A Study on Environment Hygiene in Tuticorin Town, Tamil Nadu

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Abstract

Environmental health is that aspect of public health that is concerned with those forms of life substances; forces and conditions in the surroundings of man that may exert an influence on man's health and well-being. It includes other people as part of man's surroundings that contribute to the status of environmental health. Where not only do man and his environment interact, but man is shown to be a vital factor of his own environment. In recent years, environmental engineering is a term that has come into wide use. While the meaning of this terminology is somewhat controversial is some circles, it generally, refers to the study of man-environment inter-relationships and the modification of the environment for man's benefit. To the extent that there is concern for man's environment as it relates from illness, health maintenance, human efficiency, comfort and the enjoyment of life, use of property, and management of resources. At times, it becomes impossible and useless, because of direct and indirect interrelationships, to make any distinction between those activities concerned with man's health and other aspects of environmental engineering and science, as in air and water pollution. Both natural and social sciences have application in the development of a suitable environment for man. The quality of life is directly related to the quality of the environment. Concepts of "pure" water, "pure" food, "clean" air, "clear" neighbourhood reflect the newer concepts of health as meaning more than the absence of disease; the environment must satisfy not only man's physiological needs but also his psychological and sociological needs. The quality of the environment through history has been a measure of the character of a civilization - "a way of life".

Keywords: Environment, Human and Quality of Life

Introduction

The term 'environment' is widely used and has a broad range of definitions, meanings and interpretations. What does the term 'environment' mean? In popular usage, for some people, the term 'environment' means, simply, 'nature': in other words, the natural landscape together with all of its non-human features, characteristics and processes. Environmental health can be defined as "the aspect of public health that is with all external conditions such as all forms o life, substances, forces, problems and challenges and any other condition in the surroundings of man that that may extent an influence on man's health and well-being". Disease in this sense represents maladjustment of the human being to his environment.

"Sanitation is a way of life' according to the National Sanitation Foundation, Frequently, throughout history, the status of the environment, which historically has been equated with sanitation but is now much broader in concept, has been the measure of civilization. In fact, the aggregation of population has always seemed to create environmental health problems which had to be solved before the populace could survive and enlarge. The earliest public health measures were concerned with environmental matters. Many customs, taboos, and religious practices have their roots in observed or presumed interaction between man and environmental conditions. Moses Law has dictates concerning sanitation which could have applications today.

The environment is an important part of our life, without which the living things couldn't survive on Earth. However, several issues are disrupting the ecosystem of the environment and causing damage to living beings. The main reason behind such a condition was that humans misused nature and the technology that they settled their lifestyle. Greenhouse effect, global warming, pollution, and various other harmful toxic wastes from industries are the side effects of nature damage. Humans' everyday activities like washing clothes using chemical detergents, using chemicals like fertilizers, and using colors in vegetables are degrading environmental quality.

Man-environment Relationship

The status of man's health represents the result of complex interactions between his internal biological system and the total external environmental system. This text is concerned primarily with the external environmental system, but it should be obvious that the interactions between the environment and man's biological system must always be before us. The environment is both natural and modified by man's work and presence.

Life Support

Man as a biological organism has developed in an environment which is being changed more rapidly than ever before. These changes may tax his adaptive capacities. Even where the adapts, we are not certain what the costs to his biological system may be Certain environmental conditions are necessary to sustain life. Still other affect body functions, performance, and comfort, air, water, food and shelter are requirements for man's survival.

Principles of Environmental Control

A primary objective of environmental control is to prevent disease. This means that man must be prevented from encountering the hazards or the hazard must be removed from the community. Of course, it is preferable to percent an environmental condition even arising which is hazardous to man. While prevention of hazardous conditions is essential, this is only half the job. It should be a public policy to provide an environment which maximizes man's health.

