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Socio Economic Profile of Farm Households in Polluted and Non Polluted Area in Coimbatore District

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Abstract: *Agriculture and the allied sector is the major source of livelihood in India. It provides employment to more than 50 percent of the rural population and contributes 14*
percent to the Gross Domestic Product (GDP). Low yield per unit area across major crops has become a regular feature of Indian agriculture in recent years. This can be attributed to structural weaknesses of the agriculture sector reflected in low level of public investment, environmental degradation, exhaustion of the yield potential of new high yielding varieties of wheat and rice, unbalanced fertiliser use, low seed replacement rate, an inadequate incentive system and post harvest value addition. Some of the other reasons that can be attributed to the low agricultural productivity in India are (i) Lack of irrigation facilities in major part of the cultivated land; (ii) Small and fragmented land holding with the cultivators; (iii) Lack of timely availability of quality seeds, fertilizers for providing all major and minor nutrients for the crops and insecticides in many parts of the country; (iv) Lesser availability of photo period as compared to countries like those in Mediterranean sea areas (Chakrabarty, 2011)

According to the National Agricultural Policy, India must achieve a growth rate of 3–4% per annum in the agricultural sector and food grains production of 400 million tonnes by 2020. The question that is rarely asked is: how will these growth rates and targets be achieved? The past strategies which ushered the green revolution of the 70s and 80s are no longer working. Thus, there is a need to identify and focus on new strategies to achieve these goals. In areas that witnessed green revolution, the productivity levels are high, but over the past decade yields have been stagnating and in some cases even declining. Past sources of growth productivity (expansion in irrigation, increased use of fertilizers and chemicals for pest control) are no longer relevant. Policy regimes which helped achieve increased productivity are now not only irrelevant but are also contributing negatively to resource quality. Any efforts to enhance and even maintain productivity of these regions is totally linked to concerns of resource conservation. Evidence from several long-term experimental situational studies reveals that the quality of soil is declining. This is owing to declining soil organic matter content due to intensive cultivation, which in turn adversely affects and limits the capacity of the soil to perform vital functions, including maintenance of good physical properties, ability to retain and regulate supply of water and nutrients, etc. Current nutrient management practices result in inefficient use of nutrients applied through chemical fertilizers, resulting in increasing environmental problems, decline in the quality of groundwater, increasing emission of GHGs, etc. Current cropping patterns (rice–wheat) are also causing exploitation of groundwater resources, reinforcing that current agricultural practices and policies are contributing to fast degradation of resource base and un sustainability of production systems.

In this background, the environmental degradation is one of the most pronounced problem in agriculture. The industrial pollution is a major cause of environmental degradation. The number of industries had increased over a period of time which aggravates the environmental degradation. The study of socio economic profile of farm households is pre requirement for the study of impact of environmental pollution on agriculture in Coimbatore district.

I. Introduction

Agriculture and the allied sector is the major source of livelihood in India. It provides employment to more than 50 percent of the rural population and contributes 14

percent to the Gross Domestic Product (GDP). Low yield per unit area across major crops has become a regular feature of Indian agriculture in recent years. This can be attributed to structural weaknesses of the agriculture sector reflected in low level of public investment, environmental degradation, exhaustion of the yield potential of new high yielding varieties of wheat and rice, unbalanced fertiliser use, low seed replacement rate, an inadequate incentive system and post harvest value addition. Some of the other reasons that can be attributed

to the low agricultural productivity in India are (i) Lack of irrigation facilities in major part of the cultivated land; (ii) Small and fragmented land holding with the cultivators; (iii) Lack of timely availability of quality seeds, fertilizers for providing all major and minor nutrients for the crops and insecticides in many parts of the country; (iv) Lesser availability of photo period as compared to countries like those in Mediterranean sea areas (Chakrabarty, 2011)

