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Impacts Of Msmes On Environment- An Analysis

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Abstract : *MSMEs play vital role in the global economy and national economy of every countries. It generates employments, creating different wealth, producing different products and services and satisfying consumer requirement, contributes in GDP, exports, and investments. The labour intensity of the MSME sector is much higher than that of large enterprises. They further help to achieve fair and equitable distribution of wealth by regional dispersion of economic activities. In this study environmental impacts made by MSMEs are analyzed through soil and water testing methods. The samples are drawn from two industrial areas (Gangaikondan, Pettai) of Tirunelveli district. The results of the study show the water pollution and soil pollution exists in industrial areas.*
Key words: *MSMEs, Growth, Environment, pollution.*

I. Introduction

MSMEs contribute significantly to employment generation and development of rural areas. MSME sector is one of the key drivers for India's transition from an agrarian economy to an industrialized economy. Around 50 percent of MSMEs in India are owned by underprivileged groups, which show how MSMEs contribute to improve the entrepreneurial skills and economic empowerment. MSMEs feed local consumer markets and international value chains. As per information in the annual report of MSME 2015-16, MSMEs account for a large share of industrial units which can be seen from the fact that in the year 2013-14, the total number of enterprises in MSME Sector was 510.57 lakhs, total employment of 1171.32 lakhs. MSMEs contribution to rural development can be observed from the fact that 200.19 lakhs of the working enterprises were located in rural areas, which accounted for 55.34 percent of the total working enterprises in MSME sector; whereas 161.57 lakhs (44.66 percent) of the working enterprises were located in urban areas. MSMEs are likely to experience a high growth path, and the share of MSMEs in the country's GDP is expected to touch double-digits by the end of this decade, from the current nine percent. The continuous performance of MSMEs, in employment generation and gross output, provides it a leading position in economic activities and social issues. In present scenario, the entrepreneurships moving with various specialization in commodities and services, categorized under the MSMEs. It is recognized as huge suppliers for the large industries. The impact of MSMEs performance influences many other activities of Indian economy related to social and environmental issues rather than any other countries because of its great changes in economy. There are triple impact of MSMEs i.e. economic impact, environmental impact and social impact. All three are interrelated. Economic impact increases the per capita income and higher return that influence higher standard life that develop the sense of environmental resource management. Until people satisfied with their need they can't think about other issues. When their income and social need will be satisfied then they will proceed towards developing healthier environment. In India it is projected that MSMEs contribute roughly 70 percent to the industrial pollution. These sectors are usually dominant in industries by relatively high resources and emission intensity. It has been estimated that MSMEs potential environmental impact can be proportionate with the large companies in similar sectors. They employ considerable pressure on the environment. At the individual level that pressure can be small but if we talk about collective pressure, that is quite high. Hence these pressure of emission should be considered from the environmental prospective.

II. Objective Of Study

The following is the objective of the study

1) To investigate the impact of MSMEs growth on environment in Tirunelveli district.

III. Methodology

The environmental impacts of MSMEs are analyzed through soil testing and water quality testing. Samples were drawn from two industrial areas in Tirunelveli District. Gangaikondan and Pettai industrial areas were selected to collect the soil and water samples.

IV. Analysis And Interpretation

Environmental impacts are made by various factors like population, deforestation, and various industries. The relationship between MSMEs growth and environment has been measured and analyzed in this study. Soil pollution and water pollution has been taken as variables to measure the environmental impacts made by the MSMEs. In the present study, soil samples were collected from two zones from Gangaikondan and Pettai in Tirunelveli district.

