power and functions to the three tiers of Panchayati Raj in respect of 29 items under the 11th Schedule of the Constitution under the activity mapping provided in Chapter IV.
- The State may transfer functionaries and funds to the PRIs for the implementation of various

- state and central sector schemes as per the outline indicated in Chapter V.
- The State Government may prescribe mechanisms for monitoring and supervision of the activities of PRIs by strengthening of audit system by constituting Inter-tier Standing Committee social audit by Gram Sabha enforcing transparency in the activities of panchayats and the constitution of the Ombudsman as suggested in Chapter VI. 10

The planning process cannot succeed purely on bureaucratic lines. Active participation, involvement, and support of local people are needed if planning and implementation are to succeed. Participation of people can be achieved only if planning is carried to the lower sub-national levels. Thus decentralization is needed for the effective mobilization of public participation. Grass-root democracy stands for a political structure in which democracy is not merely confined to the national and regional levels but is extended to local levels in a real and large measure. It is a medium of people's participation, which is not remote and intermittent, not limited to electing representatives for a distant government working at national or regional level for two, three over five years, but is based on their participation in the day-to-day conduct of their local area, village or town, as

the case may be. Grass-root democracy is thus, essentially decentralized democracy, in which the management of public affairs does not begin and end at the top but operates through a wide network of people participating units in the local area, which form more or less a miniature government in themselves and are the real centres of power and democracy in action.11 Hence local government plays a vital role in the governance of any democratic country. The fundamental basis of democracy is a decentralization of power and involvement of people at all possible levels in the organization and management of civil and political affairs. Political thinkers lay great stress on the importance of local government and decentralization. Vinoba Bhave said, 'when the stewardship of the whole country is entrusted to four or five persons, the whole country has to suffer the consequences of their single mistake. But this will not be so when power resides in the village itself.... Hence power should be distributed in every village. There must be decentralization of power.12 Decentralization is generally defined as a process whereby administrative authority, public resources, and responsibilities are devolved and delegated from central or state government agencies to lowerlevel institutions such as village panchayats, municipalities, and nongovernment organizations. Such a process develops a people-centric system of governance that enables hitherto powerless individuals and groups to play significant roles in the implementation of programmes and policies and mobilization, allocation, and distribution of public resources so that they become the basic engine of development and not merely its beneficiaries. Its main purpose is to bring accountability in governance ensuring economic and social justice.¹³ Hence the local government is an essential attribute of democracy. It can be described as that form of government under which the people of the locality possess certain responsibilities and discretion in the administration of local affairs and raising the required finance to meet their expenses. Local government is at the bottom of the pyramid of the government institution, with the national government at the top and intermediate governments occupying the middle range.¹⁴ Local government is that part of the government, of a state that deals mainly with such matters as concern the inhabitant of a particular place or district, including the functions that the central government considers desirable to be so administered.15 In the Indian context concept of local self-government exists since a long time. But it became a highlighted subject in 1959 when Panchayati Raj Act came into being. However, powers were not handed over to the panchayats. It was only after 1994 with the enacting of the 73rd Amendment Act that 33% reservation and decentralization became salient

features of Panchayati Raj in villages. The main purpose of decentralization is to bring accountability in governance ensuring economic and social justice.¹⁶ Panchayats have been the backbone of Indian villages since the beginning of recorded history. The Gandhian dream of every village being a republic or panchayat having powers has been translated into reality with the introduction of the three-tier Panchayati Raj System to ensure people's participation in rural development. 73rd Constitutional Amendment is a revolutionary step to achieve the Gandhian concept of Gram Swaraj.¹⁷ The amendment to the Constitution brought about a fundamental change not only in the realm of local self-government but also in India's federal character. Two fundamental changes which have come about in the Indian democratic polity need mention here. First, the democratic base of the Indian polity has widened. Second, the amendment is bringing about significant changes in India's federalism. India is on the move to become a multi-level federation with elected local bodies at the district level.

73rd Constitutional Amendment and Women's Participation

The 73rd Constitutional Amendment, has been instrumental for women participation. The historic 73rd Constitutional Amendment was passed and came into force on 24th April 1993. The most significant and salient feature

of the 73 Amendment Act is the provision of reservation of 1/3rd of seats for women in all three tiers of the rural local governance system. It lays down in Article 243D (3) that not less than one-third of the total number of seats to be filled by direct election in every panchayat shall be reserved for women and that such seats may be allotted by rotation to different constituencies in a panchayat. The Constitutional Amendment further lays down in Article 243-D (1) that seats shall be reserved for the Scheduled Castes and Scheduled Tribes in every Panchayat and Article 243 D (2) states that not less than one-third of the total number of the seats reserved under clause (1) shall be reserved for women belonging to the Scheduled Castes and Scheduled Tribes. The number of seats reserved for the Scheduled Castes and Scheduled Tribes women would be allotted by rotation to different constituencies in a panchayat. Article 243 D(4) provides that the office of the Chairperson in the panchayats at the village or any other level shall also be reserved for, women, and such reservation shall not be less than onethird of the total number of offices of Chairpersons in the panchayats at each level. The offices so reserved at the level of the Chairperson would also be allotted by rotation to different panchayats at each level. Besides, where there are no women Chairpersons in all the three tiers of the Panchayati Raj system, the post of Vice-Chairman shall be reserved for women at all levels of rural local governance. After this constitutional amendment, a large number of women have been elected to the PRIs as a result of the mandatory reservation provisions. The reservation provision under the Constitutional 73rd Amendment Act, of 1993 was made to ensure that women play a major role in the rural local self-governance system. It also provided women an opportunity to demonstrate their potential and to prove their capability as partners in the process of rural development by participating with their male counterparts. 18 According to the Constitution, panchayats shall be given powers and authority to function as institutions of self-government. The powers and responsibilities to be delegated to panchayats at the appropriate level are: (a) preparation of the plan for economic development and social justice (b) implementation of schemes for economic development and social justice with 29 subjects given in the Eleventh Schedule of the Constitution and (c) to levy, collect and appropriate taxes, duties, tolls, and fees. According to Article 243 C, nothing provided in this amendment shall apply to the scheduled areas referred to in clause (1) and the tribal areas referred to in clause (2) of Article 244. However, it is provided that notwithstanding anything in this constitution, Parliament by law may extend the provisions of the 73rd Amendment to the Scheduled Areas and Tribal Areas referred to in clauses (1) and (2) of Article 244. 19 Article 243M of the constitution prohibits the extension of provisions of the 73rd Constitutional Amendment to tribal areas and Scheduled Areas referred in Article 244 Clause (1) and (2). But, Article 243 M 4(b) empowers Parliament to make laws to extend the provisions of the Act subject to certain conditions. These areas have been treated on a different footing as compared to other parts of the country. Keeping in view the judicial verdicts that automatic extension of the Panchayati Raj Act to tribal areas is unconstitutional and demands made by tribal leaders, a need was felt for extending the provisions of Part IX of the Constitution to the Scheduled Areas. A high-level committee was constituted by the government to make recommendations on the subject. This High-Level Committee, which is known as the Bhuria Committee held discussions and examined issues about references made thereon, and made certain recommendations as to how the scheduled areas could be covered under the provisions of the 73rd Amendment. Accordingly, a Bill was introduced in the Parliament and passed on December 19, 1996, and subsequently President's assent was accorded on December 24, 1996, to make it a part of the Constitution. This, Act is now applicable to the Scheduled Areas as referred to in clause (1) of Article 244 of the Constitution; whereas it does not apply to the areas covered under the Sixth Schedule under the provisions of Article 244 (2). 73rd Amendment Act has provided her now a political platform to prove her worth.

