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**“IMPACT OF NATIONAL WATERSHED DEVELOPMENT PROGRAMME  
ON SOCIO-ECONOMIC DEVELOPMENT OF BENEFICIARIES IN  
DHENKANAL AND KANDHAMAL DISTRICT OF ORISSA”**

**Dr. Ravi Prasad Srivastava**

**HOD & Associate Professor**

**K.A. P.G. college , Prayagraj**

**Kulbhaskar Ashram Post Graduate College Prayagraj – 211001 (U.P.)**

**INTRODUCTION**

Water is a prime, natural, indispensable and vulnerable resource which put to a variety of uses. India depends heavily on water for production of food and economic development. Our country is endowed with abundant land and water resources. According to "The wrath of Nation", publication brought out for members of Parliament, the average annual precipitation in India is the highest in the world except Latin America. Out of total effective annual precipitation of 350 million hectare meters (mhm) of water, around 160 being lost to the sea as river flows. Out of the balance of 190, about 20 get stored in reservoirs, 45 as ground water and rest 125 million hectare meters as soil moisture. Therefore, the use is limited to more or less up to 25% of the rain water for food grain production. Even after full exploitation of irrigated potential, about 50% of the cultivated land continue to depend on rainfall for production. It leads to infer that our agriculture is still a gamble of monsoon even in the twenty first century.



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## **OBJECTIVES:**

1. To study the personal specific economic characteristics of the beneficiaries.
2. To assess the knowledge level of the beneficiaries about watershed development programme.
3. To analyze the extent of involvement of the beneficiaries in formulation and execution of watershed development programme.
4. To study the attitude of the people towards implementation of the watershed development programme.
5. To study the change in terms of materials possession, technological adoption, cropping pattern, income and above all socio-economic status of the people due to implementation of the programme.
6. To analyses the constraints impeding the successful implementation of the programme and the remedial measures suggested to combat them.

## **Scope and importance of the study:**

The study is an effort to probe into the implementation process being followed. It provides the perception and involvement of people in selected aspects of watershed development. Since, watershed development programme is a new approach, knowledge of each individual on different aspects of watershed development programme is essentially required to designed effective programmes in order to make them conscious, involved and implement various activities. The objectives and guideline developed for the purpose is of new dimension. Unless the beneficiaries are fully exposed to the objectives and guideline, they will not have a



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clear understanding about the project; its implementation procedure and benefit extended from the project.

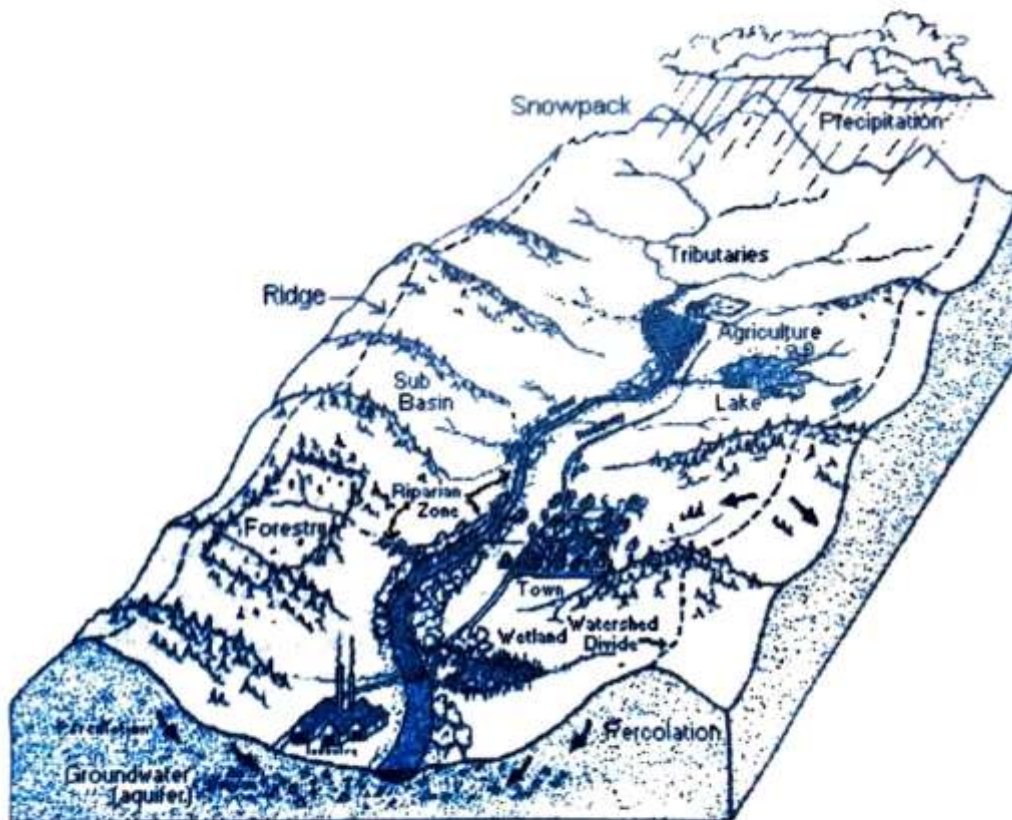
The watershed beneficiaries are much empowered in implementation of all programmes. Each individual will plan his programme; arrange resource as per his choice, utilizing funds by himself and implement planned programmes. This will definitely bring an improvement for which attempt was made to study the various development of the people in relation to social, economical, infrastructural and environmental conditions.

