

Industrialization and Environmental Degradation

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Abstract

Industrialization has contributed to the growth of economy of several countries it has improved the standard of living of its people and provided benefits to the society. In the process it has also created great environmental problems like climate change, forest destruction and denudation, soil erosion, desertification, etc. Rural India is threatened by degradation of forests, loss of soil fertility, soil erosion, over grazing, depletion and degradation of water sources and the resultant loss of bio-diversity due to the massive industrialization. Karur District is called textile city, here enormous textile and dyeing industries are located in and around Karur District. The textile dyeing industries are generating employment, transport and communication and economic status in and around the industrial establishments. These industrial units consumes enormous amount of water and discharge effluents. These effluents degrades environment in forms of air, water and surface soil. In order to understand that the local area development and environmental degradation due to the textile dyeing industries. The present study is taken up in two villages of Thanthoni Block of Karur District.

Keywords: Industrialization, Environmental Degradation and Local area Development.

Introduction

Rapid industrialization has occupied the core of our socio-economic and political sphere. These developments have significantly contributed towards employment opportunities, national and international trade and overall improvements in the quality of life. At the same time, these industries are release effluents either in gaseous or liquid form has polluted the air, soil surface and ground water leading to environmental degradation (Joshi, D.C 2000).

Industrialization has contributed to the growth of economy of several countries it has improved the standard of living of its people and provided benefits to the society. It has also created great environmental problems like climate change, forest destruction and denudation, soil erosion, water pollution, desertification, etc (kamal Naidu 2005).

In India, the industrial units are established mainly on the basis of availability of raw materials, access to market, transport facilities and other techno-economic considerations. No proper

attention is paid to the environmental aspects while setting up the industry. The hazardous industries have affected the neighborhood community in every part of the country in terms of environmental pollution. The discharge of hazardous substances have contaminated air, water and soil, rendering the environment unfit for a healthy living in and around the industrial areas.

Industrial pollution produces a number of effects on the society as well as on the economy. The pollution of water creates many economic effects in the form of damage of property, damage of land, reduction of crop productivity, loss of plants and animals of economic importance, reduced fish catch, reduced drinking water availability. Loss in recreational and other amenities. These economic losses in one way or the other affect the society. In order to understand the Industrialization and Environmental Degradation due to the textile dyeing industries the present study is carried out Thanthoni Block in Karur District.

The textile industries occupy a prominent place in India and they use a large quantity of water. The process of boiling, bleaching and dyeing various chemicals such as soda ash, caustic soda, hydrochloric acid, sulphuric acid, sodium peroxide, acetic acid and dye substances and the resulting effluents leached into the water bodies. As a result they pollute the water both in open wells and bore wells the surrounding of industrial units (Ramachandran 1994).

In textile dyeing industrial processes about 20-60 liters of water are consumed per kilogram of cloths dyed and large quantities of effluents released during the operations process. It amounts to about 16 per cent of total water consumed in the mills (Donold.R 1984).

The dyeing industrial wastewater is having dark red colour and high suspended solids. The large variety of chemicals used in bleaching and dyeing process renders them very complex. These chemicals are used in an attempt to make attractive popular shades of fabrics for a competitive market. Dyes are carbon based organic compounds while pigments are normally inorganic compounds, often involving heavy toxic metals. The textile industries produce effluents that contain several types of chemicals such as dispersants, leveling agents acids, alkalis, carries and various dyes and such wastes leads to environmental degradation.

Discharge of textile waste water on land for agricultural purpose will also affect the crop and soil due to high dissolved salts. The suspended solids, which are present in waste may carryout clogging of soil pores. The sodium, present in the waste, leads to hardening of the texture of soil and also prevents penetration of roots in soil (Pathade, G.R)

Statement of the Problem

Karur District is called textile city, here enormous textile and dyeing industries are located in and around Karur District. The textile dyeing industries are generating employment, transport and communication and economic status in and around the industrial establishments. These industrial units

consumes enormous amount of water and discharge effluents. These effluents degrades environment in forms of air, water and surface soil. In order to understand that the local area development and environmental degradation due to the textile dyeing industries. The present study is taken up in two villages of Thanthoni Block of Karur District, with following objectives.

