

“A Study of Watershed Development Programme On Miryalaguada Division in Nalgonda District- A Geographical Analysis”

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Abstract: A watershed can be defined “as the drainage basin or catchments area of a particular brook or river” simply. But, It refers to the area from where the water to a specific drainage system like a river or stream comes from. A Watershed may be small, consisting of numerous thousands of hectares. The above definition is mostly proposed by hydrological unit. But it is beyond doubt that watershed is a biological, physical, economic and social system based on integrated methodology. A watershed has a wide ranging effect on the lives of the people at large. Watershed development refers to the conservation regeneration. In terms of resource progress it covers development and management of resources like soil, water, and plants, animal, human and all associated components. The basic unit of development is a watershed, which is manageable hydrological unit. In this approach, development is not confined just to agricultural lands alone but covers all the area starting from the highest point of the watershed to the outlet of the natural stream. It's consider the social, economic and outside the watershed. Watershed management usually involves the use of watershed natural resources by people with their active involvement in harmony with the ecosystem. To study the socio-economic development of the community directly or indirectly dependent on the watershed. Changes in cropping pattern, land use, crop productivity and Before & After completion of the project. To examine people's participation in watershed program. The increase in the area under cultivation due to watershed development project. The social and economic aspects will also change due to this programme. Employment opportunity will be increased in this programme.

Key words: crop pattern, crop production, Agricultural growth, catchmentzone.

Date of Submission: 18-11-2017

Date of acceptance: 30-11-2017

I. Introduction

Watershed is a geo-hydrological unit comprised of all land and water within the confines of a drainage divide. Essentially a watershed is all the land and water area, which contributes runoff to a common point. It is a land area that captures rainfall and conveys the overland flow and runoff to an outlet in the main flow channel. It is a topographically delineated area draining into a single channel. A watershed may be nearly flat or may include hillocks, hills or mountains. Each and every water and land area is a part of one watershed or other. Frequently the following distinction is being made to indicate the size of a watershed: micro watershed, meso/sub watershed, watershed, catchments and river basin in order of increasing size. Watershed Development and Management is defined as the integrated use, regulation and development of water and land resources of a watershed to accomplish ecological use of land, water and vegetal for the benefit of its dependents. The emphasis is on soil and water conservation. As 70% of our cultivated land fall under the rain-fed areas, Watershed development is one of the critical factors for improving agricultural production. The natural resource base on which existence of living beings depend-soil, water and vegetation is under degradation. Most of the arid and semi-arid regions have concentrations of eroded and degraded natural resources. The majority of the population in rural India depends on agriculture and the agricultural sector depends on water for irrigation facilities. A sustainable socio-economic development of rural areas depends on the availability of natural resources like soil, water and tree. These are possible through the watershed programme in rain-fed areas.

II. Materials And Methods

Formulation of a research design provides a basic framework for a scientific enquiry. In order to obtain reliable results, it is absolutely essential to evolve scientific methods of data collection and employ appropriate tools and reliable statistical techniques for the analysis of information. the methodology adopted to study the impact of watershed development programme in the MiryalgudaDivisionin Nalgonda district is presented including the selection of the study of area, sampling design, selection of sample from households, sources of

data, collection of data, period of study, analytical methods, statistical techniques used and applied, definition of the terms used in the study and measurement of key variables. Before the presentation of the design to be adopted in this study.

General Profile of the Study Area:

Nalgonda district of Telangana state. It has a population of 3,483,648. The district is spread over an area of 2,449.79 square kilometers (945.87 sq. mi). Nalgonda was earlier referred to as Neelagiri. This area between 16-25' and 17-50' of the Northern Latitude and 78-40' and 80-05' of Eastern longitude. The district is divided into 3 revenue divisions viz: 1) Nalgonda 2) Miryalguda 3) Devarakonda. The district consists of 31 mandals has 565 villages covering 3 divisions. The present study area, In Miryalgudadivision comprise two revenue villages of vemulapaly and alagadapa. The district is much affected by high fluorine content in water.