Women's Reservation in PRIs

The Panchayati Raj Act includes provision for reservation in the following manner.

- At least 1/3 seats for SC&ST
- At least 1/3 seats for women (including SC/ST women)
- 1 seat for backward classes where the population of the backward class in Gram Sabha is more than 20%.

Functions of Gram Panchayat

The Gram Panchayat is an executive organ of the village government. Its main functions are managing local affairs and promoting village development with the help of available local resources and with government assistance, both financial and technical. Immediately upon the commencement of the new term, members elects Adhyaksha / Upadhyaksha from among themselves. In some cases, they are unanimously elected. They can be removed by a vote of no confidence. The Adhyaksha

convenes the meeting of the panchayat and presides over the meeting. In his absence, Upadhyaksha presides over the meetings of the panchayat. The panchayats meet at least once a month to transact the business. There is also a provision for the special meeting on the written request of at least one-half of the total members of the panchayat. The gram panchayat secretary and government officials having iurisdiction over the area are entitled to attend the meeting but they have no right to vote. The prescribed quorum for the meeting is one-half of the total number of members. The decisions at the meeting are taken by a majority vote of the members present. Section 58 of the Act prescribes the functions to be performed by the Gram Panchayat. There is a need to make decentralization given by the 73rd amendment of the Constitution of India more perfect and practical. The ultimate goal should be to achieve rural prosperity through the participatory development process. This will be possible only if the individual and the community become the focal point of development. No such development is possible without bestowing real decision-making power on the community. Such empowerment has to be an essential ingredient in all our planning and implementation of programmes. This will call for the large-scale promotion of strong and viable 'self-help' groups, communitybased interest groups, and user groups and genuinely strengthening the civil society movement. Merely devolving more functions to the PRIs without involving the community at the grass root level will not yield the desired result. The strengthening of the PRIs should be locked upon only as a means to achieve the ultimate end of empowerment of the community.²⁰

Women's Participation in PRIs

The election of so many women in the PRIs has caused some discomfort to both the elected men and the elected women. Rural society does not provide many opportunities or situations for men and women, not of the same families to work together in a common enterprise. For the women members, meeting their constituents more often was difficult due to difficulty in touring the constituencies. This could be attributed to their economic dependence on the men of their families, who may or may not give them transport allowances, and also their inability to travel alone in the area.

11th Schedule - 29 subjects of Gram Panchayat

According to the Panchayati Raj Act 1994, it shall be the duty of a Gram Panchayat to allot funds for the functions being, performed within its area. The following functions have been specified:

- Sanitation, conservancy, and prevention and abatement of the nuisance;
- Construction, maintenance, and repair of public wells, ponds, and tanks and supply of water for domestic use;
- Construction and maintenance of resources of water for bathing, washing, and supply of water for domestic animals;
- 4. Construction, and maintenance of village roads, bridges, ponds, and other works and buildings of public utility;
- Construction, maintenance, and clearing of public streets, latrines, drains, tanks, wells, and other public places;
- Filling in disused wells, unsanitary ponds, pools and ditches, and pits and conversion of step wells into sanitary wells;
- 7. The lighting of village streets and public places;
- 8. Removing obstructions and projection in public streets or places and in sites not being its property or which are open to using of the public, whether such sites are vested in the Panchayat or belong to the State Government;

- Regulating and control over entertainment shows, shops, eating houses, and vendors of drinks, sweets, meats, fruits and milk, and of other similar articles;
- 10. Regulating the construction of houses, latrines, urinals, drains, and water resources:
- 11. Management of public land and management, extension and development of village site;
- 12. (a) Regulating places for disposal of dead bodies, and other offensive matters:
 - (b) Disposal of unclaimed corpses and carcasses;
- 13. Earmarking places for dumping refuse;
- 14. Regulation of sale of and preservation of meat;
- 15. Maintenance of Gram Panchayat property;
- 16. Establishment and management of cattle ponds and maintenance of records relating to cattle.
- 17. Maintenance of ancient and historical monuments other than those declared by or under law made by Parliament to be of national importance, grazing land, and other lands vesting in or under the control of Gram Panchayat;

- Establishment, management, and regulation of markets and meals other than public markets and public meals;
- 19. Maintenance of records of births, deaths, and marriages;
- 20. Rendering assistance in the prevention of contagious diseases;
- 21. Rendering assistance for inoculation and smallpox vaccination and enforcement of other preventive measures for the safety of human beings and cattle prescribed by the government department concerned;
- 22. Establishment of Raksha Samiti for:
 - a. Safety of life and property
 - b. Prevention of fire and extinguishing fire. Safety of property during an outbreak of such fires;
- 23. Plantation, and preservation of panchayat forests;
- 24. Removal of social evils such as dowry;
- 25. Granting loans for:
 - a. Providing medical assistance to indigent persons in serious and emergency cases;

- b. Any other proposal for the benefit of an indigent person or any member of his family;
- 26. (a) carrying out the directions or orders given or issued by the state government, the collector, or any other officer concerning the measure for the amelioration of the conditions of the scheduled castes and scheduled tribes and other backward classes and in particular concerning the removal of untouchability;
 - (b) Perform such functions as may be entrusted to it by the State Government, Zila Parishad or Panchayat Samiti by general or special orders:
- 27. The welfare of the weaker sections and in particular of the Scheduled Castes and Scheduled Tribes.
- 28. Public Distribution System
- 29. Maintenance of Community assets falling under the jurisdiction of Gram Panchayats.