Objectives:

1. To study the socio-economic conditions of the respondents in Appipalayam and Karuppampalayam Village of Karur District.
2. To find out the overall development due to the textile dyeing industrial establishment.
3. To find out the environmental degradation caused by textile dyeing industrial effluents.

Methods

Thanthoni is one of the block of Karur District. The researcher has selected two villages (Appipalayam and Karuppampalayam) of this block, where enormous textile dyeing industries are located in and around the villages. These two village consist of 1601 households that is the Appipalayam village has 695 households and Karuppampalayamvillage has 906 households. The researchers has selected 10 per cent of the households from each village using simple random sampling method. Thus, total of 160 households (70 from Appipalayamand 90 from karuppampalayam village) were identified as sample households. Further, the researcher has used descriptive research design for this study.

Using a well-structured interview scheduled the information and necessary data were obtained from the respondents, who normally the head of the households, and the data were arranged and classified for analysis.

Results and Discussion

Table-1 Socio-economic characteristics of the respondents

| Characteristics | No. of Respondents | Percentage |
|--------------------------|--------------------|------------|
| Age group | | |
| Below 30 | 37 | 23.13 |
| 30-40 | 68 | 42.50 |
| Above-40 | 55 | 34.37 |
| Caste group | | |
| Scheduled caste | 73 | 45.63 |
| Backward caste | 68 | 42.50 |
| Most backward caste | 19 | 11.87 |
| Educational level | | |

| | | |
|--------------------------------|-----|--------|
| Illiterate | 52 | 32.50 |
| School level | 78 | 48.75 |
| College level | 20 | 12.50 |
| Technical / vocational level | 10 | 6.25 |
| Occupation status | | |
| Cultivators | 23 | 14.37 |
| Agricultural laborers | 45 | 28.13 |
| Industrial workers | 63 | 39.37 |
| Government employees | 18 | 11.25 |
| House hold Industrial workers | 11 | 6.88 |
| Income (In. Rs.Monthly) | | |
| Below 10000 | 19 | 11.88 |
| 10000-15000 | 47 | 29.38 |
| 15000-20000 | 71 | 44.38 |
| Above - 20000 | 23 | 14.36 |
| Total | 160 | 100.00 |

Table 1 presents the distribution of the respondents on the basis of age, caste, education level occupation status and level of income.

From the table, it is observed that out of the total respondents, 42.50 per cent of the respondents are belong to the age group of 30-40 years and 34.37 per cent of them fall under the age group of 40 years and above. The remaining 23.13 per cent of them belong to the age group of below 30 years.

The table presents the data on caste wise distribution of the respondents out of 160 respondents, 45.63 per cent of the respondents are scheduled castes and 42.50 per cent of them backward castes. Only 11.87 per cent of the respondents are most backward castes. It could be noted that forward caste respondents have no representation and this phenomenon indicates that only weaker sections of the people working and living in and around the textile dyeing industrial areas.

The table shows that data on education wise distribution of the respondents, out of the total respondents 32.50 per cent of them illiterate and 48.75 per cent of the respondents are educated up to school level. 12.50 per cent of the respondents have educated up to college level. However 6.25 per cent of the respondents have acquired technical / vocational education. The table further indicates

that out of the total respondents, 14.37 per cent of the respondents are cultivator and 28.13 per cent of them agricultural labourers 39.37 per cent of the respondents have industrial workers and 11.25 per cent of them government employees. Only 6.88 per cent of the respondents have engaged in household industrial works in the study areas.