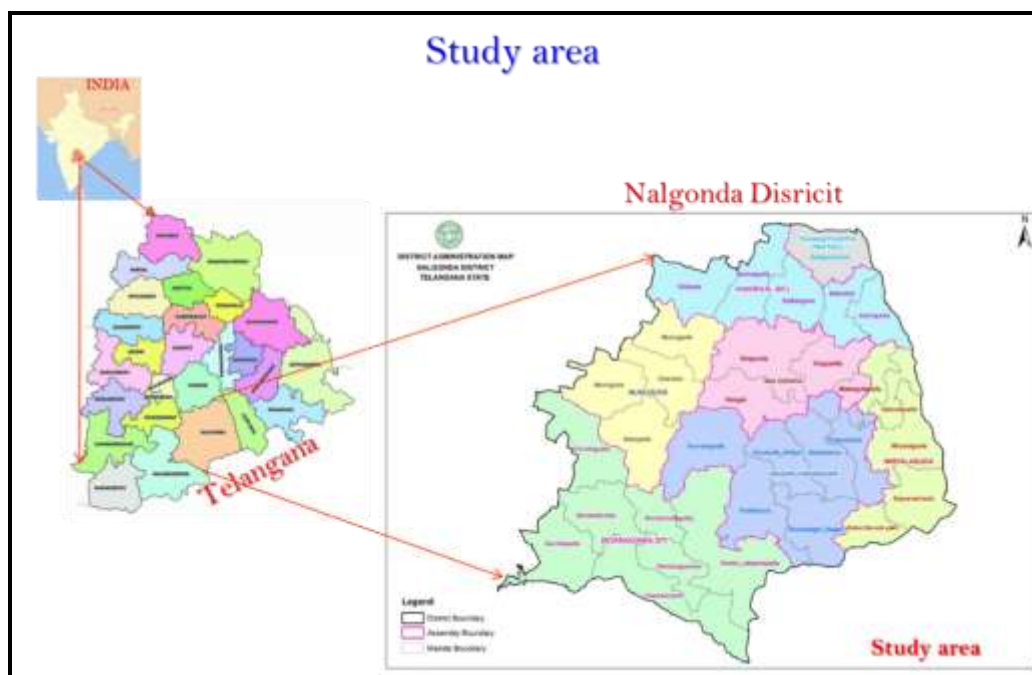


Figure 1. Location map of the study area

The area is drained by the River Krishna along with tributaries Musi, Aler, Dindi, Halia and Peddavagu rivers. The Musi River is the main tributary of river Krishna. The Paler River drains eastern part of the district. The directions of all the three river courses are controlled by two major lineaments in east-west and northwest-southeast directions. All other lower order streams and nallas are controlled by minor lineaments. The district divided into 64 micro-basins. The major river Krishna is perennial and all other rivers are seasonal and ephemeral. The overall drainage pattern in the district is dendritic to sub-dendritic and rectangular.

Objectives of the Study:

- To study the socio economic conditions of sample respondents in the study area,
- To analyses the level of employment before and after the Implementation of the programme.
- To study the income disparities of the before and after implementation of watershed development programme.
- To examine the extend of people's participation, cropping pattern and production.

III. Results & Discussion:

IMPACT ON HOUSEHOLD ANNUAL INCOME

The watershed development programme has considerably increased the household income through various sources of the respondents such as agriculture, allied activities of agriculture, non-farm income and other sources. A significant difference is perceived in the distribution of income between the sample households of the before and after implementation of the watershed development programme. All the categories of farmers registered higher income in after the implementation than their counterparts in the before implementation of the programme.

Table 1 : Average Annual Gross Income by Source in Miryalguda division.

AVERAGE ANNUAL GROSS INCOME BY SOURCE IN MIRYALAGUDA DIVISON				
S.NO	SOURCE OF EMPLOYMENT	AMOUNT IN RS.		PERSENTAGE CHANGE
		BEFORE IMPLEMENTATION	AFTER IMPLEMENTATION	
1	AGRICULTURE	62400	71300	14.26
2	ALLIED ACIVITIES OF AGRICULTURE	24200	31400	29.75
3	NON-FARM INCOME	15300	18700	22.22
4	OTHER SOURCE ,RENT INTREST	7800	10100	29.48
	TOTAL	109700	131500	19.87

Source: Computed from Primary data.

