CHAPTER III
RESEARCH METHODOLOGY

This chapter describes the methods and procedures used for the study. In nutshell it is considered to be the blueprint of the research activities. The different steps undertaken are described below.

3.1. Locale of the study

3.1.1. Description of the tract under study

3.2. Research Design

3.3. Sampling procedure and Sampling Techniques

3.3.1. Population of the Study
3.3.2. Selection of district
3.3.3. Selection of blocks
3.3.4. Selection of the respondents

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3.6.3. Collection of data

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3.1. LOCALE OF THE STUDY

Allahabad district is the south - eastern part of the State of Uttar Pradesh, which touches the boundary of neighboring State Madhya Pradesh. The population of the district is traditional, hardliner and highly illiterate as compared to other parts of the State *(Sankhakiya Patrika, 2014)*. In view of this, Allahabad district had been purposively selected for the study.
3.1.1. DESCRIPTION OF THE TRACT UNDER STUDY

A brief description of the study area forms the basis to know and analyze its agro-economic settings and socio-economic character. In this chapter the basic information of such aspects of the study area are presented.

1. UTTAR PRADESH

Uttar Pradesh with a territory of 113.654 thousand square miles lying in the stretches between the parallels of 23°52' and 31°18' north and 77°10' and 89°39' east. It is one of the densely populated states in the India. The state is divided into four regions, namely the hill areas in north along the Himalayas, the sub mountain tract comprising Bhabar and Tarai, the Yamuna-Gangetic plain with fertile alluvial soil and the hill plateau region lying towards south Gangetic plain.

The rainfall in the plains is heaviest in the east, where it is more than 50 inches and least in the north-west with only 27.5 inches. In other Himalayan region rainfall varies between 97 inches to 102 inches.
Population pressure in the state varies greatly from area to area. Its density in the eastern and western districts of U.P. is very high and in hill districts of the northern zone and Bundelkhand region, it is very low. Tighter population density in the state ensures ample supply of labour, which may be taken as an advantage in a developing country, but it also requires larger amount of resources for the economy to grow on a per capita basis.

Agriculture is the pre-dominant sector of this area. It employs 76 per cent of the state's total working population and contributes about 68 per cent to its net output. The state leads in production of food grains, fruits, potato and ranks second in the production of oil seeds.

Major part of the cultivated area in the state is covered by fertile thick alluvial soil where the rainfall is reasonably good. Out of the total net sown area, 29 per cent receives irrigation and 27 per cent is under double cropping system. Due to relatively high-pressure of the population, the main emphasis is on agriculture all over the Uttar Pradesh (Census, 2011).

A wide Panorama reveals that the favourable atmospheric condition and soil permits a wide variety of crops to be grown in various parts in the state. However, prevalence of some of the factors have resulted in distinct crop and cropping system being followed over the areas in different regions of the state. Districts in the eastern region where rainfall is fairly good, soils are suitable especially for crops, holdings are small and fragmented and drought power is poor, rice and wheat are the dominant crops. These characteristics of the area do not provide suitable opportunity for cultivation of a wide variety of crops as in other regions. Hence, the substitution opportunities are comparatively less. In western region soils are black, rainfall is around 45 inches and holdings are larger. This region permits rising of larger variety of crops during Rabi and Kharif seasons.

In addition to these factors the state occupies 30 to 40 per cent of irrigated area and is technologically advanced in agriculture (Sankhakiya Patrika, 2014). These factors permit the farmers of the state to adopt high yielding varieties of crops and modern cultivation practices especially for wheat and some pulses. Despite the entire average yield in the state is relatively low as compared to all India average. One of the
important reasons for low state average yield is the defective cropping pattern along
with low resource productivity.