The provision of 73rd Amendment provided that where any such functions are entrusted to Gram Panchayat it shall act as an agent of the State Government, Zila Parishad or Panchayat Samiti, as the case may be and necessary funds and other assistance for the purpose shall be

provided to it by the State Government, Zila Parishad or Panchayats.²¹

Status of women

That society would be highly developed and prosperous where women have their rightful place, expounds Manu. The status of women varies enormously from one part of the world to another. However, nowhere do women enjoy equal status with men. In developing countries like those in Africa, the Middle East, Asia, and Latin America, the status of women is as rather low. The woman is the pivot around which the family, society, and humanity itself revolve. It is well said that the hand that rocks the cradle, rules the world. Women play a significant role in the development of their offspring. Truly, if a man is educated, one person is educated but if the woman is educated, the whole family is educated. Women's status can be analyzed in terms of their participation in decision-making, access to opportunities in education, training, employment, and income. In recent years there has been increasing recognition of the interface between women's ability to control their fertility and their exercise and enjoyment of other options in life.

Policy for the empowerment of women

A national policy for the empowerment of women, 2001 provides the framework for addressing women's issues.

- 1. Creating an environment through positive economic and social policies for the full development of women to enable them to realize their full potential.
- 2. The de jure and de facto enjoyment of all human rights and fundamental freedom by women on an equal basis with men in all spheres-political, economic, social, cultural, and civil.
- Equal access to participation and decision-making of women in the social, political, and economic life of the nation.
- 4. Equal access for women to health care, quality education at all levels, career and vocational guidance, employment, equal remuneration, occupation, health and safety, social security, and public office.
- Strengthening legal system aimed at elimination of all forms of discrimination against women
- 6. Elimination of discrimination and all forms of violence against women and the girl child.
- Changing societal attitudes and community practices by active participation and involvement of both men and women.²²

In keeping with its past and present policy objectives, the government has

launched several programs focused on women.

Essential Steps for Women Empowerment

The main efforts required in the context of the 73rd Amendment are to break the hegemony of male chauvinism in the rural areas. The rural women cannot achieve empowerment on their own and need support from outside. So we must make efforts to ensure the following support among women:

- Creating a positive and dignified self image and self confidence in dealing with all matters in all relationships.
- Ensuring equal participation based on equity and social justice.
- Take part in decision making and more participation in different activities.
- Equality and equity for women are non-negotiable.
- Political power is essential.

Women's entry into the functioning of Panchayati Raj at all levels particularly at decision making levels will usher an era of equality and prosperity to the village and empowerment of the women leading to rural development on moral values. So

ultimately it provides women with the opportunity to transform the legal, political, economic and social systems as per the vision of the 21st Century to realize their demand for an equitable, environmentally clean and peaceful world where there would be no difference based on caste, religion, sex, creed, or faith.²³ This would make 21st Century really fruitful.

Conclusion

Women empowerment is a muchtalked subject these days. It involves many things - economic opportunities, political representation, social equality, educational benefits, and so on. The process of empowerment is taking place at so many levels that it is quite difficult to gauge the actual nature and extent of empowerment in improving the status of women. It is noticeable that the Constitution of India has conferred on women equal rights as well as political, social, educational, and employment opportunities equivalent to men. Under political empowerment, the participation of women in Panchayati Raj Institutions has been considered the most effective instrument to remove their inequality, invisibility, and powerlessness. The 73rd Constitutional Amendment Act, 1992 is a step towards this direction as it provides that not less than one-third seats of the elected members will be reserved for women in a three-tier structure of panchayats. With the Amendment Act, a new women leadership has emerged at a grass-root level which includes rural and tribal women. A few states like Himachal Pradesh and Karnataka have taken a bold step to enhance the percentage of reservation for women from one-third to at least 50% in the three-tier rural local Government in general elections to PRIs which is a timely and laudable step in this direction to encourage women participation in the rural local governance system. 73rd Amendment of the Indian Constitution is not the final step. It is the beginning of grass root democracy and requires constant improvements to make it work effectively. As PRIs play a crucial role in the development process, it would be necessary to strengthen them. The direct involvement of females in decision-making bodies is a milestone in the development process.73rd Amendment has certainly created a silent revolution among women folk in the Indian federal democratic system. To sum up, women Gram Panchayat members perceive considerable enrichment of their social capabilities after attaining membership in Gram Panchayat. Women Gram Panchayat members enjoy increased control over their own lives and they have a greater role than before in making decisions about themselves. Further, they enjoy an active role in village-level decisions by participating in Gram Sabha meetings, etc... to a considerable extent.

References:

- Rachna Srivastava, 'Indian Women, Laws and Politics – Myth and Reality', Mainstream, vol. XXXXL, no. 12, March 2002, p. 19.
- 2. K.N. Vijayanthi, Women's Empowerment through Self-help Groups: A Participatory Approach, Indian Journal of Gender Studies, vol. 2(no.4), July-Dec. 2002, p. 264.
- 3. Yogendra Narain, (et.al.), 'Empowerment of Women', Mainstream, vol. 43, no.1-5, December 2004, p. 67.
- H.D. Malaviya, Village Panchayat in India, Economic, and Political Research Department, A.I.C.C., New Delhi, 1956, pp. 220-21
- 5. Ibid., p. 221.
- 6. Ibid., pp. 221-22
- 7. Ibid., p. 222.
- 8. Gurang R. Sahay, 'Decentralisation, Panchayati Raj and the Right of Marginalised Group in India, in Bishnu C. Barik and Umesh C. Sahoo, Panchayati Raj Institution and Rural Development, Rawat Publication, New Delhi, 2008, p.106.

- Neerja Sinha, 'Women in Indian Politics Empowerment of women through political participation' Gyan Publishing House, New Delhi. 2006, pp 53-56.
- 10. S.L Goyal Shalini Rajneesh, 'Panchayati Raj in India Theory and Practice' Second Enlarged and Revised Edition, Deep and Deep Publication Private Limited, 2009 New Delhi.pp.29-31.
- 11. Iqbal Narain, 'Democratic Decentralization: The Idea, the image and the reality' in J.N. Chaticrvedi (ed.), Panchayati Raj, Indian Institute of Public Administration, New Delhi, 1981, pp. 10-11.
- 12. Vinoba Bhave, 'Gram-Raj A.I.C.C.' Economic Review, vol. VI, no. 6-7, July 1954, p. 67.
- 13. S.S. Singh and Suresh Misra, Legislative Framework of Panchayati Raj in India, Intellectual Publishing House, New Delhi, 1993, p.4.
- 14. International Encyclopedia of Social Sciences, vol. IX, Mac Millan Cop. The Free Press, New York, 1986, p. 451.
- 15. Everyman's Encyclopedia, J.K. Dent & Sons, London, 1978, p. 561.