Substitution: is frequently a low cost, easily applied, completely effective method of environmental control. A simple application is the substitution of a harmless cleaning fluid for a toxic one. The use of food which do not support the rapid growth of staphylococcus organisms may be effective in the prevention of food poisoning. On a broader scale, a non polluted water supply may be developed in preference to a polluted one, and a chemical manufacturing process may be substituted for one that creates air, water or land pollution. The substitution of degradable detergents for non degradable ones is a case in point.

Shielding: as used here, is distinct from isolation. Shielding is the use of barriers for protection while a person remains in relatively close proximity to the hazard. Safety glasses and protective clothing are personnel measures which may be employed. Screening for the exclusion of mosquitoes and flies and heat shields are other examples. On cafeteria lines glass sneeze guard are used to protect against food contamination. Lead is used to restrict the mission of stray ionizing radiation from X-ray machines.

Treatment: Where other measures are not applicable, treatment of the hazard may be employed. Environmental treatment methods, which may be used in conjunction with dilution or dispersion or contaminating substances or prophylaxis1 include: (1) destruction; (2) conversion; (3) removal; and (4) inhibition.

Prevention: Minimizing exposure exposure through restriction of activities immunization against disease and the use of prophylactic agents may avoid infections and, so such, are measures which may be used to avoid the effects of environmental hazards. One may use only boiled water and cooked food when traveling in areas where drinking water is not safe or sewage is used to irrigate low growing vegetables. The avoidance of unpasteurized milk and uncooked shellfish are similar practices. Restraints of this type are unacceptable to many people. '

Environmental Health Problems in India

Nearly a decade ago, environment was the exclusive preserve of sanitary engineers and health officers. However, from 1972 onwards there was rethinking and it was realized that environment has to cater to the perpetuation of the living systems (including human kind) on this planet, which in shore, meant conservation of the life support system. The situation in our country is indeed unique in as much as we are developing among developed world but developed in the developing world. It is a country where centuries co-exist and we have today both near-stone age to near-space age cultures. Obviously, the spectrum of diseases ranges from those that result from poverty and streak need, to those that are the result of prosperity, affluence and greed. Clearly, the challenges faced by our medical scientists and health planners are considerable. There were six conclusions regarding the state of environmental health of India:

(a) India faces a disastrous double burden of disease. Most of the old diseases continue to be rampant, while new ones are making rapid strides. The Indian death rate is no longer going down.

b) Every third persons who dies in India is a child below the age of five; a victim of a vicious combination of poverty malnutrition insanitary environment and unclean drinking water.

c) Diarrheas attack children in particular. Three die every minute, about 1.5 million every year. This constitutes a permanent epidemic in our country.

d) The extension or irrigation in creating excellent breeding grounds for disease carriers, including the mosquitoes that spread the fatal disease Japanese encephalitis, almost unknown in India 30 years ago. Every third person in India now lives in danger of falling prey to filariasis.

e) With water pipes empty most of the time and sewage seeping into them, hepatitis is increasing by leaps. This disease is not yet a notifiable disease.

(f) Increasing use of cigarettes and bidis and greater use of chemicals because of industrialization already results in half a million deaths from cancer every year. By the end of the century, India could he an unenviable country with so called diseases of poverty and of affluence coexisting with each other.

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Levels of concern for environmental quality have been classified roughly as follows (1) bare survival-control of major epidemics of disease and violent death, minimum food and water, (2) control of disease and injury - control of endemic and dietary disease and accidental injury; (30 efficient performance-adequate and proper, diet, maintenance of environment for efficient use of manpower; and (4) comfort-stimulating environment, aesthetic satisfactions, comfort control.

The first of these-bare survival-is a rather precarious existence. Any failure results in premature death for many people. Although we pride ourselves on the achievements of our civilization, there are many places in the world where the first level of environmental quality has yet to be attained. Too often solutions of problems on a piecemeal basis generate new environmental problems in other areas.Consequently, it is necessary to take an ecological approach to environmental quality and consider the totality of the environment with man as part of an ecosystem. While geographical approaches have been characteristic of the past, in future years the population increase will require that the environment of the world be reviewed as closed system. Man has the capacity, but it remains for him to exercise his will and wisdom, to modify the environment for the maximization of his physical, mental, and social well-being.