2. DISTRICT PROFILE

Allahabad district is situated in the southern eastern part of the state of Uttar
Pradesh. It lies between the parallels of 24° 27' and 25° 45' north and 81° 84' and 82°
21' east. Allahabad district is bounded on the south eastern side by the Mirzapur and
Sant Ravidas Nagar districts, northern side by Jaunpur and Pratapgarh, western side
by Kaushambi and south western side by Chitrakoot and Banda.

a. Area and Population

The Allahabad district is spread over an area of 5,482 square kilometers out
of which the rural area covers 5,365 square kilometers (i.e. 97.87 per cent) and rest is
covered by urban area including town. Main occupation of the rural people of this
district is farming. Land available for agriculture in the district is 3, 24,392 ha. of
which 2,49,300 ha. was under irrigation facilities which constitute 74.60 per cent of
the cultivated area. Soils of the district and neighboring locality are loam, sandy
loam, clayey loam and sodic. The terrain is undulating with soil erosion and run-off
losses.

In 2011, Allahabad had population of 5,954,391 of which male and female
were 3,131,807 and 2,822,584 respectively and 1,087 inhabitants per square km.
(2,820/sq m) respectively. Out of that 75.26 per cent of the total population of the
district belonged to rural area which mainly depended on agriculture and allied
business including fruits and vegetable production.

b. Climate and Rainfall

The climate of the study area is tropical with three seasons in a year i.e. rainy
season, winter season and summer season. Summer season begins from March and
ends in July-August, rainy season commences in July- August and remains up to
November- December and winter season starts from December and remains up to
February. The annual rainfall ranges between 3 to 156 millimeters. The rainfall in the
district is due to the southeast and northwest monsoon.
c. Soil

The soils of the region are of two major types, sandy loam, and clayey loam series. Clayey loam, most common type of soil in the region accounts for about two-third of the area. Most of the land in the village is well leveled and crops of different nature and species are well grown. However, converging channels of river Ganga and Yamuna enclose the triangular wedge of land, it consists of fertile tract drained by the Sasurkhaderi, a tributary of the later.

d. Crops

The important crops grown in the district are paddy, wheat, jowar, bajra, gram, barley, potato, mustard, linseed, sesame, maize and vegetables of different kind. Apart from this, guava, mango, ber and papaya are the important fruit trees serving this area to achieve both the subsistence and the commercial goals. Guava is a fruit of mainly commercial significance. It is considered quite hardy, prolific bearer and highly remunerative even without much care than any other crop. Guava produced in this tract is most delicious and superior in quality and is very much in demand in the country as well as abroad.

e. Administrative Units

The district was divided into eight tehsils with twenty development blocks to execute and manage the developmental activities and for effective implementation of administrative programmes. The district is divided into eight tehsils named as Sadar, Karchhana, Phulpur, Bara, Koraon, Meja, Soraon and Handia. Tehsils are divided into Development Blocks. There are twenty development blocks. Kaudihaar, Holagarh, Mauaima, Soraon are the development blocks in the Soraon tehsil, Bahria, Phulpur, Bahadurpur are the development blocks in the Phulpur Tehsil, Pratappur, Saidabad, Dhanupur, Handia are the development blocks in the Handia tehsil, Jasra, Shankargarh are the development block of Bara tehsil, Chaka, Karchhana, Kaundhiyara are the development block in the Karchhana Tehsil, Uruwa, Meja, Manda are the development block in the Meja tehsil and Koraon is the development block in the Koraon tehsil.

The total area of the district is 5,482 sq. kms. Out of the total area of the district, urban area constitutes only 117 sq. kms. as against 5,365 sq.kms. of rural.
3.2. RESEARCH DESIGN

A descriptive survey research design was followed to conduct the present study. Descriptive studies are one in which information is collected without changing the environment i.e., nothing is manipulated. Descriptive research design was used as it is considered to be the best method for collecting information which demonstrates relationships and describes the world as it exists. Interview was used to gather information on a population at a single point of time. Survey is commonly applied to a research methodology designed to collect data from a specific population, or a sample from that population. Survey method was utilized for the purpose of data collection where in Schedule was constructed for the purpose as they are a means for authentic data collection.

3.3. SAMPLE SIZE AND SAMPLING TECHNIQUES

Multi-stage cluster sampling with block as primary unit and respondents as ultimate units of investigation was adopted for drawing the sample.