The table also presents that data on income wise distribution of the respondents out of the total respondents 11.88 per cent of the respondents have income less than Rs.10000 per month as their income. 29.38 per cent of them have income between Rs.10000-15000 and 44.38 per cent of the respondents have income between Rs.15000-20000 per month as their income. Further, 14.36 per cent of the respondents have income Rs.20000 and above per month and this indicate that the textile dyeing industries are providing employment opportunities with good income in the industrial areas.

Age wise Respondents Opinion on Textile Dyeing Industries and Local Area Development.

Data on age wise distribution of the respondents and their opinion textile dyeing industries and local area development. It could be noted that out of the total 160 respondents, 65.45 per cent of the respondents have stated that rising employment opportunity due to the textile dyeing industries particularly in the age group of 40 years and above 43.24 per cent of the respondents have realized economic development particularly in the age group of below 30 years. Further, 32.43 per cent and 32.35 per cent of the respondents have viewed transport and communication development caused by textile dyeing industries particularly in the age group of below 40 years. Almost all the respondents have pointed out that local area developed due to the textile dyeing industries.

The chi-square test is applied for further analysis. The computed chi-square value is 20.02 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between age wise respondents and their opinion on textile dyeing industries and local area development.

Caste Wise Respondents Opinion on Textile Dyeing Industries and Local Area Development.

| Caste group | Nature of the Local Area Development | | | |
|-----------------|--------------------------------------|----------------------|--|-------------|
| | Rising Employment opportunities | Economic Development | Development of transport & communication | Total |
| Scheduled caste | 18 (24.66) | 34 (46.57) | 21 (28.77) | 73 (100) |
| Backward | 41 | 10 | 17 | 68 |

| | | | | |
|---------------------|-----------------------------|-----------------------------|-----------------------------|-------------|
| caste | (60.29) | (14.71) | (25.00) | (100) |
| Most backward caste | 8 (42.11) | 6 (31.58) | 5 (26.31) | 19 (100) |
| Total | 67 (41.88) | 50 (31.25) | 43 (26.87) | 160 |

χ^2 Calculated value: 22.35, Degrees of freedom:4, χ^2 Table value (5%):14.9.

The table indicates that data on caste wise distribution of the respondents and their opinion on textile dyeing industries and local area development. It could be noted that the majority (60.29%) of the backward caste and (42.11%) most back ward caste respondents have stated that the textile dyeing industries generating employment opportunities in and around the industrial region Most of the scheduled caste respondents have realized (46.57%) economic development and (28.77%) transport and communication developed due to the textile dyeing industries.

The chi-square test is applied for further analysis. The computed chi-square value is 22.35 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between caste wise respondents and their opinion on textile dyeing industries and local area development.

Education wise Respondents Opinion on Textile Dyeing Industries and Local Area Development.

Data on educational wise distribution of the respondents and their opinion on textile dyeing industries and local area development. It could be noted that out of the total, 61.54 per cent of the school level educated respondents have stated that the textile dyeing industries are providing employment opportunities. 51.92 per cent of the illiterate respondents have realized economic development and 40 per cent of the technical/vocation educational respondents have viewed transport and communication developed due to the textile dyeing industries.

The chi-square test is applied for further analysis. The computed chi-square value is 32.16 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between educational wise respondents and their opinion on textile dyeing industries and local area development.

Occupational wise Respondents Opinion on Textile Dyeing Industries and Local Area Development.

The Data on occupation wise distribution of the respondents and their opinion on textile dyeing industries and local area development. It could be noted that the majority (63.49%) of the

industrial workers have stated that the textile dyeing industries are providing employment opportunities and 46.67 per cent of the agricultural labourers have realized economic development due to the textile dyeing industries. More than half (56.52%) of the cultivators have visualized the development of transport and communication caused by textile dyeing industries.

The chi-square test is applied for further analysis. The computed chi-square value is 31.33 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between occupation wise distribution of the respondents and their opinion on textile dyeing industries and local area development.