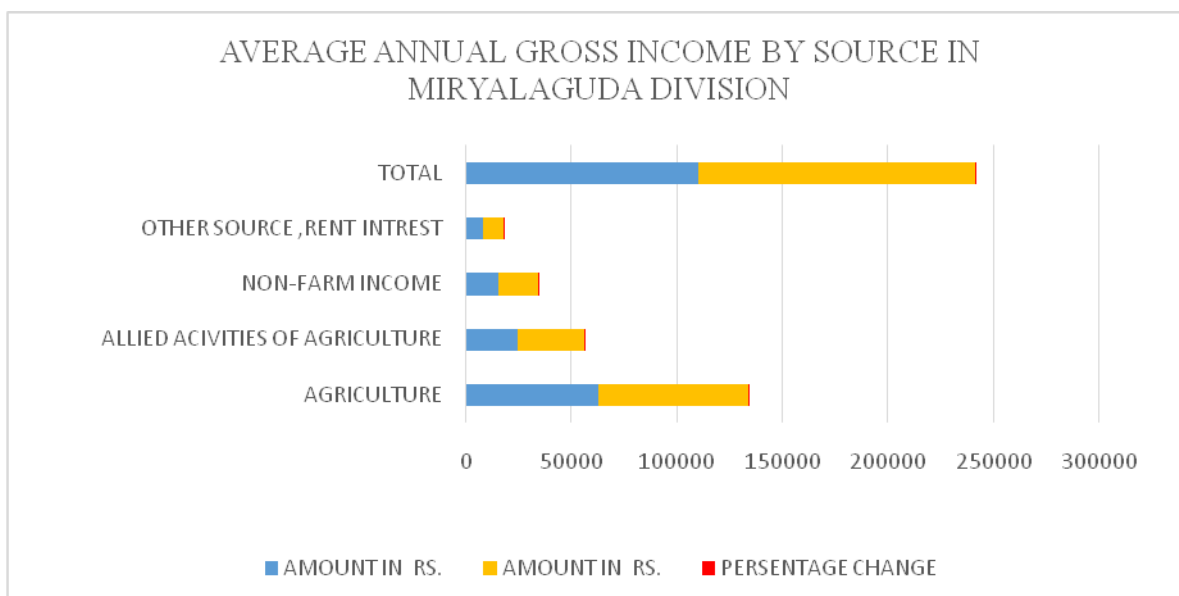


Figure 2. Average annual gross income by source in Miryalgudadivision

Table:1 explains that the average annual income of the sample households after the implementation of watershed development programme is Rs.131500 compared to Rs. 109700 before the implementation of the programme in Miryalguda division. The income from **allied activities of agriculture** in the watershed area (after the implementation of the watershed development programme) experienced maximum increase (57.27 per cent) compared to all other sources of income. The income **from agriculture, non-farm sources and other sources** also recorded higher income after the implementation than their counterparts before the implementation of the programme

IMPACT ON CONSUMPTION EXPENDITURE

The Angels Law of Family Expenditure describes the fact that the amount of expenditure gained on comforts and luxuries indicates the economic well-being of the people. The respondents in before the implementation of the watershed development programme generally belong to the lower income group and hence the amount of expenditure incurred by them on comforts and luxuries is very small. After the implementation of the watershed development programme, they are able to generate more income and hence they spend a large portion of their income on meeting their expenditures.

Table: 2 Average Annual Consumption Expenditure in Miryalguda Division

AVERAGE ANNUAL CONSUMPTION EXPENDITURE IN MIRYALGUDA DIVISON				
S.NO	ITEMS	AMOUNT IN RS.		PERSENTAGE CHANGE
		BEFORE IMPLEMENTATION	AFTER IMPLEMENTATION	
1	FOOD	34300	42700	24.48
2	CLOTHING	18900	23800	25.92
3	RENT	9600	13500	40.62
4	EDUCATION	8500	12500	47.05
5	FUEL&LIGTNING	10200	13400	31.37
6	MEDICINE	9100	12900	41.75
7	RELIGION SOCIAL	6400	8800	37.5
8	OTERS	15600	21200	35.89
	TOTAL	112600	148800	32.14