3.3.1. Population of the Study

For the present study the population was taken to be all those rural women of two selected blocks who were engaged in agri-based enterprises.

3.3.2. Selection of blocks

The Allahabad district is divided into 20 developmental blocks. Geographically the district is divided in two parts i.e. Trans Ganga and Trans Yamuna. Two blocks from Trans Yamuna i.e., Jasra and Karchana were selected purposively for the study because a number of agri-based enterprises are run by the women in these blocks as compared to other parts of Allahabad district. The researcher is also conversant with the language, geography and other aspects of the study area.
BLOCKS UNDER STUDY

Jasra and Karchana are the two development blocks in the district of Allahabad. Total population of the two blocks, according to the census 2011 was 4,19,895 and 2,08,342 respectively. Area of the sample blocks were 420.35 and 134.85 sq. kms. respectively. There were 62 Panchayats in Jasra and 70 panchayats in Karchana blocks.

The blocks are situated in the northern tract of the district located on the other side of the river Yamuna, the only river flowing between the Allahabad city and the territory of the two blocks. The river in these blocks flows from west to east in zig-zag way and is the chief source to provide natural drainage to the blocks. Soil of both the blocks is clayey loam and is well fertile and properly drained. Agro-climatic and other situations of the blocks are same as that of the district.

Fig.3.2 Blocks of Allahabad

A. Availability of resources and their utilization pattern

Economic activities in an economy, depends on the availability of resources, whether they are natural or induced. Resource availability and their utilization pattern in the district and blocks are as follows.
4a) Human Resources

Contribution of human resource and its importance in an economic activity cannot be ignored. It is being exploited in two ways. Its mental efficiency is being utilized in organization and management of an activity and the physical ability in form of labour. Human resource availability in an economy may be reflected by its demography. Demographic features of the district (Allahabad) and blocks (Jasra and Karchana) are discussed as under:

i) Population

Population by sex, sex ratio, and population density, average size of family and sex-wise level of literacy of the district and of the blocks under study is presented in the Table (Appendix-II).

As per Census 2011, 75.26 per cent population of Allahabad districts lives in rural areas of villages. The total Allahabad district population living in rural areas is 4,481,518 of which males and females are 2,340,959 and 2,140,559 respectively. In rural areas of Allahabad district, sex ratio is 914 females per 1000 males. If child sex ratio data of Allahabad district is considered, figure is 896 girls per 1000 boys. Sex ratio of the two blocks was 880 and 897 respectively. Child population in the age 0-6 is 722,406 in rural areas of which males were 380,936 and females were 341,470. The child population comprises 16.27 per cent of total rural population of Allahabad district.

Literacy rate in rural areas of Allahabad district is 72.32 per cent as per census data 2011. Gender wise, male and female literacy stood at 82.55 and 60.97 per cent respectively. In total, 2,584,919 people were literate of which males and females were 1,587,083 and 997,836 respectively. That for Jasra block was 54.15, 67.91 and 40.02 per cent and for Karchana block were 59.45, 74.88 and 41.47 per cent respectively. Literacy level in the sample blocks was less than the district figure which depicts that the literacy in rural area was relatively less than the urban area. Further the female literacy was relatively very low than the male, both in the district and in the sample blocks. Among the total literates two third are males in the district as well as the sample blocks level.
ii) Occupational Distribution

Total working population in the district was 19,11,782 (24.48%); and the two blocks in Jasra 86,987 (26.19%) and in Karchhanna 51,787 (26.56%) respectively.