Income wise Respondents Opinion on Textile Dyeing Industries and Local Area Development.

Data on income wise distribution of the respondents and their opinion on textile dyeing industries and local area development. It could be noted that the majority (61.70%) of the income group (Rs.10000-15000) respondents have stated that the textile dyeing industries are providing employment opportunities and 46.48 per cent of the income group (Rs.15000-20000) respondents have realized economic development caused by textile dyeing industries. The majority (60.87%) of the income group (Rs.20000 and above) respondents have stated that the textile dyeing industries are influenced in transport and communication in and around the industrial areas .

The chi-square test is applied for further analysis. The computed chi-square value is 32.26 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between income wise respondents and their opinion on textile dyeing industries and local area development.

Age Wise Respondents Views on Textile Dyeing Industrial Effluents and Environmental Degradation.

Data on age wise distribution of the respondents and their views on textile dyeing industrial effluents and environmental degradation. It could be noted that out of the total, 69.09 per cent of the respondents have realized land pollution particularly in the age group of 40 years and above. The majority (60.29%) of respondents in the age group of 30-40 years age group respondents have stated that water pollution and 24.32 per cent of the (below 30 years) age have realized air pollution due to the industrial effluents. Almost all the age group respondents have pointed out that the textile dyeing industries are providing employment opportunities as well as generating environmental degradation in terms of air, water and land in and around the industrial regions.

The chi-square test is applied for further analysis. The computed chi-square value is 28.56 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an

association between age wise respondents and their views on textile dyeing industrial effluents and environmental degradation.

Caste Wise Respondents Views on Textile Dyeing Industrial Effluents and Environmental Degradation

| Caste group | Nature of impact of Dyeing Industrial effluents | | | |
|---------------------|---|-----------------------|-----------------------|-------------|
| | Air Pollution | Water pollution | Land pollution | Total |
| Scheduled caste | 6 (8.22) | 44 (60.27) | 23(31.51) | 73 (100) |
| Backward caste | 7 (10.29) | 20 (29.41) | 41 (60.29) | 68 (100) |
| Most backward caste | 6 (31.58) | 4 (21.05) | 9 (47.37) | 19 (100) |
| Total | 19 (11.88) | 68 (42.50) | 73 (45.62) | 160 |

χ^2 Calculated value:23.71, Degrees of freedom:4, χ^2 Table value (5%):14.9

The Data on case wise distribution of the respondents and their views on textile dyeing industrial effluents and environmental degradation. It could be noted that the majority (60.29%) of the backward caste respondents have stated that land pollution and 60.27 per cent of the scheduled caste respondents have visualized water pollution caused by textile dyeing industrial effluents. 31.58 per cent of the most backward caste respondents have felt air pollution due to the dyeing industrial effluents. Almost all the respondents have pointed out that textile dyeing industrial effluents generating environmental degradation in and around the industrial areas.

The chi-square test is applied for further analysis. The computed chi-square value is 23.71 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between caste wise respondents and their views on textile dyeing industrial effluents and environmental degradation.

Education Wise Respondents Views on Textile Dyeing Industrial Effluents and Environmental Degradation

Data on education wise distribution of the respondents and their views on textile dyeing industrial effluents and environmental degradation. It could be noted that out of the total, 67.31 per cent of the illiterate respondents have visualized water pollution due to the textile dyeing industrial

effluents. More than half (56.41%) of the school level educated respondents and (55%) college level educated respondents and (50%) technical / vocation educational respondents have stated that textile dyeing industrial effluents generating land pollution. All the respondents have pointed out that textile dyeing industries generating environmental pollution in and around the industrial areas.

The chi-square test is applied for further analysis. The computed chi-square value is 32.21 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between education wise respondents and their views on textile dyeing industrial effluents and environmental degradation.

Occupation Wise Respondents Views on Textile Dyeing Industrial Effluents and Environmental Degradation.