Statement of the problem

This study attempts to examine the environmental pollution and health condition of the given population in the Tuticorin town area. This study deals with environmental pollution issues relating to water, air and noise pollution and the impact of water pollution on human health, hygienic maintenance of household environment, home sanitation practice and involvement in village sanitation activities, efforts towards promotion of hygienic practices among household members and rural community, reporting of diseases due to unhygienic maintenance of household environment and rural environment and so on. This study analyses the extent to which rural people have knowledge of environment and awareness. It analyses their behaviour on environmental conservation and preservation. It outlines the respondents' awareness of various environmental hygiene and sanitation issues and measures.

Objectives

The following objectives are framed for the purpose of the present study:
1. To study the socio-economic condition of the respondents;
2. To find out the sanitation and environmental condition prevailing the study area;
3. To analyse the various forms of pollution prevailing in the study area;
4. To find out the defects on the health of the respondents in the study area;
5. To put forth suitable suggestions to improve the health condition in the study area

Operational Definition

The following concepts are operationally defined for the purposes of the present study.

Environmental Degradation

It refers to the occurrence of various forms of land degradation, various forms of water pollution, occurrence of noise pollution and occurrence of air pollution and their consequence on the well-being of the local people.

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Environmental Awareness

It refers to knowledge of the rural households on pollution and pollutants and their effects on life support system. It includes knowledge of hygienic practices, sanitation practices, environmental health care measures and so on.

Environmental Issues

It refers to ways and means of undertaking environmental preservation and conservation measures like sanitation, health care activities, solid waste management, maintenance of environmental resources.

Methodology

The present study was conducted based on the primary data collected through field survey with the well-structured interview schedule and purposive sampling. The researcher used an exploratory research design. The collected data was collected between the periods of October November – December 2021 and analyzed with the use of SPSS package and suitable statistical analysis was done. The collected data are classified and tabulated with the help of a master table. Cross tabulation is done representing socio economic status of the respondents in terms of village, caste, education and income to study the respondents' awareness of environmental pollution and health problems faced by the respondents. The general data interpretation is done with the help of percentage and average analysis.

ANALYSIS AND INTERPERTITION

Caste wise Distribution of households

Village	Forward Class	Backward Class	Most Backward Class	Scheduled caste	Total
Nallur	7 (10.77)	25 (38.46)	15 (23.08)	18 (27.69)	65
Ammanpuram	6 (11.32)	19 (35.85)	12 (22.64)	16 (30.19)	53
Veeramanickam	9 (14.29)	25 (39.68)	10 (15.87)	19 (30.16)	63
Pallipatthu	8 (11.27)	33 (46.48)	11 (15.49)	19 (26.76)	71
Moolakkarai	12 (16.67)	32 (44.44)	18 (25.00)	10 (13.89)	72
Kayamozhi	10 (12.35)	46 (56.79)	20 (24.69)	5 (6.17)	81
Total	52 (12.84)	180 (44.44)	86 (21.23)	87 (21.48)	405

Source: computed from primary data

It could be seen clearly from the above discussion that majority of the households belong to scheduled caste and most backward caste group. Data presented in table 2 indicate the occupation wise distribution of households. It could be noted that out of total 405 households more than (55.31%) half of them are wage laboruers and 12.35 per cent of them are rural artisans. Rural artisans are formed in Moolakkarai (20.99%) than in other areas. Of the total 405 households, 17.53 per cent of them are marginal farmers and they constitute a considerable number among the households of Pallipattu village than those of other villages. Moreover, 14.81 per cent of the households are small farmers and they are the least in number in Nallur Village.