### **LIMITATION OF THE STUDY:**

A Study of this nature involved analysis of the entire process i.e. from policy framing of programmes, implementation as well as developments of the watershed people. It therefore sets number of limitations for researchers covering two important rain fed districts of Orissa in a short period of time. In spite of these limitations, the researchers made best possible approach to overcome some of there limitations by successfully covering respondents from all levels.

The data collected were based on the expressed opinions of the respondents. The study therefore may not be free from usual biasness particularly from social investigation. As the study used the ex-post facto as well as participant observation techniques, all the disadvantage and short coming that are associated with techniques and multi-international effects of several factors themselves set limitations to the study. More ever, the study was restricted to eight Watersheds in tow districts only out of 30 districts in Orissa.

# Watershed



**Watershed is a geo-hydrological unit of area,  
Which drains the entire run-off to a single outlet**

**Fig. 2**

**FEATURES OF WATERSHED**



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1. Location :Geographical location - Longitude, Latitude
  - 2.Area :Total geographical area in ha./sq.km.
  - 3.Shape :Fan, Feathered, Elongated
  - 4.Shape index 
$$\frac{(\text{Length of the watershed})^2}{\text{Area of the watershed}} = \frac{L^2}{A}$$
  5. Drainage pattern:Dendriatic, parallel, sub-parallel, Trallie
  6. Drainage density :No. of drainage lines per unit area
  - 7.Stream grade :Difference between elevation of highest point where the stream originated and elevation at the discharge point
  - 8.Stream slope of the watershed : 
$$\frac{D \times L \times 100}{A}$$

S = Average  
D = Stream grade  
L = Average Length  
A = Area of the watershed
  9. Time of concentration :More of the time of concentration, less the erodability

