

Impact of Canal Irrigation on Improved Agricultural Productivity

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ABSTRACT

The main aim of our paper is to analyze the status of river in sub urban region. In our paper we have used the software SPSS [statistical package for social science].we have selected an study area and have thoroughly assessed the status of agriculture around that area by directly interviewing the people residing around there .To interview the people we have prepared a set of questionnaires that would satisfy our required information . Based on our questionnaire the various important factors that are necessary for agriculture are compared using SPSS software and then the results are obtained.

Keywords:-canal irrigation, SPSS, agriculture, questionnaire, village analysis

I. INTRODUCTION

Canal irrigation has been a dominant component of Tamil Nadu agriculture. It is as much as one third of the net irrigated area in the State. Bulks of the irrigation canal in South India are very old and more. They were used millions of years ago. Their water use efficiency has come to almost as low as 45 to 55% in many cases. This is due to inadequate maintenance, operational inefficiency and lack of control over the regulation and excessive use of water at the farm level. Modernization of canal irrigation system has become necessary to utilize the already developed irrigation potential with greater efficiency.

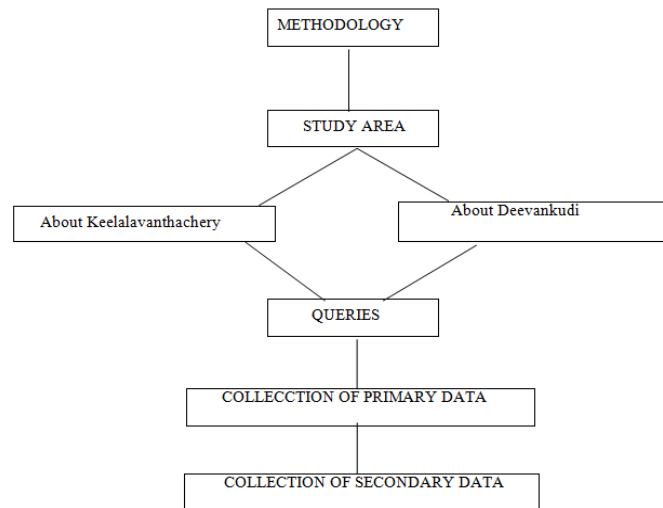
II. SOURCE

A **river** is a natural watercourse usually freshwater, flowing towards an ocean, a lake, a sea, or another river. In a few cases, a river simply flows into the ground or dries up completely before reaching another body of water. Small rivers may also be called by several other names, including stream, creek, brook, rivulet, run, tributary and rill. There are no official definitions for generic terms, such as river, as applied to geographic features, although in some countries or communities a stream may be defined by its size. Many names for small rivers are specific to geographic location; one example is "burn" in Scotland and northeast England. Sometimes a river is said to be larger than a creek, but this is not always the case, because of vagueness in the language.

III. TYPES

Paddy/Rice

Rice is a popular cereal crop commonly used as human food. It is actually a type of grass and belongs to a family of plants that includes other cereals such as wheat and corn. Rice is a popular cereal crop commonly used as human food. It is actually a type of rich in nutrients and contains a number of vitamins and minerals. It is an excellent source of complex carbohydrates—the best source of energy. However, a lot of these nutrients are lost during milling and polishing, which turns brown rice into white rice by removing the outer rice husk and bran to reveal the white grain. Two species of rice are considered important as food species for humans: *Oryza sativa*, grown worldwide; and *Oryza glaberrima*, grown in parts of West Africa. Both of these belong to a bigger group of plants (the genus *Oryza*) that includes about 20 other species. The International Rice Genebank – the world's largest collection of rice diversity – contains more than 112,000 different types of rice including species of wild rice, the ancestors of rice, traditional and heirloom varieties, and modern varieties.



IV. STATISTICS PROGRAM

SPSS Statistics is a software package used for statistical analysis. It is now officially named "IBM SPSS Statistics". Companion products in the same family are used for survey authoring and deployment (IBM SPSS Data Collection), data mining (IBM SPSS Modeler), text analytics, and collaboration and deployment (batch and automated scoring services).

SPSS Statistics (originally, Statistical Package for the Social Sciences, later modified to read Statistical Product and Service Solutions) was released in its first version in 1968 after being developed by Norman H. Nie, Dale H. Bent and C. Hadlai Hull. SPSS is among the most widely used programs for statistical analysis in social science. It is used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations and others. The original SPSS manual (Nie, Bent & Hull, 1970) has been described as one of "sociology's most influential books".^[1] In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary is stored in the datafile) are features of the base software. SPSS was released in its second version in 1972 and its company name is INDUS Nomi.