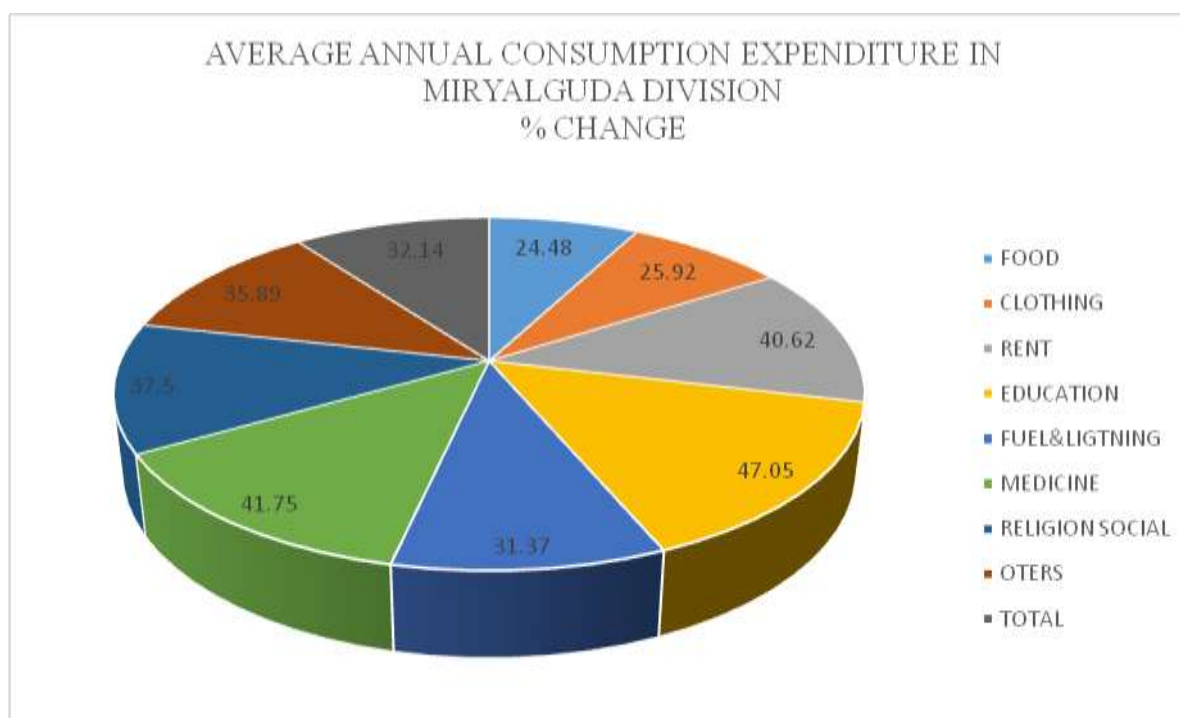


Figure: 3 Average annual consumption expenditure in Miryalgudadivision % change.

Table 2.Reveals that the average annual consumption expenditure of the sample households after the implementation of watershed development programme is Rs. 148800 compared to Rs. 112600 before the implementation of the programme in Miryalguda Division. The expenditure **on education** in the watershed area (after the implementation of the watershed development programme) experienced maximum increase (47.05 percent) compared to all other item of expenditure. The expenditure on **food, Clothing**, rent, fuel and lighting, medicine, religious and social expenditure and others also recorded major consumption expenditure in after the implementation than their counterparts before the implementation of the programme.

People’s involvement and impact of watershed Development programme on cropping pattern and Production of crops.

Similar all other development programmes, the watershed development programme rest on bank heavily on the participatory approach. Though the watershed development programme predicts an integrated and comprehensive plan of action for the rural areas, people’s participation at all levels of its implementation is very important, the reason being that the watershed management approach requires every piece of land located in the watershed to be treated with appropriate soil and water conservation measures and to be used according to its physical capability. On behalf of this to happen, it is necessary that every farmer having land in the watershed accepts and implements the recommended watershed development plan. The amount of people’s participation can be assessed by their contribution to or involvement in the project of private and common property resources.

Table: 4 Impact on Cropping Pattern in Miryalguda division.

LEVEL OF PEOPLE'S PARTICIPATION IN WATERSHED PROGRAMME IN MIRYALGUDA DIVISON					
S.NO	LEVEL OF PARTICIPATION	PEOPLE'S PARTICIPATION (NUMBER)			TOTAL
		PLANNING	IMPLEMENTATION	MAINTENANCE	
1	LOW	1 (3.33)	3 (10)	1 (3.33)	5 (16.66)
2	MEDIUM	3 (10)	4 (13.33)	2 (6.66)	9 (30)
3	HIGH	4 (13.33)	9 (30)	3 (10)	16 (53.33)
4	TOTAL	8 (26.66)	16 (53.33)	6 (20)	30 (100.00)
	LEVEL OF PARTICIPATION	MEDIUM	HIGH	LOW	

It is noted from Table that the total people’s participation was found to be high in implementation of watershed development programme in Miryalguda division which constitute 53.33 per cent. In the case of people’s participation in planning and maintenance of watershed development programme, it was found to be medium and low which constitute 26.66 per cent and 20.00 per cent respectively. It was concluded from the above analysis that the people’s participation in the implementation of watershed development programme in Miryalguda division.