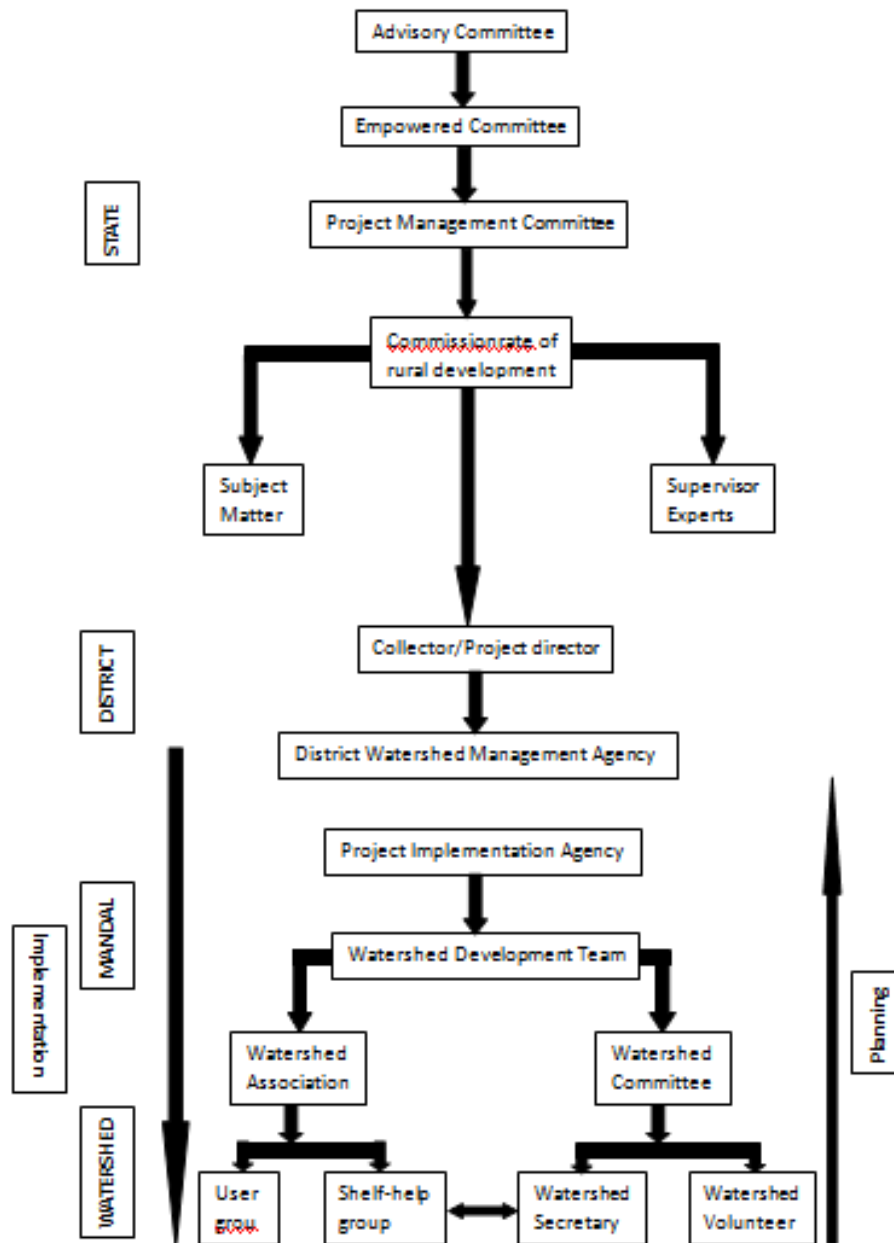


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## **CONCEPT OF WATERSHED DEVELOPMENT PROJECT**

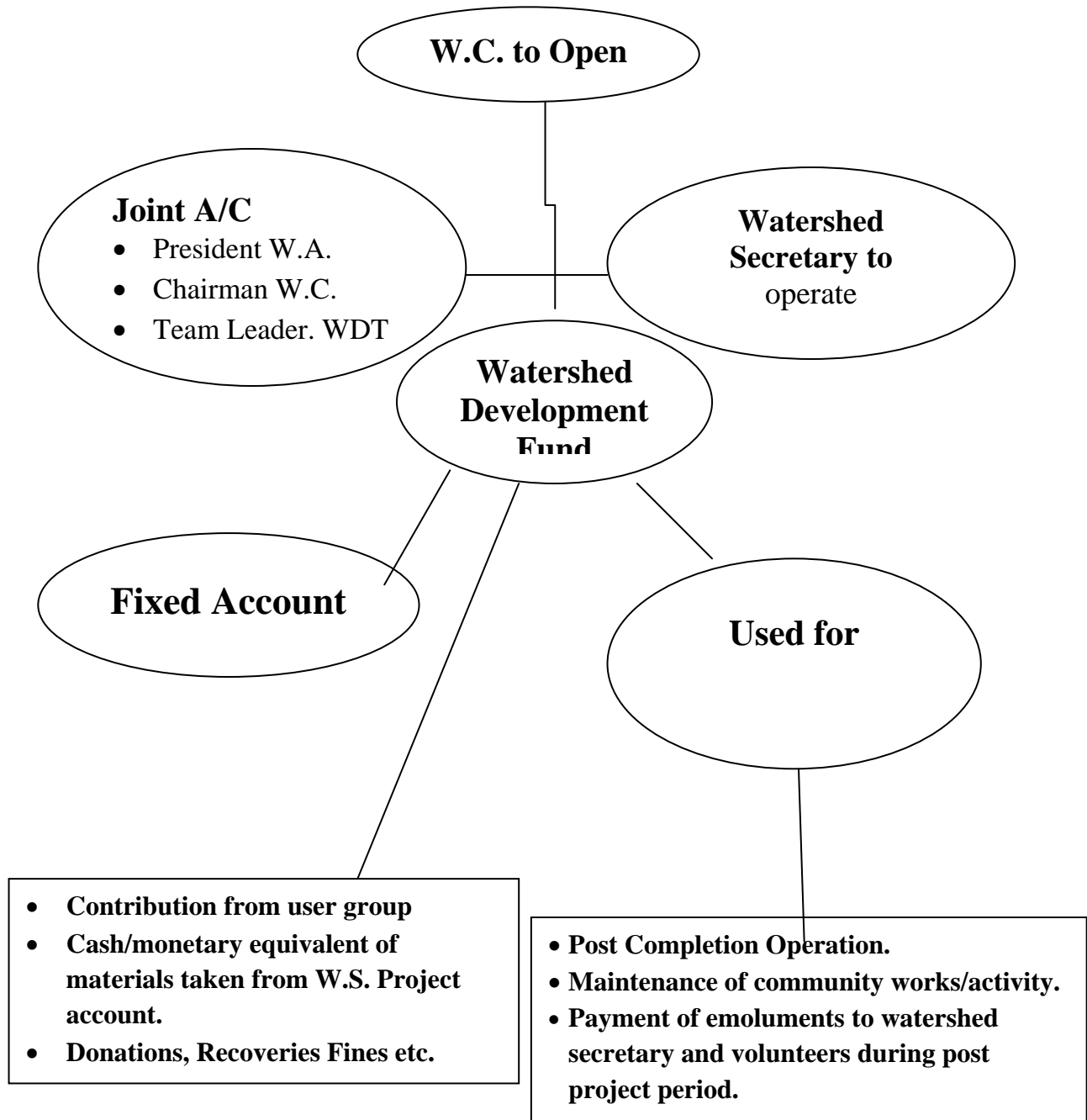
The watershed development is considered to be an appropriate approach to combat with the problems of failure of rain, withering of crops, burning of grass, reduction in drinking water supply, rise in prices of grains, increased demand for employment, starvation as well as epidemic death, fodder shortage in cattle, migration and mortality of people, Recognizing the need for the integrated development of dry lands and considering the failure of the watershed development programmes like DPAP, DDP, IWDP. NWDPRAs as well as keeping in a view of the recommendation of Dr. C.H. Hanumantha Rao committee report (1994), the Ministry of Rural Development, Govt. of India launched a new programme "National Watershed Development Programme" and formulated guideline for its effective implementation. The people's participation in the developmental programmes, optimum utilization of available resources, employment generation, encouraging for restoration of ecological balance, sustained community action for operation and maintenance of created assets, inputs arrangement, easy and affordable technical solutions and special emphasis for the resource poor as well as disadvantaged sections of the watershed community.

FIG. 3 INSTITUTIONAL ARRANGEMENTS OF WATERSHED PROJECT



ADAPTED FROM MINISTRY RURAL DEVELOPMENT GUIDLINE GOVT. OF INDIA

**Fig. 4 Watershed Development Fund**







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## REVIEW OF LITERATURE

A comprehensive and systematic review of the relevant literature is a pre-requisite in carrying out any research in a scientific manner. A reference to the past studies provides guidelines not only to frame areas of research and methodologies to be adopted, but also to confirm and repudiate research outcomes with all possible reasons. The main functions of the review chapter are:

1. To provide a basis for the development of theoretical frame work.
2. To provide an insight into the methods and procedures.
3. To suggest operational definitions.
4. To provide the basis for interpretation of findings.

The present investigation, “**Impact of National Watershed Development Programme on Socio-economic Development of beneficiaries in Dhenkanal and Kandhamal district of Orissa**” is of current interest. Attempt has been made to review available research work directly or indirectly related to the present study. The available literatures related to the topic have been presented under the following headings.