According to District Census 2011, a large part of the total work-force was engaged in agriculture and allied activities where as a minimum of it is engaged in household industries. Out of the total work-force in the district 39.88, 41.46, 9.12 and 40.37 per cent are engaged in household industries and other works respectively. The group of other works includes construction works, trade and commerce, tanga and rickshaw pulling, poultry etc.

b) Livestock Resources

Livestock rearing along with crop farming is a common practice in India. In early periods it was limited up to cows and buffaloes for milk, draft animals to perform farm activities and goats for milk and meat. Continuous shrinkage in the size of land holding and increasing population pressure on land compels the people of the district to adopt livestock rearing, poultry, fishery, goat keeping, even piggery etc. as allied business activity so as to argument a regular and better source of income while living in agri-business. Also the low-yielding local breeds are being replaced by high yielding cross breeds. Similar trend could also be observed at the micro-level i.e. block and village level (District Census, 2011).

c) Natural Resources

Availability, pattern of use and extent of exploitation of natural resources are the indicators of prosperity of an economy. Land is the basic natural resource without which one cannot think of his survival. In its comprehensive meaning, land includes all the resources which are freely gifted by the nature but in the present study meaning of the land is limited only to the piece of earth used for production purposes. Availability and pattern of utilization of land in the district and in the sample blocks under study can be seen under following heads:

i) Availability of land and pattern of its use

The total reported area of the district was 5, 55,413 ha. and that of Jasra block was 42,035 ha. and Karchhanna block was 13,485 ha. As per statistics 2013-14, per
capita availability of land in the district was 0.119 ha. while in Jasra block was 0.122 ha. and in Karchana block was 0.083 ha.

ii) Flora and Fauna

Forest, trees, grasses and wild-life etc. contributes the flora and fauna. Forest covered only 3.91 per cent of the reported area in the district. Most of the forest area is in Koraon block followed by Manda, Shankergarh and Meza blocks. The other trees are only to be found in scattered clumps or in village sites or along the road sides. Area under such trees has increased as a result of social forestry scheme. The species found in the locality include mainly mango, guava, plums, mahua, shisham, neem, jamun, siras, tamarind and various figs such as peepal, pakar and bargad. Babul and palm trees principally of tar or palmyra variety can be seen in abundance throughout the locality. Bamboos are also plentiful.

Among the fruit trees guava, plum, jack fruit, amla and bel are common besides mango and mahua. There is a wide variation in artificial groves which are remarkably found in a large number. Area under orchards and gardens in the district was 1.51 per cent while that in Jasra and Karchana block was 1.75 and 2.60 per cent respectively.

Due to lack of jungles, the species of wild animals are very few and are living in forest. Wolves, jackals, foxes, squirrels, bats and ichneumons, as usual, abound. Wild pig is seen in the dhak jungles and in the ravines of the Ganga, Yamuna and its tributaries. A few herds of black buck and blue cow (nilgai) are often seen in various tracts of the locality.

iii) Land put to non-agricultural uses

Land under non-agricultural use includes the area under water-shed, roads, railways, buildings and others. It consists about 13.78 per cent of the total reported area of the district, 22.58 per cent of Jasra block and 13.51 per cent of Karchhana block.

iv) Barren and uncultivable wastes

Land of this category in the district was 2.99 per cent. It includes all the uncultivable waste land like user land and the land of very steep slopes which cannot
be brought under cultivation. In the two blocks under study it was 3.27 and 1.14 per cent respectively.

v) **Net sown area**

This category includes such land which is being used for crop production. This category covered 58.41 per cent of the land in the district. In Jasra block it was 34.38 per cent while in Karchana block it was 67.31 per cent, showing a wide range of variation between the blocks. Similarly the cropping intensity was also varying. In the district it was relatively very low i.e. 153.62 per cent while in the two blocks it was 165.86 and 185.93 per cent respectively, depicting the farmers of Karchana were more progressive.

vii) **Classification of cultivable area into various holding size groups**

For better understanding the total cultivable area has been classified into five different size groups (categories) of farms. Number of holdings under each category, total area commanded by them and their average size at the district and block levels are given in Appendix-II.