According to the National Agricultural Policy, India must achieve a growth rate of 3–4% per annum in the agricultural sector and food grains production of 400 million tonnes by 2020. The question that is rarely asked is: how will these growth rates and targets be achieved? The past strategies which ushered the green revolution of the 70s and 80s are no longer working. Thus, there is a need to identify and focus on new strategies to achieve these goals. In areas that witnessed green revolution, the productivity levels are high, but over the past decade yields have been stagnating and in some cases even declining. Past sources of growth productivity (expansion in irrigation, increased use of fertilizers and chemicals for pest control) are no longer relevant. Policy regimes which helped achieve increased productivity are now not only irrelevant but are also contributing negatively to resource quality. Any efforts to enhance and even maintain productivity of these regions is totally linked to concerns of resource conservation. Evidence from several long-term experimental situational studies reveals that the quality of soil is declining. This is owing to declining soil organic matter content due to intensive cultivation, which in turn adversely affects and limits the capacity of the soil to perform vital functions, including maintenance of good physical properties, ability to retain and regulate supply of water and nutrients, etc. Current nutrient management practices result in inefficient use of nutrients applied through chemical fertilizers, resulting in increasing environmental problems, decline in the quality of groundwater, increasing emission of GHGs, etc. Current cropping patterns (rice–wheat) are also causing exploitation of groundwater resources, reinforcing that current agricultural practices and policies are contributing to fast degradation of resource base and un sustainability of production systems.

In this background, the environmental degradation is one of the most pronounced problem in agriculture. The industrial pollution is a major cause of environmental degradation. The number of industries had increased over a period of time which aggravates the environmental degradation. The study of socio economic profile of farm households is pre requirement for the study of impact of environmental pollution on agriculture in Coimbatore district.

II. Methodology

The data for the study is primary in nature. The study was conducted in Coimbatore district of Tamil Nadu. The data for the study is purely primary in nature. A multistage random sampling procedure was adopted in selecting the sample. In the first stage, the area in which the industrial cluster located in the district was identified. The Kurichi in Coimbatore district come under Coimbatore Corporation where the industrial clusters are located. In Kuruchi, there are two industrial clusters such as SIDCO and Private. Moreover the Central Pollution Control Board, Ministry of Environment and Forest, Government of India had declared Kurichi as one of the critically polluted areas. Hence, Kurichi was selected. Similarly, Malumachampatti is also located in the SIPCOT industrial cluster. Hence Malumachampatti was selected in the next stage. The list and the address of the farm households were obtained from the Coimbatore corporation office for Kurichi and from Malumachampatti Village Panchayat office for Malumachampatti Village. In the second stage, from the lists of address provided by the respective administrative offices, 75 farm households located nearby the industrial estates were identified and selected.

This sample group is target group. The Kinathukadavu is one of the agriculturally developed block from which the Kinathukadavu village was selected. The Kinathukadavu village was far away from the industrial estates. From the Kinathukadavu village administrative office, the lists of address of the farmers were collected. From the lists of farm households, 75 farm households were selected based on random sampling using random number table in the next stage. This sample group is control group. Hence the sample size is 150 for the present study.

III. Results And Discussion

Socio Economic Profile Of Farm Households:

Social Characteristics of Farm Households:

The social factors such as age and education of the farmer head, religion, caste, type of family and size of family were analysed for head of the farm households in Polluted and Non-Polluted areas. The results pertaining to the above social factors are shown in Table-1.

Table-1 - Social Characteristics Of Farm Households In Polluted And Non-Polluted Areas

Characteristics	Polluted area	Non polluted area
Age (mean)*	50.88	49.533
Education (number)*		
Secondary	28 (37.3)	31 (41.33)
Higher secondary	30 (40)	31 (41.33)
College	17 (22.7)	13 (17.3)
Religion (number)*		
Hindu	65 (86.7)	66 (88.0)
Christian	10 (13.3)	9 (12.0)
Caste (number)*		
Bc	48 (64.0)	10 (13.3)
Mbc	14 (18.7)	38 (50.7)
Obc	13 (17.3)	27 (36.0)
Type of family (number)*		
Nuclear	45 (60.0)	49 (65.3)
Joint	30 (40.0)	26 (34.7)
Size of family (mean)	4.33	4.44

Source: Field Survey, 2013

Note: * The details corresponding to Age and Education are for Head of the Farm households.