Occupation wise Distribution of households

Village	Wage Labour	Rural Artisan	Marginal Farmer	Small Farmer	Total
Nallur	44 (67.69)	9 (13.85)	8 (12.31)	4 6.15)	65
Ammanpuram	36 (67.92)	2 (3.77)	7 (13.21)	8 (15.09)	53
Veeramanickam	35 (55.56)	7 (11.11)	11 (17.46)	10 (15.87)	63
Pallipatthu	37 (52.11)	7 (9.86)	19 (26.76)	8 (11.27)	71
Moolakkarai	37 (51.39)	8 (11.11)	17 (23.61)	10 (13.89)	72
Kayamozhi	35 (43.21)	17 (20.99)	9 (11.11)	20 (24.69)	81
Total	224 (55.31)	50 (12.35)	71 (17.53)	60 (14.81)	405

***Source: computed from primary data**

It could be seen clearly from the above discussion that more than half of the households are wage earners and small and marginal farmers who constitute about one-third of the rural households in the study. The rural artisans are the least category.

Income wise Distribution of households (in Rs.)

Village	Upto 2,000	2,001 – 3,000	3,001-5,000	<Rs.5,000	Total
Nallur	36 (55.38)	12 (18.46)	9 (13.85)	8 (12.31)	65
Ammanpuram	23 (43.40)	13 (24.53)	11 (20.75)	6 (11.32)	53
Veeramanickam	35 (55.56)	13 (20.63)	7 (11.11)	8 (12.70)	63
Pallipatthu	24	29	10	8	71

	(33.80)	(40.85)	(14.08)	(11.27)	
Moolakkarai	26 (36.62)	27 (38.03)	11 (15.49)	7 (9.86)	71
Kayamozhi	33 (40.24)	23 (28.05)	17 (20.73)	9 (10.98)	82
Total	177 (43.70)	117 (28.89)	65 (16.05)	46 (11.36)	405

Source: computed from primary data

Table 3 presents data on the income wise distribution of households. It could be observed that out of the total 405 households, 43.70 per cent of them belong to the income group upto Rs. 2,000. They constitute more in number in Nallur, (55.38%), Veeramanickam (55.56%) and Kayamozhi (40.24%) villages than in others. Of the total 405 households, 28.89 per cent of them fall under the income group of Rs. 2,001-3,000 and 16.05 per cent of them belong to the income group of Rs. 3,001-5,000. Further, 11.36 per cent of them come under the income group of Rs. 5,000 and above. It could be seen clearly from the above discussion that more than 40% of the households are in income group of up to Rs. 2,000.

Table - 4
Distribution of the respondents by their Education wise Distribution of households

Village	Primary	Upper Primary	Secondary	Higher secondary and above	Total
Nallur	10 (15.38)	44 (67.69)	5 (7.69)	6 (9.23)	65
Ammanpuram	23 (43.40)	13 (24.53)	8 (15.09)	9 (16.98)	53
Veeramanickam	12 (19.05)	30 (47.62)	10 (15.87)	11 (17.46)	62
Pallipatthu	13 (18.31)	33 (46.48)	15 (21.13)	10 (14.08)	71
Moolakkarai	16 (22.22)	37 (51.39)	15 (20.83)	4 (5.56)	72
Kayamozhi	12 (14.81)	44 (54.32)	13 (16.05)	12 (14.81)	82
Total	86 (21.23)	201 (49.63)	66 (16.30)	52 (12.84)	405

Source: computed from primary data

Table 4 indicates the education wise distribution of households. It could be noted that out of the total 405 households, 21.23 percent of them are primary level educated and they constitute more in number in Ammanpuram village (43.40%) than in others. 49.63 percent of households have education upto upper primary level. In this study, 16.30 per cent of the households are secondary

level educated and the rest 12.84 per cent of them have education upto higher secondary and above and beyond. It could be seen clearly from the table that more than half of the households are educated upto upper primary level. In general, households of Kayamozhi village and Nallur village have better educational status than the households of other villages.

Table - 5
Distribution of the respondents by their Family Size (in Nos.)