- 16. Bishnu C. Barik and Umesh C. Sahoo, Panchayati Raj Institutions and Rural Development: Narratives on Inclusion of Excluded, Rawat Publication, Jaipur, 2008, p. 104.
- 17. A.K. Sinha, Panchayati Raj and Empowerment, Northern Book Centre, New Delhi, 2004, p. 23.
- 18.https://ijrar.org/papers/IJRAR 1903283.pdf Searched on 25/01/2023

- 19. Ibid., pp. 27-28.
- 20. SL Goyal Shalini Rajneesh, 'Panchayati Raj in India Theory and Practice' Second Enlarged and Revised Edition, op.cit., pp.131-132.
- 21. Himachal Pradesh Panchayati Raj Act, (Schedule 1), pp. 70-71
- 22. SL Goyal Shalini Rajneesh op. cit., pp.308-309
- 23. Ibid., pp. 317-318.

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A Study of Maharashtra's Nagar Panchayat Elections 2021-22

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Abstract

This paper discusses electoral process of an urban local body, the Nagar Panchayat. Elections for the 106 Nagar Panchayats were held in Maharashtra during 2021-22. The paper aims to look at the socioeconomic profile of elected members of Nagar Panchayat and overall electoral procedure of Nagar Panchayat elections. The paper is based on information gathered over the telephonic interviews with the councilors of Nagar Panchayat and elections affidavits filed with State Election Commission.

Kaywords – Nagar Panchayat, Elections, Leadership, Urban Local Body, Maharashtra

Urban local bodies in Maharashtra consist of municipal corporations, municipal councils and Nagar Panchayats (NP). The 74th Constitutional Amendment Act conferred constitutional status upon these bodies. Among them, NPs can be established in a transitional area where a rural expanse is on the verge of transforming into an urban area. It should also have population of more than 10000 and less than 25000. Furthermore, the state government can declare a district or a taluka place as a NP. In 2021, there were 139 NPs in Maharashtra. Out of them, elections to 106 NPs were held in two phases – on 21st December 2021 and 19th January 2022. Each NP elects 17 members as its council ors and one among them is elected as Nagar Panchayat President. These 106 NPs elected 1802 councilors from 32 districts of Maharashtra. The NPs elections were held first time after the Corona pandemic across the state in the wake of formation of Maha Vikas Aghadi (MVA), a coalition of Shiv Sena, Congress and Nationalist Congress (NCP). These elections were held without 27 percent reservation for the Other Backward Classes (OBC).

The paper aims to explain the socio-economic background of councilors and overall election process of Nagar Panchayat. The data used for the paper has been derived from the Maharashtra State Election Commission's website¹. Election affidavits filed by the contesting candidates with the state election commission have been used to collect personal information of councilors. In addition, information about occupation and caste of 1709 elected candidates has been gathered over the telephone².

Urban and rural local bodies play key function in accommodating local aspirants in the formal power structure (Palshikar 2002). These bodies are important for political parties in the state for support at grass roots level because elected members of local bodies function as a link between voters and political leaders at higher levels during Vidhan Sabha and Loksabha elections. Unlike Grampanchayat, elections for NPs are held on party symbols. So the elections of NPs were taken seriously by major political parties. Apart from Bharatiya Janata Party (BJP), Congress, NCP and Shiv Sena, other smaller parties also contested these elections. The major four parties contested these elections independently but at a few NPs, these parties had mutual understanding and alliances as per local leaders (MLAs) direction.

Region-wise performance of **Political Parties**

There is no significant difference of performance between the four major political parties of the state (Table 1). Every party has been able to keep its preponderance in separate regions. The BJP got highest elected members in

Table 1: Region wise performance of Political Parties in NP elections

Sr. No.	Region/ Political Party	Number of NPs	Bharatiya Janata Party (BJP)	Nationalist Congress Party (NCP)	Congress (INC)	Shiv Sena (SS)	Other Parties	Independ ent (IND)
1	Konkan	17	24%	20%	4%	29%	6%	17%
2	Pune	15	19%	33%	11%	6%	10%	21%
3	Nasik	13	28%	26%	7%	28%	5%	7%
4	Aurangabad	23	24%	23%	20%	19%	6%	8%
5	Amravati	11	9%	10%	37%	20%	13%	11%
6	Nagpur	27	30%	16%	31%	5%	3%	15%
7	Total	106	23%	21%	19%	17%	6%	13%
8	NP President	106	18%	21%	28%	25%	09%	00%

Nashik and Aurangabad region. The NCP has proved its mass base in Pune region i.e. Western Maharashtra. Konkan has supported Shiv Sena while Vidharbha region has favoured Congress.

The number of elected councilors and posts of NP presidents does not reflect above distribution (Table1). Even though BJP got highest elected number of councilors in NP election, it failed to transform that success rate into getting power in the NPs. On the other hand, NCP and Shiv Sena have been successful in capturing more NP president's posts as compared to number of councilors they got elected. Congress was able to capture 21 percent of NP President's posts. During the election, MVA government was ruling alliance in the state. The ruling alliance might have got benefit in hung NPs to tilt balance in favour of the then ruling parties in the state.

Social Profile of Elected Councilors

An order of the Supreme Court had squashed 27 per cent reservation for OBCs in NP elections. So NP elections could accommodate reservation only for women (50%), Schedule Castes and Tribes (as per their proportion in population). Surpassing the mandatory limit prescribed by the state law of fifty per cent, fifty four per cent women representatives got elected in NPs. A few women have won from the unreserved seats. Most of the women who won from unreserved seats are related to political families in the Nps.

Except Pune and Aurangabad regions, the STs have significant presence in all other regions of the state. Representation of SC is between 9 and 20 percent. Though the elections were held without OBCs reservation of 27 percent, the OBCs have managed to assert their political power and secured

Table 2: Social Profile of the Elected Members

	Konkan	Nashik	Pune	Aurangabad	Amravati	Nagpur	State Total
ST	21	26	01	02	18	22	15
SC	9	11	20	16	16	19	16
OBC	40	17	29	22	36	48	34
OPEN	21	41	44	37	12	06	25
MUSLIM	09	06	06	22	17	06	11
Maratha- Kunbi	30	40	42	27	24	06	25

^{*} All numbers are in percentage.

around 34 percentage of posts of councilors in NPs elections. Representations of OBCs differ region-wise. In the regions of Aurangabad, Nashik, and Pune the OBC number of elected OBCs is less than 27 percent. But in Nagpur, Amravati, and Konkan OBCs have acquired more seats than the usually reserved quota of 27 percent. In the elections of Loksabha and Legislative Assemblies, Muslims are underrepresented whereas in the elections of NPs they have been succeeded in winning substantial numbers of seats - around 11 percent.