The average age of farm household head in polluted area was 51 years. Whereas in Non-Polluted area it was 50 years. It shows that there was no much difference in the age of the farmer head between polluted and non-polluted areas. Highest percentage of farm household head had completed higher secondary education in both polluted and non-polluted areas. There were no illiterates in the sample. In the study area, more than 50 percentages of the farm households were Hindus. In polluted area, 64 percentage of the farm households were belonging to backward class and 50.7 percentage of the farm households in the non-polluted areas were belonging to the most backward community. In both polluted and non-polluted areas, 60 percentage of households had nuclear family system, less than 50 percentage of the farm households had joint family system. The average size of family was four in both polluted and non-polluted areas.

Economic Characteristics Of Farm Households:

The economic characteristics of farm households are discussed under the following heads:

1. Family income
2. Family Expenses
3. Savings
4. Livestock
5. Farm Assets
6. Farm Equipments

Family Income:

The family income determines consumption expenses and investments pattern of farm households. The table-2 shows the family income of farm households in polluted and non-polluted areas.

Table-2 Average Family Income Of Farm Households In Polluted And Non-Polluted Areas

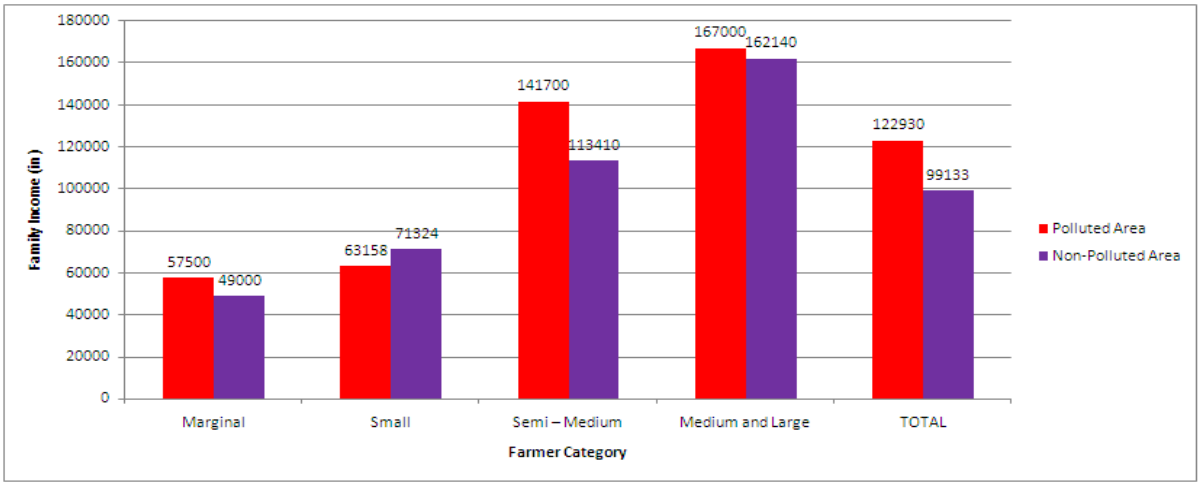
(Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	57500	49000
Small	63158	71324
Semi – Medium	141700	113410
Medium and Large	167000	162140
TOTAL	122930	99133

Source: Field Survey, 2013

In polluted areas, higher amount of family income was observed for medium and large farmers. It was comparatively higher than the other categories of farmers. Less amount of family income was observed for marginal farmers. In non polluted areas, higher amount of family income was for medium and large farmers. Comparatively less amount of family income was observed for marginal farmers.

Figure-1 Average Family Income Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)



Family Expenses:

Family expenses are expected to be inversely related with family savings and investment pattern of farm house holds. The table-3 shows the family expenditure of farm households in polluted and non polluted areas.