IMPACT OF WATERSHED DEVELOPMENT PROGRAMME ON CROPPING PATTERN

The cropping pattern, that is, proportion of area under different crops is a good indicator of agricultural production. It is expected that watershed treatment activities help development of water resources potential and thereby help the farmers go for water intensive commercial crops. The impact of watershed development programme on cropping pattern followed in the selected Miryalguda divisions.

Table:5 Impact on Cropping Pattern in Miryalguda division.

IMPACT ON CROPPING PATTERN IN MIRYALGUDA DIVISON				
S.NO	CROPS	CROPPED AREA IN ACRES		PERCENTAGE CHANGE
		BEFORE IMPLEMENTEN	AFTER IMPLEMENTATION	
1	PADDY	119	166	39.49
2	COTTON	141	169	19.85
3	GROUND NUT	104	126	21.15
4	RED GRAM	90	114	26.66
5	CHILLY	63	88	39.68
	CROSS CROPPED AREA	517	663	28.23

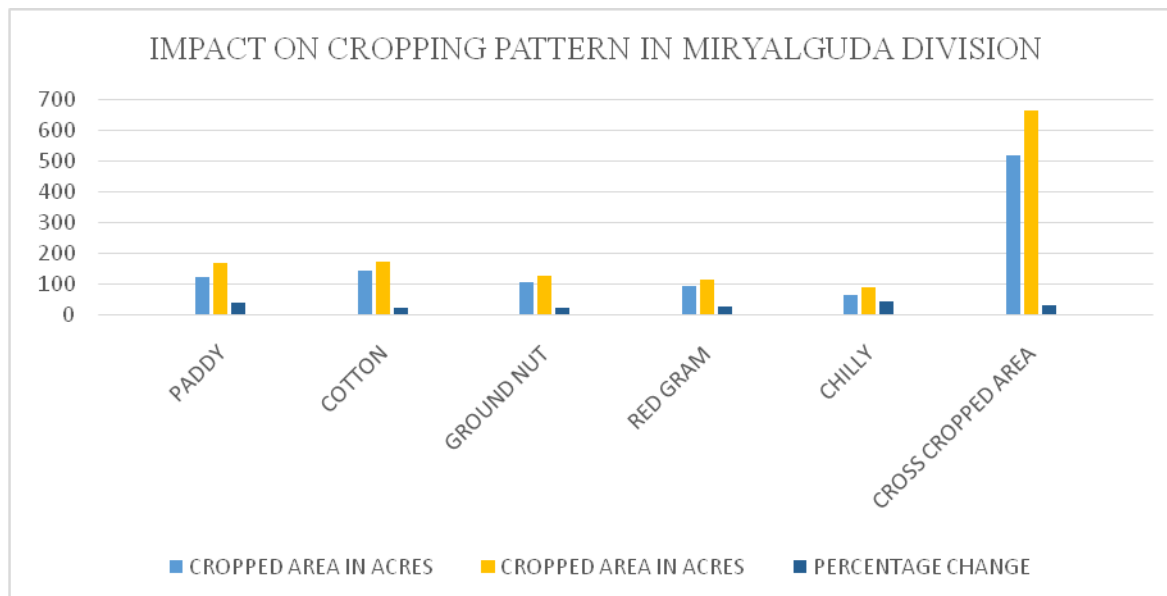


Figure: 4 Impact on cropping pattern in Miryalguda division.

Table shows that the cropping pattern is distinctly better and more varied after the implementation of the watershed development programme in Miryalguda division than before the implementation of the programme. Amongst the selected crops in this division. The area under chilly cultivation was higher after the implementation of the watershed development programme than before the implementation which constitute 39.68 per cent. The area under cultivation of paddy, cotton groundnut, and red gram cropped area increased by 39.49 per cent, 19.85 per cent, 21.15 per cent and 26.66 percent individually. In overall gross cropped area under selected crops in Miryalguda division, 28.23 percent was higher after the implementation of the watershed development programme.

IV. Impact Of Watershed Development Programme On Crop Production:

Table: 6 Impact on Crop Production in Miryalguda

IMPACT ON CROP PRODUCTION IN MIRYALGUDA DIVISION				
S.NO	CROPS	CROP PRODUCTION IN TONNES		PERCENTAGE CHANGE
		BEFORE IMPLEMENTATION	AFTER IMPLEMENTATION	
1	PADDY	27.37	43.16	57.69
2	COTTON	31.02	40.56	30.75
3	GROUNDNUT	12.48	1.89	51.44
4	RED GRAM	1.17	15.96	36.41
5	CHILLY	20.16	31.68	57.14
	TOTAL PRODUCTION	102.73	150.26	46.26

division.