From rural local bodies to Legislative Assemblies Maratha-Kunbi caste-cluster is considered to be over represented (Sirsikar 1964, Vora 1996, Palshikar 2002, Birmal 2015). But results of NPs elections differ from earlier understanding of caste politics in the state. In the elections, Maratha-Kunbi caste cluster managed to secure 25 per cent of the seats. Though the NPs are partly semi-urban areas, economy of the NPs are not totally delinked from the agrarian activities. Hence the dominant caste which had control over agricultural land should have important role in the elections. But the numbers show a different picture. One possible explanation for decline of Maratha-Kunbis electoral dominance can be that these bodies are semi-urban in nature and activities not related to agriculture have dominant presence; and people involved in these are getting elected. Absence of Marathas from these activities might have forced them out of electoral competition. Or maybe, Marathas electoral dominance has been challenged in the elections due to political awakening of other castes.

Economic profile of Elected Councilors

Electoral process in any election is a fierce competition to acquire position of power. Apart from political power, power holder in these elections also gets social prestige, privileges and electoral victory helps to upgrade social status (Sirsikar 1964). All these factors make every election very competitive. Elections for NPs are fought with that rigour. People from all social and professional backgrounds try their luck in the electoral battleground. From farmers to daily wagers, all strata of people have participated in the electoral process of NPs.

Though the NP is considered to be an urban body, it is not totally urban. Most of NPs are predominantly rural in their outlook, culture and economic activities. So farmers also contest these elections. Seventeen per cent councilors whose occupation is related to agriculture have won the elections.

NPs are areas where economic transition is taking place. Land-related economic activities in urban and rural areas are on the rise. Housing,

activities related to conversion of agricultural land to non-agricultural land, property deals are among the major economic activities found in these towns. This has given rise to an active land market in rural areas. Agricultural and Non-agricultural land has become an instrument of investment and tool of making profit (Aware 2016).

From metropolis to semi-urban towns, one can find rising interest in land-related activities. Politicians and bureaucrats try to make money from the urban land (Mahadevia 2011). Allegations of land scams have surfaced in Maharashtra from time to time. When we look at the occupational details (Table 3) of councilors of NPs, we can find the number of councilors is high in the category two. Councilors involved in the category are engaged in land related activities. Builders, land developers, and estate agents are getting elected in the NPs. Political prowess at NP not only upgrades their social status but it also helps them in their economic activities. Most of these councilors are involved in land-related activities such as transforming agricultural land into non-agricultural land, building houses for sale, buying and selling NA plots. Access to power gives extra benefits to these people in their business ventures. Deals in the land also gives them economic wherewithal to fight costly election battles. Apart from land, people running restaurants and bars are also getting elected.

Daily contact with voters is one of the important factors determining voter's preference in NP elections. People involved in providing essential services in the town get favour of voters. Proprietors of Kirana shop, medical shop, krishi-seva center, chicken shops are also chosen by people as their representatives. Day to day contact with people is helping these strata to get elected in NPs elections. Twenty-seven per cent councilors are from this category. Spouses of the government employees like Teachers, Army personnel, Police, Bank employee, Village revenue officer (Talathi) and Administrative officer (Gramsevaks) are contesting and winning elections. Around eleven per cent of them have won the elections.

Number of professional like Doctors, Engineers, Journalist and Advocates are also taking active part in the NPs elections. Number of white collar professionals is not big but around three per cent. Relatives of political leaders are also contesting NPs elections. Wives of the political leaders of Taluka pramukhs of various political parties have been elected. In addition, wives or daughters or brothers of the taluka and district level leaders have fought and won the elections. The number of this category is around six per cent.

Table 3: Occupational details of Councilors

Category	Occupation	Konkan	Nashik	Pune	Aurangabad	Amravati	Nagpur	Whole State
One	Agriculture	09	17	16	22	20	17	17
Two	Works related to government offices such as Restaurant and Bar owners, Real Estate Agents, Builders and Contractors	42	25	26	30	26	26	30
Three	Shop owners catering daily needs of people (Medical, Kirana, Hardware, Chicken, Krishi-Seva Center etc)	28	31	28	25	22	30	27
Four	Government Employees and their spouses (Teacher, Police, Army, Bank, Talathi, Gramsevaket c)	11	13	10	06	13	16	11
Five	Relatives of established Political Leaders	03	07	05	09	05	04	06

Six	Professionals such as Doctors, Engineers, Advocates and Journalists)	04	05	02	03	03	02	03
Seven	Daily wagers	03	04	03	05	11	06	05

(Numbers in Table are in percentage)

Five per cent of the total councilors are people who work as daily wager. Among these elected daily wager more than 80 per cent belong to SC, ST and Muslim category. Perhaps they might have been asked to contest elections to fulfil required quota of SC and ST.

The available data from Table 2 and 3 proves that representatives of NPs are

from diverse sections of society both socially and economically. These bodies are not domain of people of any particular caste or occupation. A march towards democratic decentralization is taking place and these bodies are proving an important link in percolating democratic ethos and culture of elections.

Table 4: Annual Incomes of Councilors

S. No.	Annual Income	General (Male)	General (Female)	SC (Male)	SC (Female)	ST (Male)	ST (Female)	Total
1	Income not shown	08	17	12	25	14	13	14
2	Less than one Lakh	22	16	35	31	50	53	25
3	One to five lakh	42	46	35	19	29	20	39
4	Five to ten lakh	17	14	15	17	07	03	14
5	More than 10 Lakh	11	07	01	08	00	00	8

(Numbers in Table are in percentage)

Table 5: Age-wise classification of NP members

S. No.	Age group	General (Male)	General (Female)	SC (Male)	SC (Female)	ST (Male)	ST (Female)	Total
1	21 to 30	10	17	27	17	39	40	18
2	31 to 40	46	43	23	53	21	30	42
3	41 to 50	31	19	38	17	32	23	25
4	51 to 60	09	13	08	14	04	03	10
5	More than 60	05	08	04	00	04	03	05
6	Average Age (years)	40	40	40	38	36	35	40

(Numbers in Table are in percentage)

Income, Age and Education of Councilors of NP

Income shown in the election affidavit might be less than real income but it still gives some idea about economic status of the elected members. Fourteen per cent members have not shown their annual income. Councilors showing income between 1

lakh to 5 five lakh are the major group among all categories. More than half of elected members of NPs having income less than one lakh belong to SC and ST category. Whereas councilors from general category are rich as compare to both SC and ST members.

As Table 5 shows 85 percentages of elected councilors are less than fifty

Table 6 Educational Qualification

S. No.	Education	General (Male)	General (Female)	SC (Male)	SC (Female)	ST (Male)	ST (Female)	Total
1	Illiterate	1	8	0	3	0	7	4
2	Up to SSC	31	45	34	44	40	64	40
3	HSC	32	22	27	19	43	20	27
4	Graduation	31	24	35	31	14	10	26
5	Post Graduation	4	3	4	3	4	0	3

All numbers are in percentage

years old. NPs are young people's bodies as average age of councilor is less than forty years. If we look at category-wise age profile of councilors it shows that both ST men and women are younger than other categories.