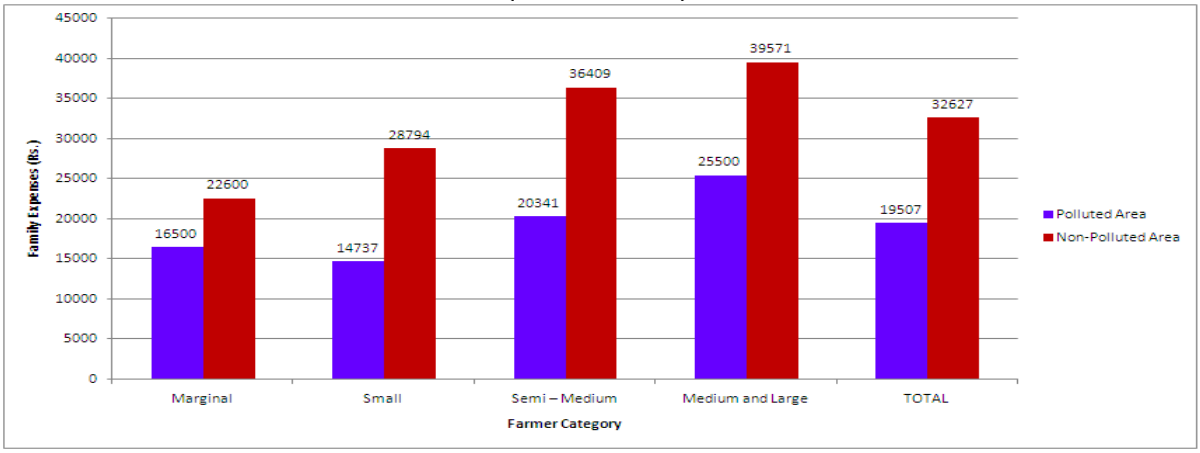
Table-3 Average Family Expenditure Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	16500	22600
Small	14737	28794
Semi – Medium	20341	36409
Medium and Large	25500	39571
TOTAL	19507	32627

Source: Field Survey, 2013

The average amount of family expenses for medium and large farmers was Rs. 39571 in non-polluted area. It was the highest amount compared to other categories of farmers. In polluted area also, the medium and large farmers had earned higher amount of family income.

Figure-2 Average Family Expenditure Of Farmhouseholds In Polluted And Non-Polluted Areas (Amount in Rs.)



Savings:

The savings pattern of farm households determines the future investment in agriculture. The table-4 shows the average savings of farm households in polluted and non polluted areas.

Table-4 Average Savings Of Farm Households In Polluted And Non-Polluted Area

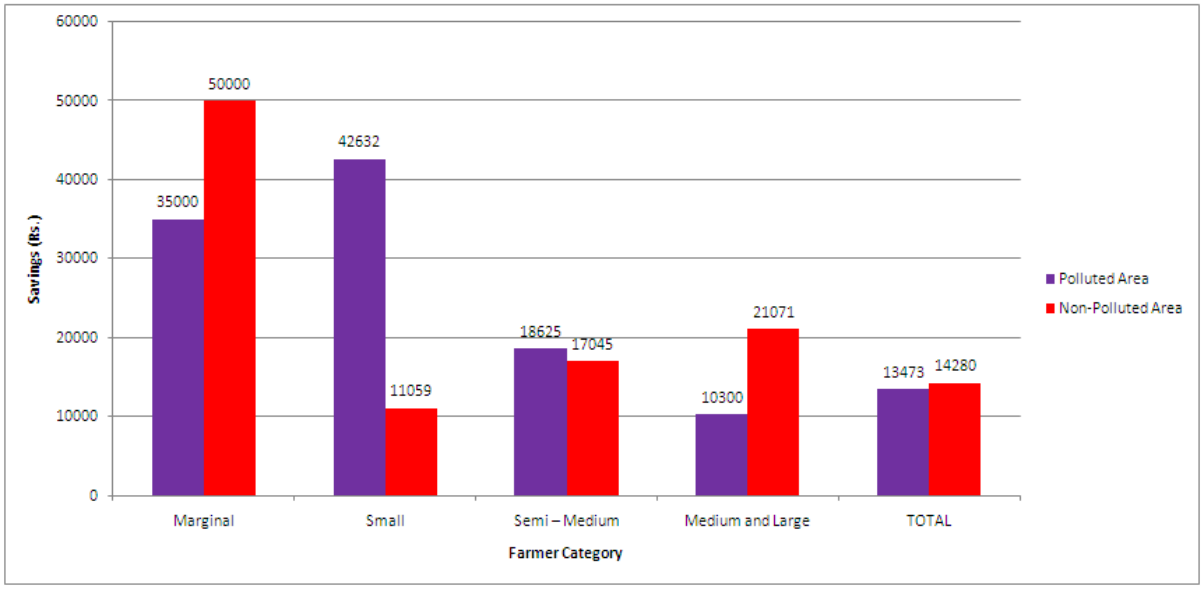
(Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	35000	50000
Small	42632	11059
Semi – Medium	18625	17045
Medium and Large	10300	21071
TOTAL	13473	14280