There were 5, 33,115 operational holdings covering an area of 4, 02,059 ha. averaged to 0.7542 ha. in the district of Allahabad. Over 81.11 per cent of the farmers were operating on only 40.24 per cent of the land of average size 0.3742 ha. i.e. in marginal farmers group (land holding below 1.00 ha.). 12.43 per cent farmers commanded 21.70 per cent land under small farmers group (land holding between 1.00 – 2.00 ha.). Average size of small farm holding was 1.4160 ha. Proportions of rest of the farm holdings were very small and it was very inconvenient to carry on with them individually. That is why holdings of 2.00 ha. and above were clubbed together to form the large farm size group. Thus, as discussed in the methodological part of this thesis, there will be three size groups of farms only for the present study. Proportion of large farm in the district was only 7.35 per cent which commanded about 38.00 per cent of the cultivable land averaging to 3.9219 ha. per farm. Overall average size of holding in the district was 0.7538 ha. which was greater than that of the two sample blocks.

In Jasra block over 84 per cent of the farmers (under marginal group) operated only on 48.43 per cent of the land while small farmers were 11.37 per cent who commanded 27.29 per cent land and large farmers (only 4.2 per cent) had 24.28 per
cent of land. Average size of holding of these size groups were 0.2990 ha., 1.2504 ha. and 3.0127 ha. respectively. Overall average size of holding in the block was 0.5212 ha.

In Karchana block proportion of marginal farms was 85.59 per cent while that of small and large farms were 10.22 and 4.19 per cent respectively. They were operating on 51.66, 25.64 and 22.70 per cent of land respectively. Average size of holding in these size groups were 0.33 ha., 1.3724 ha. and 2.9631 ha. respectively. Overall average size of holding in the block was 0.5468 ha.

**B. Socio-economic activities, Institutions and Amenities**

**a) Agricultural Activities**

Economy of the area is predominantly agriculture based. Agriculture mainly relates to the crop husbandry. Allied activities include animal husbandry, poultry, piggery, fishery, horticulture and others.

**i) Cropping Pattern and Irrigation**

Crop husbandry includes crop farming in which land plays a significant role. Out of 5.55 lac ha. area of the district, only 75.28 per cent was available for crop production and 1.48 per cent for horticultural production. The net sown area accounted for 58.41 per cent in the year 2014 and the cropping intensity was 160.26 per cent.

Kharif and Rabi are the main cropping season in the area. In Kharif season area cultivated was more than the Rabi season while in Zaid season it is very little. Similar pattern can be witnessed in the two sample blocks. Cropping intensity of the sample blocks was higher than that of the district. Regarding crop cultivation, Karchana block seems to be more progressive than the Jasra. Among cereals Paddy enjoys over 51 per cent of the district’s cultivated area in Kharif season followed by Bajra (8 %) and Jowar (2%). In Rabi season wheat with over 65 per cent area ranks first followed by Barley. Among pulses, Arhar and Urd in Kharif, Gram followed by Peas and Masoor in Rabi and Moong in Zaid occupied major portion of the cultivated land. Mustard, Sesame and Linseed are the main oilseed crops. Sugarcane, Potato, Onion and vegetables are the main cash crops of the area.
Over 76 per cent of the net cultivated area in the district received assured irrigation while that at the two sample blocks was around 93 and 96 per cent respectively. Tube-well and canals were the two major sources of irrigation which jointly irrigates over 94 per cent of the district’s cultivated land. Irrigation intensity of the district was 148.71 per cent while that of Jasra block was 152.30 and Karchana block was 174.37 per cent.

b) Allied Activities

Animal husbandry and gardening are inseparable parts of agricultural economy in a rural set up. They are regarded as second most important source of income and employment next only to agriculture in villages. As per records there were 16.58 lakhs heads of livestock and 3.63 lakhs poultry birds in the year 2014.

Other animals constituting the livestock wealth in the district were goats 14.99 per cent, sheep 7.21 per cent and pigs 7.90 per cent. Similar picture can be witnessed at the micro level i.e. at the block level with a slight variation in the proportion of different types of livestock. Furthermore, the farmers neighboring to city and towns produce vegetables and flowers on commercial scale to fetch better income on regular basis.