Table 6 disproves general belief that political leaders are not educated. Mere four percentage members of NPs are illiterate and more than forty percentage councilors have taken education up to tenth standard. Among all categories, percentage of graduate councilors of SC male and female is higher than any other category. It means as compared to general category, SC male and female members are more educated.

How much votes one needs to win in NP?

Like Grampanchayat NPs elections are closely fought battles. A candidate may secure victory if s/he gets less than 500 votes. Thirteen per cent councilors won by just getting less than 100 votes. Thirty-three per cent garnered between 100 and 200 votes while twenty-six per cent candidates won with votes between 200 and 300. Thus, Seventy two percent councilors have secured votes less than 300. If someone is able to manage votes around 300 s/he may get victory in the election. The margin of the victory is also very narrow. Forty-six percent councilors' victory margin is less than fifty votes. Forty

three percent councilors' victory margin was less than 200 votes. Average victory margin across the state is 90 votes and average votes polled by a winning candidate are 240 votes. Above numbers reveal that every vote is important in this election and it enhances importance of voters. Hence competitiveness of the election is very high that forces candidates to use different means including unethical and illegal to cajole voters.

Campaigning and Expenses

NPs elections were fought tooth and nail. Campaigning for the election was held under the leadership of the Local MLAs, MPs, district, and taluka presidents of political parties. Rallies of these leaders were held in the NP area. Candidates personally approached voters. Home to home visits was one of commonly used methods of election campaign. Flex boards were put up in public places; distribution of pamphlets and social media was used by candidates to appeal voters. Major political parties provided election material to the candidates.

As shown earlier, elections to NPs witnessed very close competition. Every vote was important and valued. So to attract voters, candidates used various methods. It has been alleged that one prominent and found everywhere was distribution of money

to voters. Even though expenditure limit for NP member is 150000 rupees, many candidates - both winners and losers- have reportedly spent more than that. A sum between 500 and 5000 rupees was allegedly distributed to each voter. It was reported that apart from money, food and liquor was also offered to the voters. People who are not residing in the area were given traveling expenses to come for voting. Election has become very costly affair. The more local the election, the more it is costly. A few political parties have given money to their candidates for election expenses.

Conclusion

Procedurally, NP elections have succeeded in democratic decentralization; however, substantially all pathologies of elections are visible in the process. Bribing of voters is the major concern and it is by default excluding poor from participation in the process. People having access to money can climb ladder of political power in these local bodies. Elections at local levels are moving away from caste concerns to class. Economic power of candidate is major determining factor in the electoral procedure. A candidate has to write his/her plan for ward in the election affidavit if he/she gets elected. It seems that information has been filled by the person who has filled the form and candidates had no vision

about what to do. Many of these NPs face severe shortage of water. All challenges of big cities like poor roads, non-existent drainage system, inadequate waste management, poor administration are also visible in the NP areas.

Notes

- 1 https://mahasec.maharashtra. gov.in/
- 2 Information about caste and occupation of 1709 councilors has been collected over the phone. The researcher has called at least two to three councilors in the each NP and from them information about other members have been collected and verified. Telephonic discussion with councilors has helped to understand the electoral procedure of the NP. Telephonic interviews were taken from 14th January 2022 to 30th August 2022. Table 4, 5 and 6 are based on 480 randomly selected affidavits filed by elected candidates with state election commission.
- 3 Since 1990s almost all Chief Ministers of Maharashtra (except few exceptions) have faced allegation over murky land deals. Recently current Chief Minister Eknath Shinde had faced similar allegation over the transfer of government land to a private entity in Nagpur.

4 Election commission has given details of votes got by elected members and his/her victory margin. That data has been used to derive above figure.

References

- 1. Aware, Ankush (2016): "Badalati Jamindharna ani tyacha Maharashtrachya Rajkarnawar Padnara Prabhav: Ahmednagar Zilha Ek Abhyas", Unpublished Phd Thesis Submitted to Savitribai Phule Pune University Pune.
- 2. Birmal, Nitin and Lele jayant (2015): "More on Maratha Politics," Economic and Political Weekly, Vol. 50, No. 11 (MARCH 14, 2015), pp. 66-67.
- 3. Mahadevia, Darshini (2011): "Branded and Renewed? Policies,

- Politics and Processes of Urban Development in the Reform Era," Economic and Political Weekly, Vol. 46, No. 31 (JULY 30-AUGUST 5, 2011), pp. 56-64.
- 4. Palshikar, Suhas (2002): "Triangular Competition and Bipolar Politics: Elections to Local Bodies in Maharashtra." Economic and Political Weekly, Vol. 37, No. 13 (Mar. 30 - Apr. 5, 2002), pp. 1273-1280.
- 5. Sirsikar V. M. (1964): "Leadership Patterns in Rural Maharashtra," Asian Survey, Vol. 4, No. 7 (Jul., 1964), pp. 929-939.
- 6. Vora, Rajendra (1996): "Shift of Power from Rural to Urban Sector," Economic and Political Weekly, Vol. 31, No. 2/3 (Jan. 13-20, 1996), pp. 171-173.

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Book Review

Title: Public Policy and Politics in India: How Institutions Matter

Author: Kuldeep Mathur, Oxford University Press, 2016, 306 pp. ₹465.00. ISBN: 9780199466054

The book, "Public Policy and Politics in India: How Institutions Matter" by Kuldeep Mathur explains the complexity of India's policymaking process as well as the newly emerging style of governance practices in India. The book is divided into ten chapters, but they all address policy processes and discuss the role of institutions in policy-making in India.

Chapter 1 is titled "Guidance for Governance in India: Alternative Sources of Policy Advice." This chapter attempts to illustrate how India's public policy paradigm has changed over time. During the initial stages of independence, public policy was formulated using rational-economic as well as technocratic criteria. Then, a series of economic reforms, the involvement of international organizations, and the emergence of new institutions all had a significant impact on India's policy-making processes. In the beginning, the

Research Planning Committee and Planning Commission funded the research institutes to promote multidisciplinary and policy-oriented research. India's political institutions are currently undergoing a profound change as a result of the creation of new organizations and collaborations with the government. The traditional governance structure has been replaced by a multilayered governance structure throughout the process of public policy.