Source: Field Survey, 2013

In polluted area, the average amount of savings was higher for small farmers. It was amounted to Rs.42632. In non polluted area, the marginal farmers had higher amount of savings than the other categories of farmers. In total, on an average, higher amount of savings were observed in non polluted area (Rs. 14280) than the polluted area (Rs. 13473).

Figure-3 Average Savings Of Farm Households In Polluted And Non-Polluted Area (Amount in Rs.)



Livestock:

The farmer category wise value of livestock were calculated and is shown in table – 5

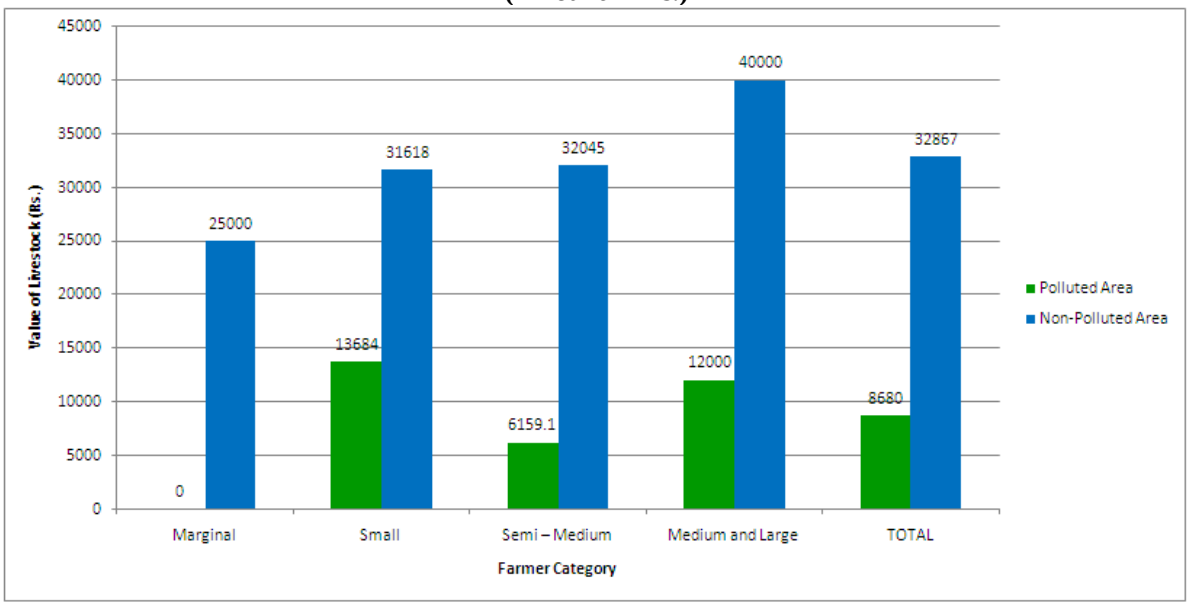
Table-5 Value Of Livestock Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	0	25000
Small	13684	31618
Semi – Medium	6159.1	32045
Medium and Large	12000	40000
TOTAL	8680	32867

Source: Field Survey, 2013

The value of livestock for small farmers in polluted area was Rs. 13684. No value of livestock was observed for marginal farmers in the same area. In non polluted area the value of livestock was amounted to Rs. 40000 for medium and large farmers. Only Rs.25000 was observed as the value of livestock for marginal farmers in non polluted area. On an average, higher amount of value of livestock was observed for non polluted area than the polluted area.

Figure-6 Value Of Livestock Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)



Farm Assets:

Farm assets determine the borrowing behaviour of farmers. The table-7 shows the farm assets of various categories of farmers.