- (i) Concept of watershed Development programme.
- (ii) Knowledge and involvement of the beneficiaries in watershed development programme.
- (iii) Attitude of the people towards implementation of the watershed development programme.

**Saraswat, Nadda & Sikka (1990)** found that only a marginal impact was observed regarding labour utilization and no impact and no impact for seed rates,



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fertilizer utilization and a very slight change observed for a productivity of crops grown in the watershed area. The main constraints were inadequate staffing, lack of proper infrastructural facilities, meagre funds etc.

**Zam & Benerjee (1993)** stated that location specific technologies based on soil and water conservation and watershed basis is playing major role in sustainable food production in dry land farming.

**Bhusan (1994)** reported that voluntary work is the only true measure of the inner strength of a society because it embodies a certain degree of social commitment without which no society can sustain itself.

**Krishinapa & Hegdae (1994)** reported that non-involvement of weaker section and local statutory institutions and sectarian disparities in financial procedures were handicapped for successful implementation.

**MANAGE (1994)** was in view that watershed management is a holistic approach which aims at optimizing the use of lands, water and vegetation in an area to alleviate drought, moderate floods, prevent soil erosion, improved water availability and increased fuel, fodder and agricultural production on a sustained basis.

**Ingle & Kude (1997)** stated that non-participation of watershed people due to lack of motivation was the major constraint in the adoption of soil and water conservation practices.

**Purusottam & Singh (2001)** stated that conflict on sharing common benefits, improper selection of beneficiaries, problems in convincing people and



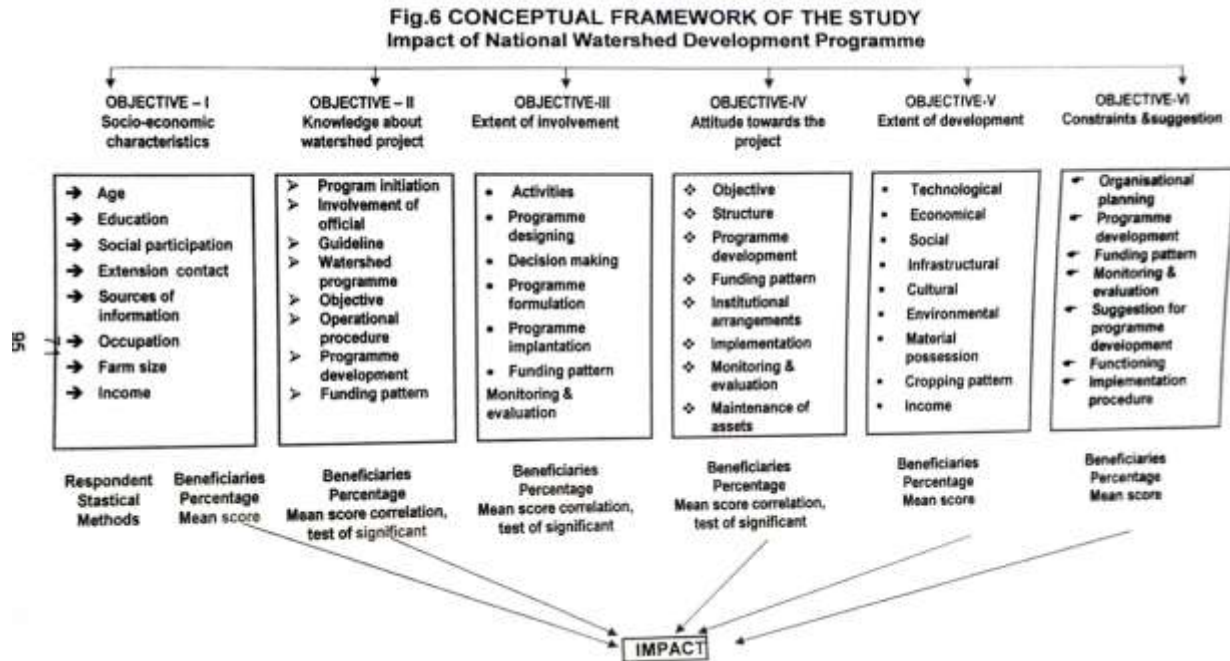
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## METHODOLOGY

The chapter “methodology” presents a precise method and procedure followed during the course of investigation and preparation of manuscript. The methodology used in carrying out the investigation have been outlined in eight sections as mentioned below.