Other activities include fishery and bee keeping. As far as fishery is concerned, it is of two types namely fish production and catch fishery. Catch fishery is done in the rivers but the fish production involves ponds. During 2013-14 there were 23 departmental ponds covering an area of 682.10 ha. and 260 private ponds on an area of 412 ha. in the district. In Jasra block there was only one departmental and 9 private pond. In Karchana block there was no departmental pond against 21 private ponds. Total fish production in the district in the reference year was 7002.42 quintals.

c) Mining, Quarrying and Industry

As the geology of the district exposes nothing beyond the ordinary Gangetic alluvium, the mineral products are necessarily a few. The chief among them are the sand stone extracted from hilly area, limestone conglomerate known as “kankar” appearing everywhere in the ordinary nodular form and sand in the river beds. Brick earth is found in almost every part of the district but its quality is generally poor and only fitted for the ordinary sun dried bricks, pottery and toy making. Another mineral
product is the saline efflorescence known as ‘reh’ which is found on usar land in many scattered localities.

In the year 2013-14 there were 291 industrial units which were registered under factory act 1948. In addition 1209 small industrial units and 3221 units of khadi and gramodyog were there which give income and employment to the local people and contribute in the economic development of the district. In Jasra block number of registered industrial units, small scale industries and khadi and gramodyog units were 06, 26 and 51 respectively in the reference year while that in Karchhana block were 16, 44 and 99 respectively i. e. almost double of the Jasra block.

d) Infrastructure and Amenities

Growth and development are synonyms and can be reflected in availability of basic infrastructural facilities and other amenities in the area. These include the number and quality of educational institutions, health care units and hospitals, family welfare centers, electric and water supply networks, roads, railways, means of transport and communication, markets, storage and godowns/ware houses, input supply depots, banks etc.

Allahabad is the second capital of state of Uttar Pradesh. High court of the state (the largest high court in India), A.G. office, offices of U.P. board (the largest state educational board), U.P. public service commission, U.P. higher education commission, U.P. secondary education, Services selection board, Directorate of higher and secondary educations and other important offices are situated in Allahabad city. Other infrastructures available in the area were as follows:

i) Educational Institutions

Till the year 2014, the district had one Central University, two State Universities; three Deemed Universities, four post graduate and 62 Degree Colleges. In addition one teacher’s training school, two medical colleges, five engineering colleges, two poly techniques, three ITIs, 462 alternative educational centers, 684 intermediate colleges, 1639 high schools and 3,006 primary schools were there to serve the people of the district and the state. The blocks under study had the sufficient number of school and colleges from primary to degree levels. There were 3 degree colleges in Jasra and two in Karchhana blocks.
ii) Health Facilities

The district is served by sufficient number of hospitals / medicine distribution centers of allopathic, ayurvedic, unani and homoeopathic streams, primary and community health centers, family welfare units etc. which were well distributed in the blocks also.

iii) Electrification

Electricity is the main source of commercial energy. It facilitates domestic lighting and also helps to install tube-wells for irrigation and drinking water supply as well as in running the industries and other agricultural operations. As such electrification plays a vital role in development of an economy especially in rural development by increasing income and employment opportunities. It had made considerable dent in Allahabad district as well as in its all the 13 towns and in almost all the villages. Over 98 per cent of the revenue villages are already electrified (up to year 2013-14). In Jasra block about 100.00 per cent and in Karchana block about 98.00 per cent of the villages came under the electric supply network.

iv) Transport and Communication

The district had a network of transport and communication. It is served by railway (broad gauge only) covering a length of 412 km. with 35 stations including halts. Length of metalled roads was 4,533 km. of which 170 km. came in Jasra block and 174 km. in Karchana block. Almost all the villages were connected with these roads through link roads. Number of bus stations in the district was 241 out of which 193 were in its rural parts. People of the district were also served by 409 post offices, 05 telegraph offices, 2,011 PCOs and 1,99,090 telephone connections. Out of the total 334 post offices, 1,109 PCOs and 56,494 telephone connections were operating in the rural areas.