Statistics included in the base software:

- Descriptive statistics: Cross tabulation, Frequencies, Descriptives, Explore, Descriptive Ratio Statistics
- Bivariate statistics: Means, t-test, ANOVA, Correlation (bivariate, partial, distances), Nonparametric tests
- Prediction for numerical outcomes: Linear regression
- Prediction for identifying groups: Factor analysis, cluster analysis (two-step, K-means, hierarchical), Discriminant

The many features of SPSS Statistics are accessible via pull-down menus or can be programmed with a proprietary 4GL *command syntax language*. Command syntax programming has the benefits of reproducibility, simplifying repetitive tasks, and handling complex data manipulations and analyses. Additionally, some complex applications can only be programmed in syntax and are not accessible through the menu structure. The pull-down menu interface also generates command syntax; this can be displayed in the output, although the default settings have to be changed to make the syntax visible to the user. They can also be pasted into a syntax file using the "paste" button present in each menu. Programs can be run interactively or unattended, using the supplied Production Job Facility. Additionally a "macro" language can be used to write command language subroutines and a Python programmability extension can access the information in the data dictionary and data and dynamically build command syntax programs. The Python programmability extension, introduced in SPSS 14, replaced the less functional SAX Basic "scripts" for most purposes, although SaxBasic remains available. In addition, the Python extension allows SPSS to run any of the statistics in the free software package R. From version 14 onwards SPSS can be driven externally by a Python or a VB. NET program using supplied "plug-ins".

SPSS Statistics places constraints on internal file structure, data types, data processing and matching files, which together considerably simplify programming. SPSS datasets have a 2-dimensional table structure where the rows typically represent cases (such as individuals or households) and the columns represent measurements (such as age, sex or household income). Only 2 data types are defined: numeric and text (or "string"). All data processing occurs

sequentially case-by-case through the file. Files can be matched one-to-one and one-to-many, but not many-to-many.

The graphical user interface has two views which can be toggled by clicking on one of the two tabs in the bottom left of the SPSS Statistics window. The 'Data View' shows a spreadsheet view of the cases (rows) and variables (columns). Unlike spreadsheets, the data cells can only contain numbers or text and formulas cannot be stored in these cells. The 'Variable View' displays the metadata dictionary where each row represents a variable and shows the variable name, variable label, value label(s), print width, measurement type and a variety of other characteristics. Cells in both views can be manually edited, defining the file structure and allowing data entry without using command syntax. This may be sufficient for small datasets. Larger datasets such as statistical surveys are more often created in data entry software, or entered during computer-assisted personal interviewing, by scanning and using optical character recognition and optical mark recognition software, or by direct capture from online questionnaires. These datasets are then read into SPSS.

SPSS Statistics can read and write data from ASCII text files (including hierarchical files), other statistics packages, spreadsheets and databases. SPSS Statistics can read and write to external relational database tables via ODBC and SQL.

Statistical output is to a proprietary file format (*.spv file, supporting pivot tables) for which, in addition to the in-package viewer, a stand-alone reader can be downloaded. The proprietary output can be exported to text or Microsoft Word, PDF, Excel, and other formats. Alternatively, output can be captured as data (using the OMS command), as text, tab-delimited text, PDF, XLS, HTML, XML, SPSS dataset or a variety of graphic image formats (JPEG, PNG, BMP and EMF).

SPSS Statistics Server is a version of SPSS Statistics with a client/server architecture. It had some features not available in the desktop version, such as scoring functions.

V. ANALYSIS AND INTERPRETATION

Deevankudi Village Analysis

Table 1, Sex Report

SL.NO	DETAILS	PERCENTAGE
1	MALE	83.3
2	FEMALE	16.7
3	TOTAL	100

Here the responders are mostly the male persons only because the land holders are the males only and the female are not interested in the agricultural.

Table 2, Age Report

SL.NO	AGE DETAILS	PERCENTAGE
1	20to40	38.9
2	40to60	55.6
3	Above 60	5.6
4	Total	100

In this village the peoples between 20 to 40 yrs only willing to do agricultural activities. Because the other age responders having some other works other than agricultural.