Village	Small Upto 3 members	Medium Upto 5 members	LargeAbove 5 members	Total
Nallur	19 (29.23)	33 (50.77)	13 (20.00)	65
Ammanpuram	7 (13.21)	17 (32.08)	29 (54.72)	53
Veeramanickam	11 (17.46)	17 (26.98)	35 (55.56)	63
Pallipatthu	30 (42.25)	28 (39.44)	13 (18.31)	71
Moolakkarai	15 (20.83)	30 (41.67)	27 (37.50)	72
Kayamozhi	32 (40.51)	26 (32.91)	23 (28.39)	81
Total	114 (28.29)	151 (37.47)	141 (34.81)	405

Source: computed from primary data

Family size distribution of households is presented in table 5. It could be observed that 28.29 per cent belong to the small family. This is quite common in Kayamozhi (40.51%) and Pallipatthu (42.25%) villages. The majority of the households of Nallur (50.77%), Pallipattu (39.44%) and Moolakkarai (41.67%) villages are formed themselves in medium family size group. Moreover, 34.24 per cent of the households are from the large family and they are found more in Veeramanickam village. It could be seen clearly from the above discussion that though a few of them belong to the small family size households, it in quite considerable in Kayamozhi village and Pallipatthu village.

Table - 6
Distribution of the respondents by their Marital Status wise Distribution of households

Village	Married	Unmarried	Divorced/ Widowed Separated	Total
Nallur	44 (67.69)	15 (23.08)	6 (9.23)	65
Ammanpuram	39 (73.58)	10 (18.87)	4 (7.55)	53

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Veeramanickam	45 (71.43)	10 (15.87)	8 (12.70)	63
Pallipatthu	54 (76.06)	14 (19.72)	3 (4.23)	71
Moolakkarai	50 (69.44)	16 (22.22)	6 (8.33)	72
Kayamozhi	45 (55.56)	27 (33.33)	9 (11.11)	81
Total	277 (68.40)	92 (22.72)	36 (8.89)	405

*Source: computed from primary data

Table 6 presents data on the marital status of the households. It could be noted that 68.40 per cent of households are married and 22.72 per cent are unmarried. The unmarried households are quite considerable in number in Kayamozhi (33.33%) and Nallur (23.08%) villages, Moreover, 8.89 per cent of the households are divorced, widowed or separated.

It could be seen clearly from the above discussion that two-thirds of households are married households. However, their proportion is quite large in Pallipatthu and Ammanpuram villages in relation to other villages chosen in the study. A study of data in table 7 indicates the village wise households' environmental awareness. It can be assessed with the help of 24 factors on a 5-point rating scale. These include knowledge of global warming that affects the life support system, effect of ozone layer depletion, deforestation and its impact on monsoon failure, preservation of biodiversity, planting more number of trees to get more rainfall, need of clean and green environment, save plants to save lives, one house one tree, knowledge of eco friendly technology, importance of groundwater conservation, tourists degrade the environment, causes of ground water level decline, impact of chemical fertilizers on food poisoning, plastic use polluting the environment, improper disposal of animal waste polluting the environment, importance of hand washing.

Findings of the study

❖ The majority of the households belong to scheduled caste and most backward caste group. Data presented in table 2 indicate the occupation wise distribution of households. It could be noted that out of total 405 households more than (55.31%) half of them are wage laboruers and 12.35 per cent of them are rural artisans. Rural artisans are formed in Moolakkarai (20.99%) than in other areas. Of the total 405 households, 17.53 per cent of them are marginal farmers and they constitute a considerable number among the households of Pallipattu village than those of other villages. Moreover, 14.81 per cent of the households are small farmers and they are the least in number in Nallur Village.

❖ It could be seen clearly from the discussion that more than half of the households are wage earners and small and marginal farmers who constitute about one-third of the rural households in the study. The rural artisans are the least category.