1. Selection of problem
2. Research design
3. Plan of work
4. Location of the study
5. Sampling procedure
  - (a) Selection of districts
  - (b) Selection of blocks
  - (c) Selection of watersheds
  - (d) Selection of respondents
6. Tools & techniques used for data collection
  - (a) Pilot study
  - (b) Preparation of the interview schedule
  - (c) Pre-testing of the schedule
  - (d) Collection of data
7. Operationalization & measurement of variables.

8. Data processing & use of statistical methods.



**Fig-7**  
**Map of Dhankanal District**



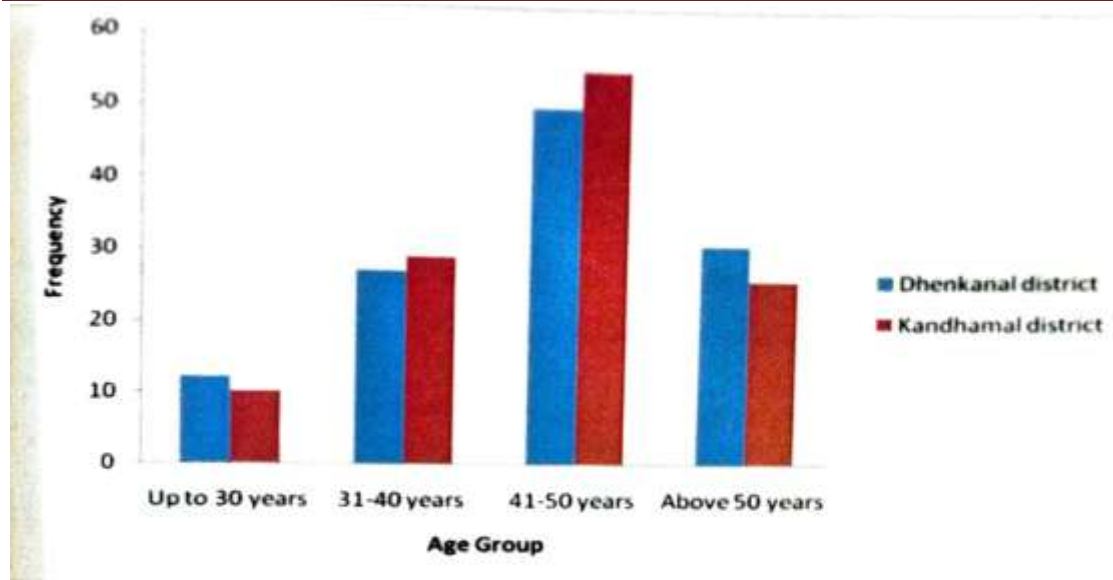


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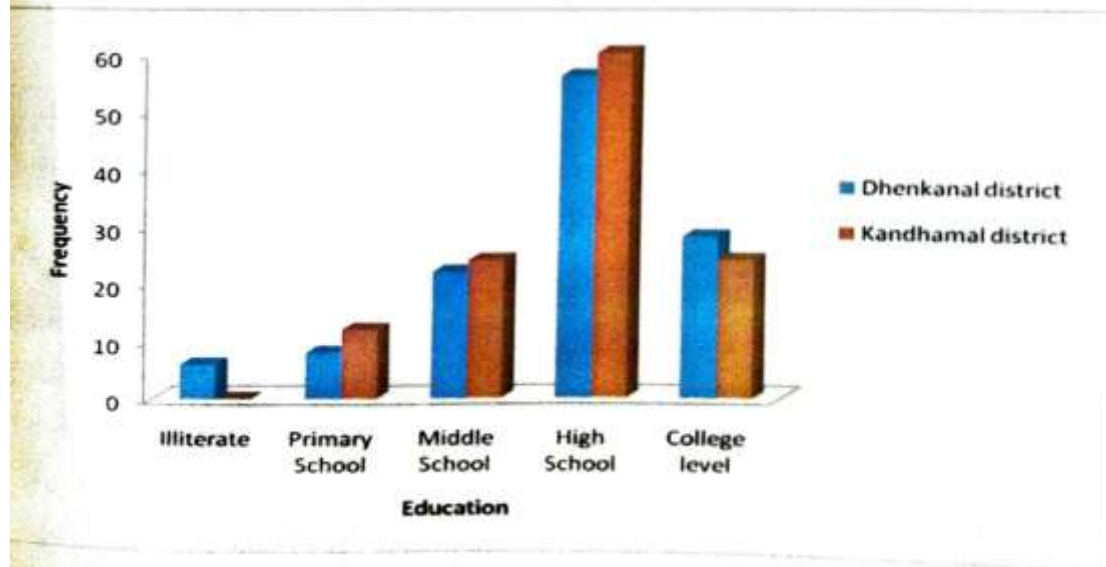
## **RESULTS AND DISCUSSION**