Chapter 2 is "Policy Analysis in India: Research Bases and Discursive Practices". The dominant paradigm of policy analysis and its research foundations in India have been identified in this chapter. The hegemonic economies in the field of policymaking have been weakened by the emergence of participatory politics, policy debates, and diverse research. However, the development of new tools and methodologies for policy analysis has not yet become a significant theme in the discipline. The positivist approach, followed by a post-positivist orientation to policy analysis, is still being adopted in India as a replacement for the traditional policy research approach.

Chapter 3 "Policy Research Organization in South Asia" explains how relatively autonomous policy research organizations have grown in number and what function they have served in South Asian nations. Additionally, the general sociopolitical environmental characteristics of South Asian nations have been covered in this chapter. One of the primary forces in the early development of research institutions in India was the Planning Commission. The Planning Commission, which served as the nation's think tank, began supporting and encouraging these institutions. This chapter's conclusion includes an exhortation to research institutes to diversify their research efforts in line with their mission and performance.

Chapter 4 "Battle for Clean Environment: Supreme Court, Technocrats and Populist Politics in Delhi," covers India's environmental policy discourse. Additionally, the author has discussed how the Supreme Court managed Delhi's air pollution under various political pressures. Even after the technocratic orientation, India's environmental politics failed to meet the desired goals; as a result, administrative operational procedures failed. With the court's intervention, policy gaps were filled and legislation was enacted against the land mafia, polluting industries and the transport lobby for a clean Delhi. This process led to new policy trajectories and inspired the government to pass sensible environmental laws in this area.

Chapter 5 is titled "Does performance matter? Policy Struggle

in Education" focuses on the processes that determine educational policies in India and explains how different actors and institutions influence policy outcomes. India's educational system has a few traits that it inherited from the colonial system. However, after Independence, many reforms were implemented at the primary and higher study levels. Several commissions and committees were formed to give education policy a more comprehensive shape. Even with numerous policy and educational reforms, India's education system continues to have some difficulties.

Chapter 6 "Privatization as reforms: Liberalization and public sector enterprises in India" examines some general theoretical issues raised by public choice theory against the performance of the public sector. The second part of the chapter explains the traits and tendencies of the Indian public sector, as well as its attempts at reform and potential causes for their failure. In light of social welfare, the author is doubtful about the privatization and market control mechanism, and questions whether privatization overall is preferable in India's highly complex environment or

Chapter 7 "Drought in Parliament: Representation and Participation" explains the parliament's role in bringing drought-related issues to the floor and important legislation proposed by elected representatives in the house. It explains how politicians in power frequently pursue their own personal and partisan interests. The data in this chapter demonstrate that North-Eastern state MPs participate very little in the major parliamentary debates on drought. Only a few MPs from the drought-affected region have taken the initiative to raise questions and participate in debates in the House.

Chapter 8 is titled "Government as Network: The Emerging Relationship among the State, Business, and NGOs in India". This chapter explains the network relationships between the state, the market, and civil society in the process of public policy within the neo-liberal economic system. The governance structure has changed as a result of economic reforms and the intervention of international organizations, moving from a topdown to a bottom-up strategy for resolving social issues that transcend the distinctions between the public and private sectors.

Chapter 9 is titled "strengthening bureaucracy: State and development in India". This chapter discusses the scope and perspective of development administration. Many third-world countries strengthened their bureaucracies by professionalizing them and giving them a management orientation. The author has discussed the features of strong bureaucracy and limitations in a developmental state.

The last chapter titled "Administrative Reforms in India: Policy prescriptions and Outcomes" is about policy recommendations. This chapter discusses Indian administrative reforms and analyzes the environment and circumstances that led to their development. It also provides a rationale for suggestions to enhance administrative procedures in India as well as an explanation of how Public administration became an academic discipline. At end of the chapter, the author has outlined the main problems and difficulties the administration encountered in the postreform era.

The book is the result of extensive research. It is written in a clear and easy-to-read style. Prof. Kuldeep Mathur has woven a fascinating account of India's public policy development, major issues, and challenges encountered over time. This book highlights instances where systemic flaws in the overall policy design led to implementation failures. It is a must-read for policy practitioners and scholars who are interested in understanding the processes of public policy-making, goals, and consequences. Furthermore, the book promotes more in-depth research in the field by sparking discussion and debate among experts and research scholars.

Book Review by:

- 1. Arun Kumar Nayak
- 2. Prof. Padmalaya Mahapatra

Report Review

Urban Wastewater Scenario in India

Read the report here: https://www.niti.gov.in/sites/default/f iles/2022-10/Waste-Waterver2 18102022.pdf

A recent report/white paper by NITI Aayog jointly with others on the above subject addresses a very urgent and crucial subject in India's urban development domain. The rapid and relentless urbanisation that we are witnessing brings along with it several opportunities while also presenting a wide array of challenges. While the overarching opportunity is for improving the lives and meeting aspirations of large numbers of Indians quickly and efficiently, the challenges range from housing, service delivery, public healthcare, and green mobility. Wastewater management is among the key services that need to be provided by our local governments in order to move towards a safer, healthier, and greener future for our urban residents.

Therefore this report is indeed valuable.

The Foreword begins by highlighting the centrality of clean water to achievement of the Sustainable Development Goals and the need to ensure its sustainable use. It notes that many SDGs are linked to clean and safe water. It goes on to state that on the one hand there is increasing need for freshwater for both domestic and industrial uses, on the other hand the availability of water is under stress due to several factors including climate change impacts. Therefore there is an urgent need to recycle and reuse water in order to meet the growing needs.

It further outlines the genesis of this white paper stating that a multi-disciplinary team of experts from Atal Innovation Mission, NITI Aayog, National Mission for Clean Ganga, IIT Bombay among others was formed for the purpose.

Section 1 of the report is the **Executive Summary**.

It states the need for sustainable water management given the water shortage arising out of population growth and increasing demand, further threatened by climate change impacts. It emphasizes the need for reuse of wastewater and calls for engagement among stakeholders for developing sustainable solutions. It states that currently India produces about 72000 Million Litres per Day (MLD) of urban wastewater of which only 28 percent is

treated. It calls for efforts to close this gap while also mentioning some of the obstacles to the same. It calls for use of suitable technology tools to ensure safe recycling of wastewater to ensure its quality and simultaneously improve the confidence of users about the quality of the treated wastewater.

Thereafter starts the main report with **Introduction** as Section 2.

It starts with background information about the amount of wastewater generation in urban areas and reasons thereof. It highlights the fact that demand for water is increasing and leading to a demand supply gap. One way of closing this gap is through use of wastewater. For this it is essential that the wastewater being released into the environment is treated and is of appropriate quality. This can give confidence for reuse of this water. It mentions the need to treat such water as a 'resource' rather than as a 'waste'. Here the report presents an estimate of the amount of wastewater generated per year over the years in various regions of the world. Asia is the highest and growing. One estimate places the global annual wastewater generation at about 360 billion m3. High-income countries were estimated to be generating 42% of global wastewater, which is almost twice that of low- and lower-middle-income countries.