❖ It could be observed that out of the total 405 households, 43.70 per cent of them belong to the income group upto Rs. 2,000. They constitute more in number in Nallur, (55.38%), Veeramanickam (55.56%) and Kayamozhi (40.24%) villages than in others. Of the total 405 households, 28.89 per

cent of them fall under the income group of Rs. 2,001-3,000 and 16.05 per cent of them belong to the income group of Rs. 3,001-5,000. Further, 11.36 per cent of them come under the income group of Rs. 5,000 and above. It could be seen clearly from the above discussion that more than 40% of the households are in income group of up to Rs. 2,000.

❖ It could be noted that out of the total 405 households, 21.23 percent of them are primary level educated and they constitute more in number in Ammanpuram village (43.40%) than in others. 49.63 percent of households have education upto upper primary level. In this study, 16.30 per cent of the households are secondary level educated and the rest 12.84 per cent of them have education upto higher secondary and above and beyond. It could be seen clearly from the table that more than half of the households are educated upto upper primary level. In general, households of Kayamozhi village and Nallur village have better educational status than the households of other villages.

❖ It could be observed that 28.29 per cent belong to the small family. This is quite common in Kayamozhi (40.51%) and Pallipatthu (42.25%) villages. The majority of the households of Nallur (50.77%), Pallipattu (39.44%) and Moolakkarai (41.67%) villages are formed themselves in medium family size group. Moreover, 34.24 per cent of the households are from the large family and they are found more in Veeramanickam village. It could be seen clearly from the above discussion that though a few of them belong to the small family size households, it in quite considerable in Kayamozhi village and Pallipatthu village.

❖ It could be noted that 68.40 per cent of households are married and 22.72 per cent are unmarried. The unmarried households are quite considerable in number in Kayamozhi (33.33%) and Nallur (23.08%) villages, Moreover, 8.89 per cent of the households are divorced, widowed or separated.

❖ There is a significant variation among the chosen educational groups of households with respect to their knowledge on environmental awareness.At another point, the computed Anova value is 120.07, which is greater than its tabulated value at 5 per cent level of significance. Hence, variation among the attributes relating to environmental awareness is statistically identified as significant as per the perception of the households.

❖ It means that the age of the households is lower with regard to Environmental Awareness and larger the family size of the households, lower the Environmental Awareness of households. However, the caste status, education, farm income and non-farm income influence on the Environmental Awareness positively. Hence, it is inferred from the multiple regression model result, that various socio-economic variables except age and family size do influence the Environmental Awareness of the households positively.

❖ With regard to Ammanpuram village, the F statistics value is 11.23 and R^2 value is 0.8652 (table 11). It means that 86 per cent of the variation in the chosen dependent variable is explained by explanatory variables and the rest of them by other extraneous variables, not included in the given model. But the only variable, which has high significant regression co-efficient here, is education. Family size and age of the households have negative regression co-efficient and other variables have positive regression co-efficients. From the multiple regression model result, it is inferred that other than age and family size, all the other chosen variables insignificantly influence the health awareness.

❖ The variable, which has more significant influence, is education than those of other variables. Here also age and family size of the households have negative regression co-efficients and they are statistically significant. The regression co-efficient like caste, status, farm income and non-farm

income has significant positive regression co-efficient. Hence one infers that these variables do influence the Environmental Awareness of households.

❖ The R^2 value, which is equal to 0.7962, is also significant as regards the independent variables. The t test shows that age and family size of the households have negative significant regression co-efficients and others do contribute to the significant effect on the Environmental Awareness of households.

❖

Conclusion

It is concluded that scheduled caste households have more personal hygienic problems than those of others.A study of data in table 49 indicates the education wise households' personal hygienic problems. It is observed that majority of the higher secondary and above households are free from problem of head lice and problem of dandruff. Majority of the primary level educated households have problem of head lice, problem of bad breadth, problem of earwax and problem of feet hygienic condition. Majority of the upper primary educated households have problem of head lice, problem of teeth growth, problem of bad breadth and problem of nails growth. Most of the secondary level educated households have problem of skin and problem of bad breadth.It is concluded that primary level educated households have more personal hygienic problems than those of others.

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