The study entitled **“IMPACT OF NATIONAL WATERSHED DEVELOPMENT PROGRAMME ON SOCIO ECONOMIC DEVELOPMENT OF BENEFICIARIES IN DHENKANAL AND KANDHAMAL DISTRICT OF ORISSA.”** was conducted out of the consideration that there might be significant development on social, economical and other aspect of the watershed people as the programme designed from the farmer’s prospective and implemented by them. The study show designed was carried out in Dhenkanal and Kandhamal district of Orissa covering eight watershed in eight blocks. The sample size of 240 respondents representative of different position as explained in the chapter methodology were personally interviewed with a semi structured schedule and factual information collected.

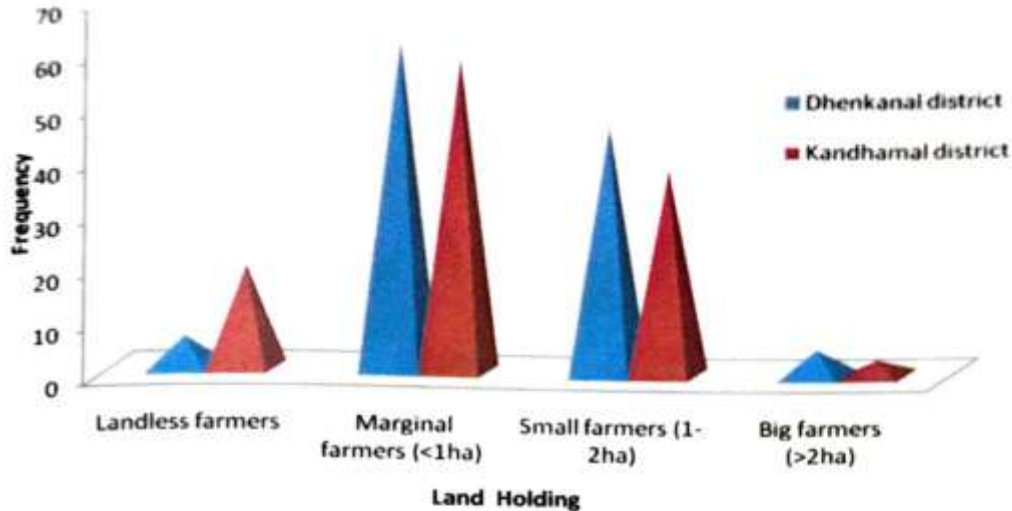
The national Watershed Development Programme was in operation in Orissa since 1995. The guideline developed for the purpose emphasized for active and fully participation of the watershed people starting from problem identification programme development, programme implementation as well as evaluation.