At the same time, wastewater treatment and collection percentages

follow similar patterns, with high income countries collecting 82% and treating 74% of the majority of their wastewater generated, much higher than that of lower income countries. In other words, 'even though developed countries generate more wastewater, they also have the infrastructure to reuse wastewater', says the report. These are well illustrated with bar charts and graphs. Thereafter these are a few paragraphs about the situation India, its growing urbanisation, the large cities, its water requirements and the sectoral breakup (agriculture, drinking, industry and others). The authors point out the situation arising out of discharge of waste water back into catchments and causing contamination. This is a challenge.

There is then a description of the structure of the white paper in six sections from Section 2 to Section 7.

Section 3 is titled Current scenario of Urban Wastewater Management (UWM) in India – An Overview. It begins by explaining the legislative framework in India and the roles of Central and State governments according to the Constitution. It also states the roles of the Central and State Pollution Control Boards and lists out the relevant legislations. There is then a description of the Sewage Collection Systems and Sewage Treatment Facilities, including the numbers of operational and under-construction plants. These are presented in tables

and the processes are described in a flow chart and figures giving pictorial representation. These are very valuable for readers on the technical aspects of wastewater management. There are then a few paragraphs on 'Regulatory challenges', 'economic challenges', 'technological challenges', and 'social challenges'. These are indeed very well-articulated and explained in good detail.

Section 4 is titled Global innovative, cost-effective and sustainable solutions for UWM.

This Section covers various approaches to UWM such as Decentralized approach for UWM, Nature-based Solutions (constructed wetlands, floating treatment wetlands, green roofs and living walls, Waste stabilization ponds, High-rate algal ponds, and Vermifiltration). Among innovative applications for wastewater treatment and reuse, the authors discuss IoT based solutions, GIS based solutions, etc. All these are well presented through the use of charts, diagrams, figures and even photographs. In addition, there are some case studies. These parts of the report will be much helpful for urban planners and our urban local bodies in devising appropriate strategies and solutions to the looming water crises and wastewater challenges.

In further paragraphs in the section, the report discusses in detail matters relating to reuse of wastewater. It notes that the potential for reuse of wastewater is huge considering the large and ever-growing gap between demand and supply. Alongside is the significant gap between generation of sewage and its treatment. While higher treatment can address the demand for water through reuse, it can also help in reducing the contamination of freshwater bodies and aquatic life which happens due to release of untreated sewage into water bodies.

There are then paragraphs on Public-private partnerships, Community participation, and Performance evaluation of treatment plants.

Section 5 titled Capacity building and raising awareness for UWM starts by quoting the UNDP (2009) definition of the term capacity building as the "process through which individuals, organizations and societies, obtain, strengthen and maintain the capabilities to set and achieve their development objectives over time". Further, it states, 'The aim of capacity building in the UWM sector should focus on raising awareness and building capacity for policymakers and planners who deals not only at the city level but also towards the local, regional, and national level in managing wastewater'. Sub-sections deal with Trainings and knowledge transfer/exchange, improving institutional and international collaboration, and sensitization of the

public, In this section too there are interesting pictorial and graphic representations to explain the various points being discussed.

Section 6 is titled Learning from case studies by National Mission for Clean Ganga, India

It starts by describing the central role that the Ganga River Basin plays in the life of the country given the large land mass it covers and accounts for sustenance and livelihoods of large numbers of the populations in the various states that the River passes. It explains that the focus of the Mission is on sewerage infrastructure creation in Ganga tributaries, scaling up of publicprivate partnership efforts, circular water economy model and faecal sludge and septage management. It goes on to explain the five strategic areas of intervention namely, "Nirmal Ganga" (pollution abatement), "Aviral Ganga" (ecology and flow), "Jan Ganga" (people river connect) and "Gyan Ganga" (research, policy and knowledge management), and "Arth Ganga" (self-sustainable economic model based on the symbiotic relationship between nature and society).

In the sub-sections under this section, it describes Institutional arrangement of the National Mission for Clean Ganga (NMCG), Current technologies and practices for UWM, Approaches for promotion and

adoption of the sustainable UWM Solutions, Innovative applications and technological solutions for UWM.

In this section the authors discuss various interventions such as 'Cath the rain campaign', 'Bhuvan Ganga portal', 'Green Ganga app' and 'Spring rejuvenation using Remote Sensing GIS and UAV technology' among others.

Section 7 titled **The way forward** is a wrap up and direction setting for future action.

All in all, this report on a crucial subject is a seminal piece of work. Water availability and its judicious use will be key to ensuing a sustainable future on this planet. Water availability must be enhanced through rigorous pursuit of reuse by ensuring quality of reuse water to shore up confidence of the citizens. Thereby the extent of capture and treatment of wastewater as well as its demand could grow rapidly. In addition to improving water availability, such treatment will also ensure that wastewater/untreated water does not mix with and contaminate freshwater resources like rivers, lakes and ponds. As the report has rightly argued, wastewater must be looked upon as a 'Resource' and not as 'Waste'. This report will go a long way towards this goal.

V Vijaykumar

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OBJECTIVES

The main emphasis of the Institute's work is to see that the local bodies can contribute more effectively to the development process and provide the citizens with better living conditions by meeting their aspirations in terms of required amenities, infrastructure and better environmental conditions, thus contributing to social and economic development of the society as a whole by better management of the human settlements. While these are the long-term objectives, the immediate ones are:

- To advance knowledge of the principles and practices of Local Government by conducting research and by organising training courses and programmes at various centres in India for officials and elected representatives in the local bodies.
- To strengthen and improve Local Government Institutions by improving their performance through education, orientation and bringing them together for common endeavor by organising specialised conferences, conventions and seminars.
- To make available a platform for members of local bodies and officials for exchange of views and ideas related to urban development and administration.
- To represent the views of local authorities supported by research work to the concerned higher authorities from time to time.
- To publish bibliographies, articles, books and other literature on matters of interest to local bodies.
- To publish journals, bulletins and other literature on different aspects of Local Government and on the working of Local bodies in different states.
- To undertake research studies in public administration, problems of local bodies and also in related topics of urban and environmental factors and arrange for their publication etc.
- To establish and maintain an information-cum-documentation service for local bodies.
- To undertake consultancy assignments in various areas of urban development and problems of local bodies with a view to improve and develop organisational, managerial and operational efficiency.

In view of the above, the Institute has been collaborating with the relevant government departments, Central and State, Universities, Organisations and Research Institutions. The work of the Institute covers several aspects involving a multi-disciplinary teamwork.

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