Table 1: Soil Analysis

Property	**Unit**	**Control**	**Sample-3soil** PETTAI	**Sample-4soil** Gangaikondan
PH	µg Mg	7.61	7.21	**6.0**
Alkalinity	µg Mg	7.29	**7.20**	**5.25**
Phosphorus	Mg kg^{-1}	82	**81**	**79**
Nitrogen	Mg kg^{-1}	652	**650**	**645**
Ammonium	Mg kg^{-1}	75	77	**72**
Potassium	Mg kg^{-1}	98.8	98.5	**102.7**
Organic matter	%	5	6.3	**6.6**
Chloride	Mg kg^{-1}	60	63	**61**
Sulfur	Mg kg^{-1}	61	62	**60**
Iron	Mg kg^{-1}	139	141	**140.5**
Zinc	Mg kg^{-1}	65	67	**65.72**
Manganese	Mg kg^{-1}	30	**29.4**	**30.3**
Copper	Mg kg^{-1}	7	8	**6.53**
Boran	Mg kg^{-1}	0.2	0.41	**0.34**
Aluminum	Mg kg^{-1}	4.71	4.22	**6.03**
Total solids	mg/g	0.08	0.095	**0.011**
clay	%	8.17	9.70	**9.10**
Sodium	Mg/kg	255	236	**253**
calcium	Mg/kg-1	138	131	**121**
moisture	Mg/kg-1	1.74	1.716	**1.702**
Number of microbes	CFU	105.42	100.16	**104.5**
magnesium	Mg/kg-1	98	108	**99.54**
AS	Mg/kg-1	-	-	**0.00**
Se	**Mg/kg-1**	**-**	**-**	**Negligible**

The table 1 shows the soil test results of two sample site from Pettai and Gangaikondan in Tirunelveli district. The pH of the Pettai and Gangaikondan soil samples possessed slightly alkaline and strongly acidic condition. When the analyzed Pettai soil parameters compared with control top soil, maximum amount of macro and micro nutrients observed parameters were noted such as ammonium77, organic matter 6.3,chloride 63,sulfur 62, iron 141, zinc 67, copper 8,boron 0.41,clay 9.70 and magnesium 108. Furthermore, other soil elements and biotic factor named as sodium, calcium, moisture content as well as number of microbial load also been noticed as below (minimum) the standard limit (control). Though, interestingly alkalinity, phosphorous, nitrogen, potassium, manganese, aluminum and total solids like essential elements were more or less equal when compared with control soil.

Second sample from Gangaikondan area soil report was clearly reported that highest level of parameters has been detected such as follows; potassium, organic matter, chloride, boron, aluminum, clay, sodium, magnesium and iron. Meanwhile, other eight criteria of parameters such as ph, alkalinity, phosphorous, nitrogen, ammonium, sulfur, total solids and calcium were little minimum range level observed than the control limit. Even though, other five parameters such as Zinc, Manganese, moisture content and the number of bacterial population also had been clearly showed that nearly equal range when accompanied with its control category of the soil . Results of combined heavy metal concentration and heavy metal assessment indicated that industrial activities and traffic emission represent most important sources for Cu, and P whereas Zn, B mainly from natural sources. Increasing anthropogenic influences on the environment, especially pollution loadings, have caused negative changes in natural ecosystems and decreased biodiversity.

Water Analysis:

The following table shows that the water analysis result

Table 2
Pettai industrial area water sample results

SL.NO	PARAMETERS	CONTROL	RESULTS	UNIT	TEST METHOD
1.	Colour		**Clear liquid**	mg/l	Colorimetric
2.	Odour		odourless	mg/l	Organoleptic
3.	pH	6.5-8.5	6.5	mg/l	Electrometric
4.	Taste		tasteful	mg/l	Organoleptic
5.	Turbidly	5	Suspended without any tiny particles	mg/l	Cloudiness/muddiness
6	Aluminium (as Al)	2	2.7	mg/l	IS 3025 (part 55)
7.	Calcium (as Ca)	75-200	21.2	mg/l	IS 3025 (part 40)
8.	Chloride (as cl)	250-1000	1271	mg/l	IS 3025 (part 32)
9	Fluoride (as F)	1-1.5	(00.1) Negligible	mg/l	IS 3025 (part 60)
10.	Iron (as Fe)	0.3	0.11	mg/l	IS 3025 (part 53)
11.	Magnesium (as Mg)	30-100	97	mg/l	IS 3025 (part 46)
12.	Sodium (as Na)	100	154	mg/l	IS 3025 (part 45)
13.	Potassium (as K)	1000	1063	mg/l	IS 3025
14.	Nitrates	45	9.25	mg/l	Colorimetric
15.	Nitrites	.5	0.001	mg/l	Colorimetric
16.	Sulphates	150-400	108.49	mg/l	Turbidimetric
17.	Hydrocarbons		0.07	mg/l	Colorimetric
18.	Total dissolved solids	500-1500	106.34	mg/l	Gravimetric
19	Total hardness	200-600	548	mg/l	AAS
20.	Alkalinity	200-600	531	mg/l	Electrometric

The other experimental site of bore well water quality parameters analyzed area from Pettai in Tirunelveli District is given in above table 2. Totally twenty different parameters were observed, among these parameters chloride, aluminum, sodium and potassium were found above the permissible limits. While, it was found that calcium, fluoride, iron, magnesium, nitrates, nitrites, sulphates and total dissolved solids showed that below the permissible limit. Despite, magnesium, total hardness and alkalinity were agreed within permissible limit. So from this present investigation it was found that bore well water need careful periodic monitoring and best water quality management practices to restore their condition into good one.