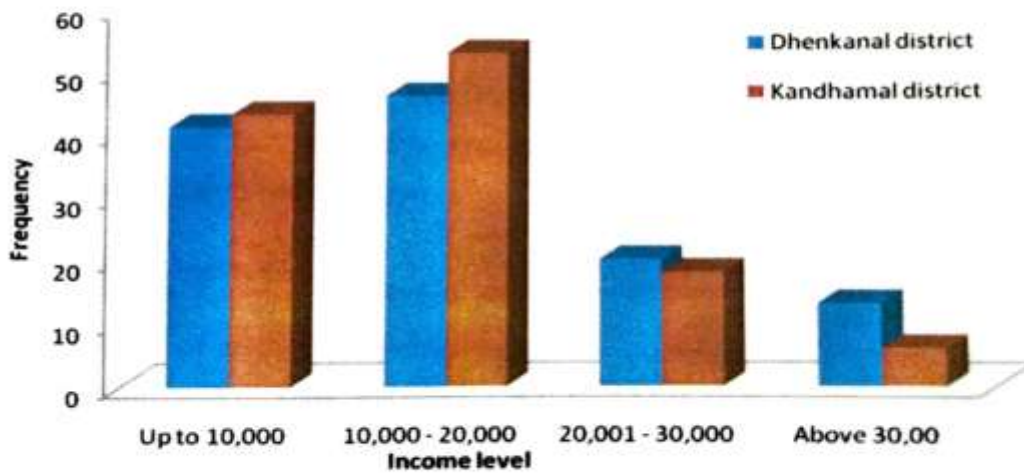
**AGE DISTRIBUTION OF THE RESPONDENTS**



**EDUCATIONAL STATUS OF THE RESPONDENTS**



### HOLDING SIZE DISTRIBUTION OF THE RESPONDENTS



### ANNUAL INCOME DISTRIBUTION OF THE RESPONDENTS



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## **SUMMARY AND CONCLUSION**

National watershed development programme is an integrated approach for development of the watershed with the basic objective of the land and resource management. It is a co-ordinate multidisciplinary approach for suggesting the agro-environment resources. The study entitled “Impact of National Watershed Development Programme of socio-economic development on beneficiaries in Dhankanal and Kandhamal district of Orissa” was conceived out of the consideration that significant development might have been occur to the watershed as well as to the people. Since the programme is exclusively designed from the farmer’s prospective, the study was designed with the following objective.

1. To study the personal and specific economic characteristics of the beneficiaries.
2. To assess the knowledge level of the beneficiaries about watershed development programme.
3. To analyze the extent of involvement of the beneficiaries in formulation in execution of watershed development programme.
4. To study the attitude of the people towards implementation of the watershed development programme.
5. To study the change in terms of materials possession, technological adoption, cropping pattern income and above all socio-economic status of the people due to implementation of the programme.





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## **B. Knowledge about watershed development programme:**

1. Majority of 68.33% of respondents in Dhenkanal district had got the information about implementation of the programme in the same year of implementation followed by 25.83% after one year. But majority respondents in Kandhamal district got the information in different years and 11.66% were still ignorant about implementation. However, majority of the respondent in both the district had got the information about implementation of the programme within 2 years.
2. There was better involvement of Watershed Development Team members, watershed committee members and to some extent Project Implementation Agency in implementation of the programme in comparison to beneficiaries. The findings therefore suggested more attention to be taken by the District Advisory Committee for active involvement of the beneficiaries in programme implementation.

## **CONCLUSION**

The national Watershed Development Programme have been designed for the holistic development of the watershed. A specific guideline was circulated indicating details of operational procedures in programme design, implementation, monitoring & involvement fund utilization including sustainable use of the assets related. Active involvement of the watershed people has also been emphasized. As revealed from the study; some improvement has been done towards increase in production and productivity, exposure to various information source, management of adverse situation improvement on overall living conditions, people become



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cooperative and good harmony established and adoption double cropping. However; significant gap observed on different aspects of development conclude that the objectives of the project have not been achieved.

### **IMPLICATIONS OF THE STUDY**

The National Watershed Development Programme is at a new approach designed in a participatory mode with active involvement of people initiating from resource analysis to maintenance and use created assets during post project period. The findings of the will have the following implications.

1. The findings of the study will definitely through some facts towards refinement of the guideline developed exclusively towards implementation of the programme.
2. Extent of gap observed in knowledge and understanding of the Watershed people about the guideline will enable the nodal agency (DRFA) and project official for all possible remedial measures not only to make clear understanding of the people in study area, but also replicate the same in other districts.

### **FEATURE AREA OF RESEARCH**

1. The study was only confined to 4 watersheds in four blocks each in Kandhanal and Dhenkanal district of Orissa. The findings of the study may not be applicable to other districts where watershed programme may not be applicable to other districts where watershed programme may not be applicable. Similar type of study may be conducted in other district to arrive at conclusion for necessary modifications in the operational procedures.



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2. Since the study designed for academic purpose further in depth study in other watershed areas in the same district may be undertaken to assess the weak needed and designing contingent plan on watershed development programme for the entire district.

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