The Data on occupation wise distribution of the respondents and their views on textile dyeing industrial effluents and environmental degradation. It could be noted that more than half (60.87%) of the cultivators and (60%) agricultural labourers have stated that textile dyeing industrial effluents generating water pollution 65.08 per cent of the industrial workers and 38.89 per cent of government employees have realized land pollution due to textile dyeing industrial effluents.

The chi-square test is applied for further analysis. The computed chi-square value is 33.72 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between occupation wise respondents and their views on textile dyeing industrial effluents and environmental degradation.

Income Wise Respondents Views on Textile Dyeing Industrial Effluents And Environmental Degradation

Data on income wise distribution of the respondents and their views on textile dyeing industrial effluents and environmental degradation. It could be noted that more than half (61.70%) of the income group (Rs.10000-15000) respondents have stated that textile dyeing industrial effluents generating water pollution. The majority (54.93%) of the income group (Rs.15000-20000) respondents and the income group Rs.20000 and above (52.17%) respondents have realized land pollution caused by textile dyeing industrial effluents.

The chi-square test is applied for further analysis. The computed chi-square value is 28.56 which is greater than its tabulated value at 5 per cent level of significance. Hence, there is an association between income wise respondents and their views on textile dyeing industrial effluents and environmental degradation in and around the industrial regions.

Findings and Conclusion

From the findings of the study it indicates that the majority of the respondents are below 40 year age group and most of them belong to scheduled castes and backward castes. A good majority of the

respondents have school level educated. However majority of the respondents have industrial workers and agricultural labourers. In most of the cases their monthly income is above Rs.15000 and majority of the respondents have stated that textile dyeing industries rising employment opportunities and most of the them are particularly in the age group of 40 years and above. Almost all the respondents have pointed out that textile dyeing industries generate employment opportunities, economic development and also developed transport and communication. The study results reveals that the majority of backward castes and most back ward caste respondents have stated that textile dyeing industries are providing employment opportunities and scheduled castes respondents have realized economic, transport and communication developed due to the textile dyeing industries in and around the industrial region.

From the findings of this study it is evident that the majority of school level and technical/Vocational level educated respondents have stated that industries are providing employment. Further, most of the illiterate respondents have stated that economic development on the consequence of textile dyeing industries. The majority of the industrial workers have stated that industries providing employment in and around the industrial region and the agricultural labourers have noticed economic development caused by textile dyeing industrial establishment. However, the majority of (Rs.10000-15000) income group respondents have stated that industries rising employment and other income group respondents have stated economic, transport and communication developed due to the textile dyeing industries.

The findings of the study indicates that the majority of the respondents have noticed land pollution particularly in the age group of 40 years and above and 30-40 years age group respondents have visualized water pollution on the consequence of textile dyeing industrial effluents. However, the study results shows that majority of the backward caste respondents have noticed land pollution and scheduled caste respondents have visualized water pollution caused by textile dyeing industrial effluents. The majority of illiterates respondents have visualized water pollution as well as all the educated respondents have stated that textile dyeing industrial waste water constitute land pollution in and around industrial region.

From the findings of the study it is also evident that the majority of the cultivators and agricultural labourers have stated water pollution and industrial workers noticed land pollution due to textile dyeing industrial effluents. A good majority of income group (Rs.10000-15000) respondents have stated water pollution and Rs.15000-20000 income group respondents have noticed land pollution caused by textile dyeing industrial effluents.

The study results highlights that textile dyeing industries providing positive as well as negative impacts in an around industrial areas. These industries are generating employment

opportunities, economic development transport and communication development, at the same time this industrial waste water change the chemical, physical and biological characteristics of air, water and soil. It leads to environmental pollution in and around the industrial areas. The study results highlight that irrespective of age, caste, education, occupation and income status, the respondents have expressed that positive as well as negative impacts of textile dyeing industries to the neighborhood community.

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