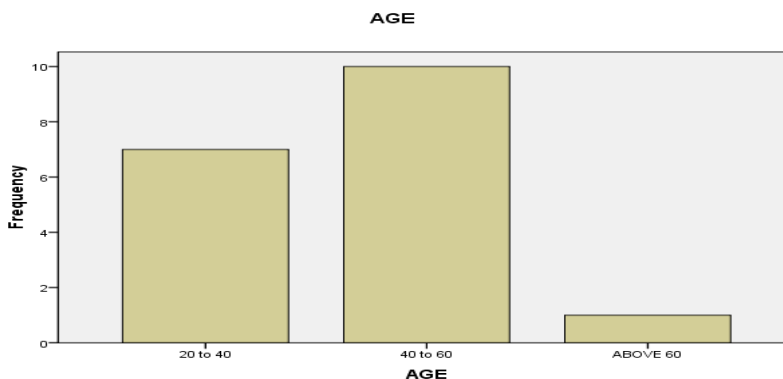


Fig. 3

Table 3, Educational Qualification

SL.NO	EDUCATIONAL DETAILS	PERCENTAGE
1	Uneducated	16.7
2	Primary	50.0
3	Secondary	33.7
4	Total	100

The responders are studied upto 5th standard and they are doing agriculture. The reason was the educated responders are not ready to do it.

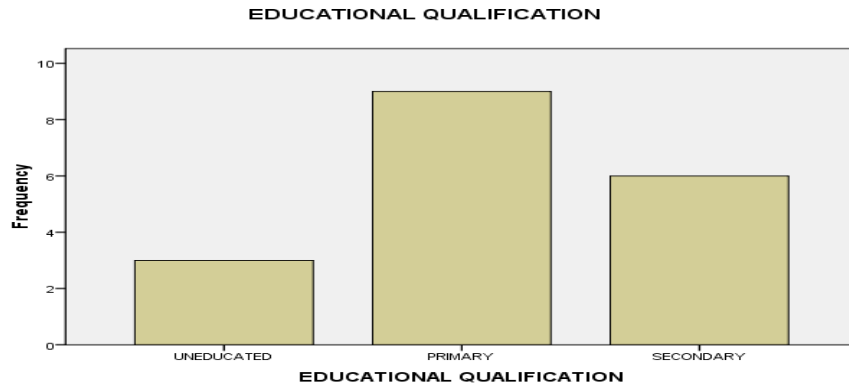


Fig. 4

Table 4 Caste Variation

SL.NO	CASTE DETAILS	PERCENTAGE
1	SC	55.6
2	BC	44.4
3	TOATL	100

In this village the caste variation was not much more and this makes them to share water resources and they are very help full to each other.

Table 5. Own Land Persons

SL.NO	RESPONDERS DETAILS	PERCENTAGE
1	Yes	77.8
2	No	22.2
3	Total	100

The responders are mostly owning their land and some of them leased some land for their cultivation from the person who is not able to cultivate.

VI. CATTLE OWNING RESPONDERS

The responders are having cattels like cow, goat, hen, ox, etc., but they are using them for their own use and not for selling and earning income. Here they don't have more ox because the agriculture is fully mechanized and hire it from others

Table 6 Plough Details

SL.NO	DETAILS	PERCENTAGE
1	1.0	22.2
2	1.2	5.6
3	1.5	5.6
4	2.0	27.8
5	2.5	5.6
6	2.7	5.6
7	4.0	5.6
8	10.0	5.6
9	15.0	5.6
10	18.0	5.6
	Total	100.0

VII. HARVESTING

The villagers mainly cultivating the paddy crop only because the peoples are concentrating only on paddy as it has more income in short period. And also they had cultivating paddy since from their early stage.

Table 7 Crop Type

SL.NO	CROP TYPE DETAILS	PERCENTAGE
1	IR 8	35.3
2	CR 1009	17.6
3	PPT	29.4
4	ADT 30	11.8
5	IR 30	5.9
6	TOTAL	100

The persons in this village have mainly cultivating the crop IR 8 which is liked by everyone as a daily food. even though its cost of selling is more but everyone likes it for taste and the size. so the responders cultivating this more.