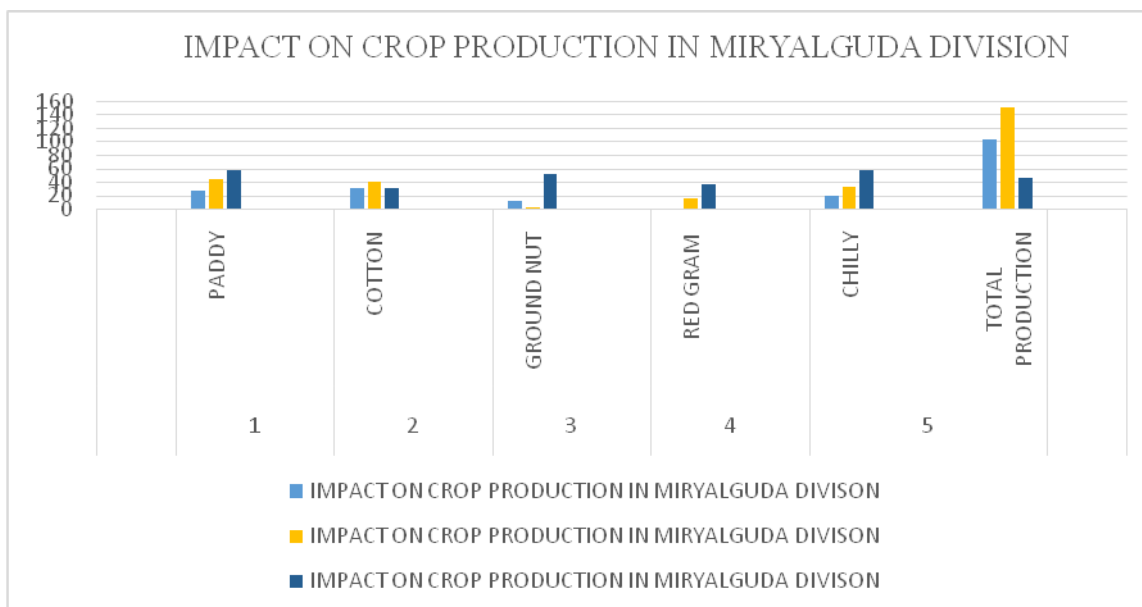


Figure: 7 Impact on crop production in Miryalguda division

It is detected from Table that the total crop production of selected crops in Miryalguda division after the implementation of watershed development programme is found to be 46.26 per cent more than before the implementation of the programme. It is perceived that the highest percentage change of production of paddy in the watershed area, that is after the implementation of the programme was 57.69 per cent was followed by cotton, ground nut red gram and chilly which constitute 30.75 per cent, 51.44 per cent, 36.41 per cent and 57.14 per cent individually in Miryalguda division.

V. Conclusion

- The socio economic profile of the sample respondents in Miryalguda Division reveals that a highest proportion is found in the age group 26-35 and 36-45.
- The educational status of the sample respondents shows that the major respondents have studied up to primary, high school and higher secondary is more or less equal in the study area.
- The study has observed a higher proportion of the sample respondents belong to scheduled castes and the family type of the respondents is nuclear family.
- The study has observed that the majority of the land holding class is small farmers.
- Increasing the income and employment of farmers and landless labourers through improvements in agricultural production.
- The crop production of selected crops in Miryalguda division. All selected crops are positively influenced incropping pattern.
- After the implementation of watershed development programme is found to be 46.26 % more than before the implementation of the programme Miryalguda division.
- It is perceived that the highest percentage change of production of paddy and lowest change is cotton in the watershed area,

Acknowledgements

The authors are thankful to the Head, Department of Geography, University College of Science, Osmania University, Hyderabad, The authors are also glad to BSR FELLOWSHIPS IN SCIENCES, New Delhi for providing financial support.

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International Journal of Humanities and Social Science Invention (IJHSSI) is UGC approved Journal with Sl. No. 4593, Journal no. 47449.

P.Nagesh “A Study of Watershed Development Programme On Miryalaguada Division in Nalgonda District- A Geographical Analysis”. International Journal of Humanities and Social Science Invention(IJHSSI), vol. 6, no. 11, 2017, pp. 20-27.