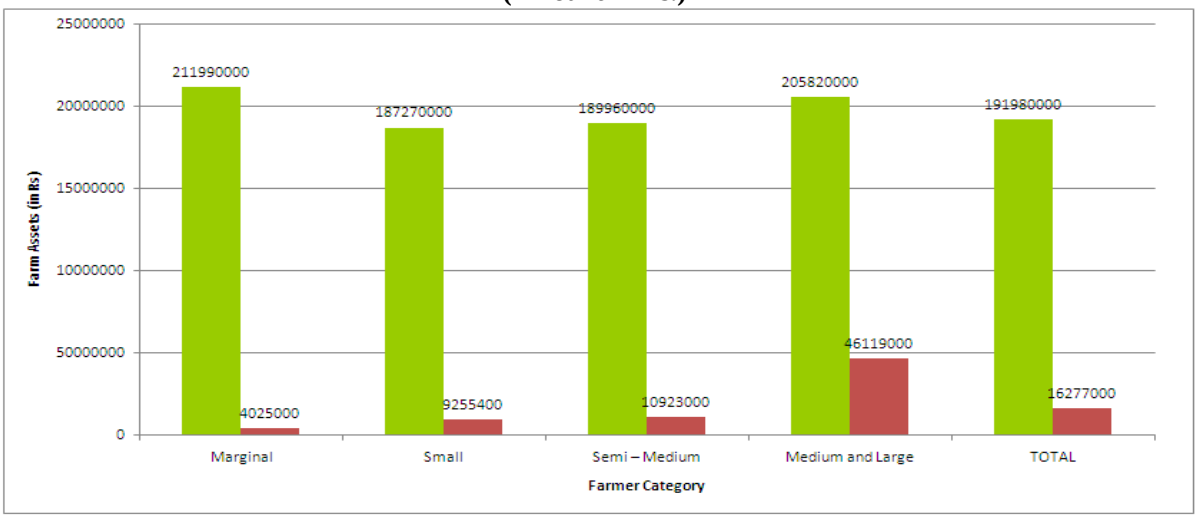
Table-7 Average Farm Assets Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	211990000	4025000
Small	187270000	9255400
Semi – Medium	189960000	10923000
Medium and Large	205820000	46119000
TOTAL	191980000	16277000

Source: Field Survey, 2013

The marginal farmers in polluted area had the higher amount of farm assets of value Rs. 211990000.In non-polluted area, the medium and large farmers had higher amount of farm assets Rs.46119000 compared to other categories of farmers. However, on an average, higher amount of farm assets were observed for polluted area.

Figure-8 Average Farm Assets Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)



Farm Equipments:

In both polluted and non polluted areas, the farm household had maintained farm machineries and equipments. The value of farm equipments is shown in the table-9

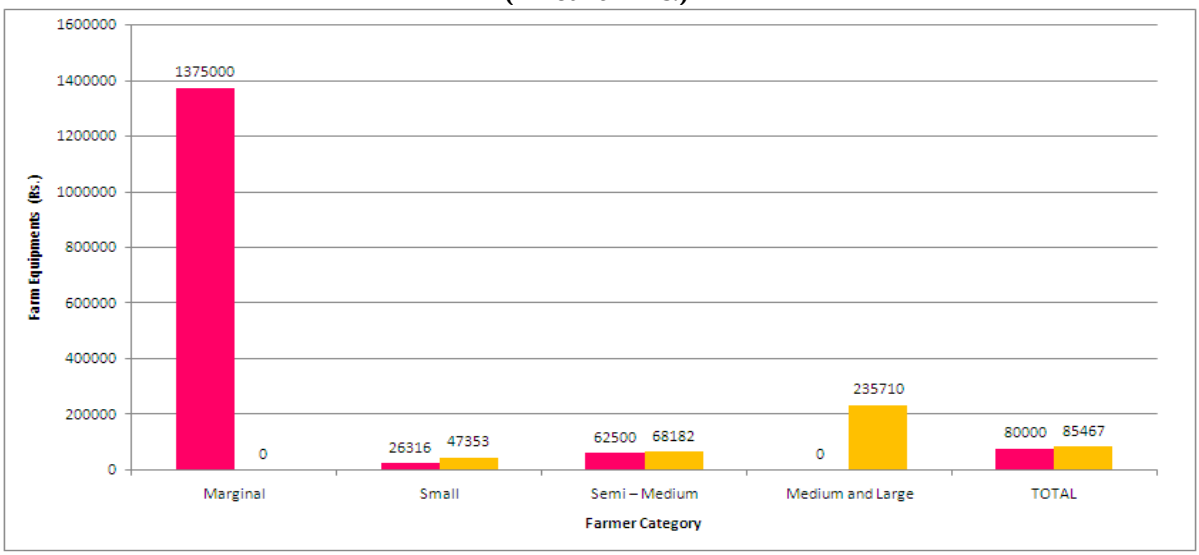
Table-9 Average Value Of Farm Equipments Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	1375000	0
Small	26316	47353
Semi – Medium	62500	68182
Medium and Large	0	235710
TOTAL	80000	85467