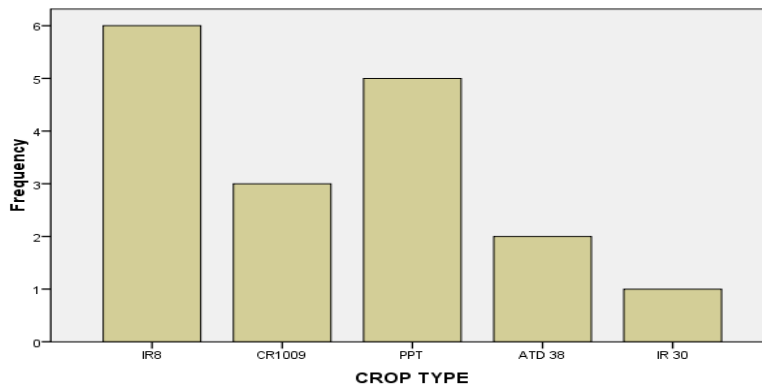


Fig. 5

Table 8 Pesticides

SL.NO	PESTICIDES DETAILS	PERCENTAGE
1	ASPRIN	41.2
2	ATHEDATION	35.3
3	BENOMYL	17.6
4	WARRIOR	5.9
5	TOTAL	100

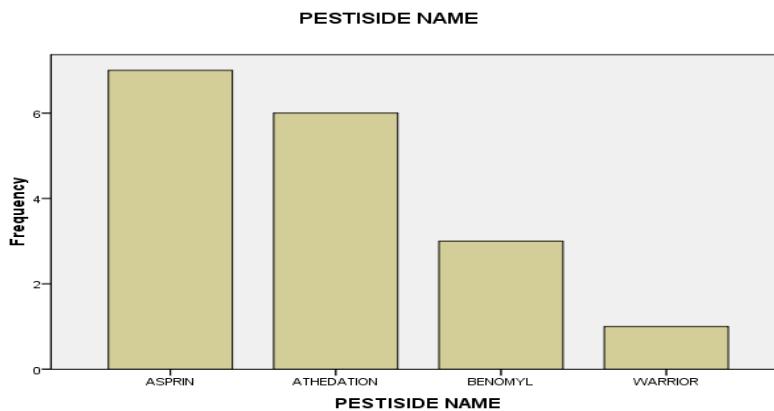


Fig. 6

Most of the peoples in the village were using the pesticide asprin because its cost is little less price in money and it can be easily get.

Keelalavanthachery Village Analysis

Table 9 Sex Ratio

SL.NO	DETAILS	PERCENTAGE
1	MALE	94.7
2	FEMALE	5.3
3	TOTAL	100

Here the responders are mostly the male persons only because the land holders are the males only and the female are not interested in the agricultural.

Table 10 Age Report

SL.NO	AGE DETAILS	PERCENTAGE
1	20to40	52.6
2	40to60	47.4
3	Total	100

The responders in this between the age group 20to40 have been interested in the agricultural activities and the other group peoples not having that much interest in it.

Table 11 Educational Qualification

SL.NO	EDUCATIONAL DETAILS	PERCENTAGE
1	Uneducated	15.8
2	Primary	52.6
3	Secondary	21.1
4	Degree	10.5
5	total	100

This is village also the peoples studied till 5th standard only doing the agricultural activity. Even though they did degree they willing to work in the field.

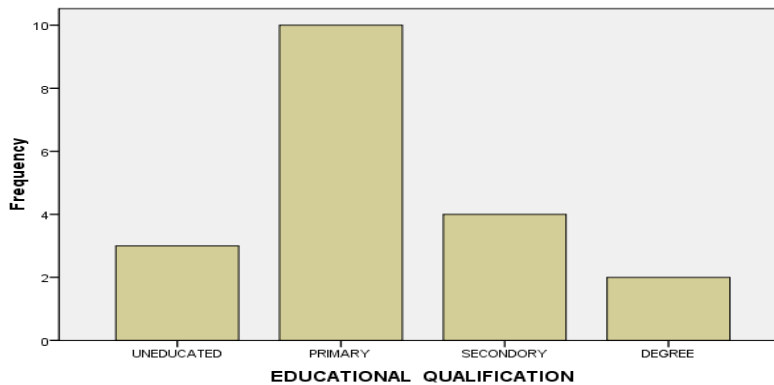


Fig. 7

Table 12. Caste Ratio

SL.NO	CASTE DETAILS	PERCENTAGE
1	SC	21.1
2	BC	78.9
3	TOATL	100

In this village the peoples belonging to the BC group only having more land and village in fully occupied by them. And they don't have any contact with other peoples but they will help each other.