Table 3
Gangaikondan industrial area water sample results

SL.NO	PARAMETERS	CONTROL	RESULTS	UNIT	TEST METHOD
1.	Colour		**Clear liquid**	mg/l	Colorimetric
2.	Odour		odourless	mg/l	Organoleptic
3.	pH	6.5-8.5	7.1	mg/l	Electrometric
4.	Taste		taste	mg/l	Organoleptic
5.	Turbidly	5	Suspended without any tiny particles	mg/l	Cloudiness/muddiness
6	Aluminium (as Al)	2	2.4	mg/l	IS 3025 (part 55)
7.	Calcium (as Ca)	75-200	28.7	mg/l	IS 3025 (part 40)
8.	Chloride (as cl)	250-1000	1147	mg/l	IS 3025 (part 32)
9	Fluoride (as F)	1-1.5	0.001 Negligible	mg/l	IS 3025 (part 60)
10.	Iron (as Fe)	0.3	0.15	mg/l	IS 3025 (part 53)
11.	Magnesium (as Mg)	30-100	56	mg/l	IS 3025 (part 46)
12.	Sodium (as Na)	100	144	mg/l	IS 3025 (part 45)
13.	Potassium (as K)	1000	1234	mg/l	IS 3025
14.	Nitrates	45	8.67	mg/l	Colorimetric
15.	Nitrites	.5	0.001	mg/l	Colorimetric
16.	Sulphates	150-400	108.49	mg/l	Turbidimetric
17.	Hydrocarbons		0.05	mg/l	Colorimetric
18.	Total dissolved solids	500-1500	112.34	mg/l	Gravimetric
19	Total hardness	200-600	552	mg/l	AAS
20.	Alkalinity	200-600	515	mg/l	Electrometric

The above table 3 shows that the Gangaikondan industrial area water sample results. The water quality parameters of fifth category of the water sample were determined from the Industrial site of Gangaikondan in Tirunelveli District. Completely twenty diverse physical and chemical parameters were observed, among these chemical parameters aluminum, sodium, chloride and potassium found that above the permissible limit. Even though, it was found that calcium, nitrates and nitrites, sulphates, hydrocarbons and total dissolved solid as well

as alkalinity showed that below the permissible limit. Despite, fluoride, iron and magnesium and total hardness parameters were agreed within permissible limit. So from this present investigation it was found that bore well water need suspicious cyclic of monitoring and best water quality management practices to be strictly followed to restore their condition into good one in ease of control water.

V. Suggesions Of The Study

The following are the important suggestions of the study:

- Levying of pollution tax is suggested as one of the solution of the pricing of environmental resources.
- Wastes must be documented and weighted under the supervision of local environment committees**.**
- Low interest green loans
- Environment cost can be added in accounts
- Since MSMEs using natural resources, CSR (Corporate Social Responsibility) to be created for MSMEs.

VI. Conclusion

MSMEs have been globally considered as an engine of economic growth and as key instruments for promoting equitable development. The Indian economy is expected to grow by over eight per cent per annum until 2020. It can become the second largest in the world, ahead of the United States, by 2050, and the third largest after China and the United States by 2032. When their income and social need will be satisfied then they will proceed towards developing healthier environment. In India it is projected that MSMEs contribute roughly 70 percent to the industrial pollution. These sectors are usually dominant in industries by relatively high resources and emission intensity. It has been estimated that MSMEs potential environmental impact can be proportionate with the large companies in similar sectors. Growing economic activity (production and consumption) requires larger inputs of energy and material, and generates larger quantities of waste by-products. Increased extraction of natural resources, accumulation of waste and concentration of pollutants will therefore overwhelm the carrying capacity of the biosphere and result in the degradation of environmental quality and a decline in human welfare, despite rising incomes.

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