Source: Field Survey, 2013

In polluted area, the marginal farmers had owned the farm equipments value of Rs. 1375000. However in non polluted area, the farmers had owned tractor and tillers along with the basic farm equipments. Hence the value of farm equipments ranged between Rs. 47353 and Rs.235710 among various categories of farmers. On an average, the value of farm equipments in non polluted area was Rs.85467 while it was only Rs.80000 in polluted area.

Figure-6 Average Value Of Farm Equipments Of Farm Households In Polluted And Non-Polluted Areas (Amount in Rs.)



Size Of Land Holdings And Cropping Pattern:

Size Of Land Holdings

According to the operational land holding, the farmers were classified as marginal, small, semi-medium, medium and large. If the size of land holding is less than 1 hectare for a farmer, he is classified as marginal farmer. If the size of land holding is 1-2 hectares, it is called small-holding, 2-4 hectares is classified as semi-medium, 4-10 hectares is medium and 10 and above hectares is classified as large holdings. The table-10 shows the average size of land holding in polluted and non-polluted areas.

Table-10 Average Size Of Land Holdings Of Farm Households In Polluted And Non-Polluted Areas. (In Hectares)

Farmer Category	Polluted Area	Non-Polluted Area
Marginal	0.8000	0.8000
Small	1.7684	1.5706
Semi – Medium	3.1273	2.8364
Medium and Large	4.9200	6.2286
TOTAL	2.9600	2.7600

Source: Field Survey, 2013

The average size of land holding for marginal farmers in polluted area was 0.8 hectares, it was 1.77 hectares for small farmers, 3.12 hectares for semi-medium farmers and 4.92 hectares for medium and large

farmers. In non-polluted area, the average size of land holding of marginal famers was 0.8 hectares, 1.57 hectares for small farmers, 2.84 hectares for semi-medium farmers and 6.23 hectares for medium and large farmers. The average size of land holdings in polluted area was 2.96 hectares where as it was 2.76 hectares in non-polluted area.

IV. Conclusion

The average age of farm household head in polluted area was 51 years. Whereas in Non-Polluted area it was 50 years. Highest percentage of farm households head had completed higher secondary education in both polluted and non-polluted areas. There were no illiterates in the sample. In the study area, more than 50 percentage of the farm households were Hindus. In both polluted and non-polluted areas, 60 percentage of households had nuclear family system. Less than 50 percentage of the farm households had joint family system. The average size of family was four in both polluted and non-polluted areas. In polluted areas, higher amount of family income was observed for medium and large farmers. It was comparatively higher than the other categories of farmers. The average amount of family expenses for medium and large farmers was Rs. 39571 in non-polluted area. It was the highest amount compared to other categories of farmers. In polluted area also, the medium and large farmers had earned higher amount of family income. In polluted area, the average amount of savings was higher for small farmers. In an average, higher amount of value of livestock was observed for non polluted area than the polluted area. On an average higher amount of farm assets were observed for polluted area. On an average, the value of farm equipments in non polluted area was Rs.85467 while it was only Rs.80000 in polluted area. The average size of land holdings in polluted area was 2.96 hectares where as it was 2.76 hectares in non-polluted area.

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