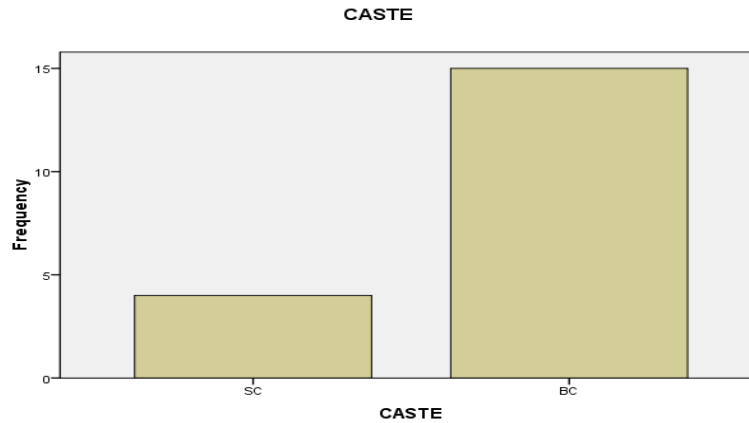


Fig. 8

Table 13 Own Land Persons

SL.NO	RESPONDERS DETAILS	PERCENTAGE
1	Yes	89.5
2	No	10.5
3	Total	100

The responders are mostly owning their land and some of them leased some land for their cultivation from the person who is not able to cultivate.

VIII. CATTLE OWNING RESPONDERS

The responders are having cattles like cow, goat, hen, ox, etc., but they are using them for their own use and not for selling and earning income. Here they don't have more ox because the agriculture is fully mechanised and hire it from others.

Table 14 Plough Details

SL.NO	DETAIL	PERCENTAGE
1	.5	5.3
2	1.0	26.3
3	1.5	5.3
4	1.7	10.5
5	2.0	26.3
6	3.0	5.3
7	4.0	10.5
8	6.0	5.3
9	12.0	5.3
10	Total	100.0

The responders in this village are cultivating all their land and earning income from that and also they using the tractor, etc., for ploughing. There they using the labours for some other work only in that village.

IX. HARVESTING

The villagers mainly cultivating the paddy crop only because the peoples are concentrating only on paddy as it has more income in short period. And also they had cultivating paddy since from their early stage.

Table 15 Crop Type

SL.NO	CROP TYPE DETAILS	PERCENTAGE
1	IR 8	31.6
2	CR 1009	21.1
3	PPT	21.1
4	ADT 30	26.3
6	TOTAL	100

The persons in this village have mainly cultivating the crop IR 8 which is liked by everyone as a daily food. even though its cost of selling is more but everyone likes it for taste and the size. so the responders cultivating this more.

Table 16 Pesticides

SL.NO	PESTICIDES DETAILS	PERCENTAGE
1	ASPRIIN	31.6
2	ATHEDATION	21.1
3	BENOMYL	31.6
4	WARRIOR	15.8
5	TOTAL	100

Most of the peoples in the village were using the pesticide asprin as well as benomyl because its cost is little less price in money and it can be easily get.

X. ANALYSIS OF BOTH THE VILLAGES ABOUT THEIR PERFORMANCE

Table 17 Cost Satisfaction

SL.NO	STATUS	PERCENTAGE
1	POOR	17.6
2	GOOD	35.3
3	NOT BAD	35.3
4	HIGHLY SATISFIED	11.8
5	TOTAL	100

The responders in the village are satisfied with good and not bad in equal ratio and the peoples who is highly satisfied was less compare to other status.

Table 18 Bivariate Analysis

SL.NO	FARMERS VILLAGE	SIZE	MEAN	STANDARD DEVIATION	T VALUE	P VALUE
1	DEVANKUDI	17	132690.59	283607.557	1.125	.56
2	KEELALAVANTHACHEY	19	146965.26	163922.793	1.094	.56

In both the villages there is no significant difference between average mean obtained by the villages “deevankudi” and “keelalavanthachery”.

Table 19 Paried Analysis

Paired Samples Test

		Paired Differences		t	df	Sig. (2-tailed)
		95% Confidence Interval of the Difference				
		Lower	Upper			
Pair 1	DEV_VILL - KEEL_VILL	-.35531	5.12002	1.845	16	.084

Both the villages does not having any difference since their significant value was merely more than one. The villages can be improved by creating new farmer councils because even though in absence of farmer councils these villages can able to produce high productivity and high income. If the councils is introduced in it will help them to get extra fund, knowledge about agriculture and etc.

XI. CONCLUSION

At present agriculture is an important source for the development of the country .Nowadays every one concentrating only on the jobs which is not related to farms and agriculture so to develop the activity the analysis based on agriculture is very important. In this project two villages has been taken for analysis and a set of questions has been interviewed to the peoples in that villages. This makes the government to improve the productivity and the status of the peoples in that village. If they have any farmer councils means then they can able to produce more productivity. In future government should improve the river water flow regularly and this makes the farmers to cultivate all the three seasons.

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