v) Banks

In the year 2013-14 the district had 278 branches of nationalized commercial banks, of which 9 were operating in Jasra and 13 in Karchana blocks. Apart from these 79 branches of regional rural banks (RRB), 49 branches of other non-nationalized banks were serving the local people for their needs. Numbers of RRBs in
the two sample blocks were 8 and 4 respectively. Branches of non-nationalized commercial other banks in Jasra block was 4 and in Karchana block was three. Despite, a number of studies prove that the major portion of the loan taken by farmers is from the non-institutional sources for which they are being harassed. The numbers of primary agricultural cooperatives were 211 in the district out of which 26 were in Jasra and 11 in Karchana blocks.

vi) Markets

In Allahabad district, there were five Krishi Utpadan Mandi Samiti. One is of 'A' Grade i.e. Mundera Mandi and two each of B and C grades. B grade mandies are situated in Allahabad city while C grade mandis (Koraon and Jasra) are in rural areas. Mundera Mandi is a regulated market for both vegetables and fruits. This market is situated along G. T. Road (i.e. Kanpur Road) in the Transport Nagar locality of Allahabad. It is a well-structured market, the produce from both Allahabad and Kaushambi districts were brought for sale in this market. From here vegetables and fruits are purchased by traders or retailers and brought for sale in the other parts of districts and states. This market covers 90 per cent of guava marketing in the district as most of the area under guava comes under the jurisdiction of Mundera market. Mundera market is basically a wholesale market in Allahabad.

vii) Other Infrastructure

Besides all the above there are number of other infrastructures which directly contribute towards the agricultural and rural development of the economy. The position of such infrastructures in the district and the two sample blocks during the year 2013-14 is given in Table 3.1.

Table – 3.1
Rural infrastructure in the District and the two sample blocks (2013-14)

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Particulars</th>
<th>District Allahabad</th>
<th>Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Capacity (m. tons)</td>
</tr>
<tr>
<td>1.</td>
<td>Seed depots</td>
<td>424</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Fertilizer depots</td>
<td>804</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Insecticide depots</td>
<td>142</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Cold storage</td>
<td>38</td>
<td>5,24,023</td>
</tr>
<tr>
<td>5.</td>
<td>Rural godowns</td>
<td>303</td>
<td>-</td>
</tr>
</tbody>
</table>
6. Food grain stores of

<table>
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<tr>
<th></th>
<th>-</th>
<th>50,500</th>
<th>27,000</th>
<th>11,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Food corporation of India</td>
<td>13</td>
<td>80,020</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ii) Warehousing corporation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>iii) State government warehouses</td>
<td>47</td>
<td>1,13,061</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>iv) Co-operative stores</td>
<td>29</td>
<td>27,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>v) Others</td>
<td>25</td>
<td>10,492</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Sankhakhiya Patrika, Allahabad – 2014

3.3.3. Selection of the Respondents

A list of all the women who were involved in entrepreneurial development programmes related to agri-enterprises was obtained from block offices and from the Gram panchayats of the selected blocks of Allahabad. The names were arranged alphabetically then 200 respondents were selected followed by random sampling method.

Fig. 3.3 Flow Diagram of selection of respondents
3.4. SELECTION OF VARIABLES AND THEIR EMPIRICAL MEASUREMENT

3.4.1 Measurement of socio-economic status:

This refers to the respect and position enjoyed by an individual in his society. The scale developed by *Trivedi and Pareek (1963)* was used with required modifications to measure the socio-economic status of the respondents. A set of questions were developed to measure the socio-economic status of the respondents.

**Table 3.2. Variables and their empirical measurement**

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Variables</th>
<th>Empirical measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td><strong>Independent variables</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Age</td>
<td>Actual chronological age</td>
</tr>
<tr>
<td>2.</td>
<td>Caste</td>
<td>Modified Scale of Trivedi and Pareek (1963)</td>
</tr>
<tr>
<td>3.</td>
<td>Education</td>
<td>-do-</td>
</tr>
<tr>
<td>4.</td>
<td>Type of Family</td>
<td>-do-</td>
</tr>
<tr>
<td>5.</td>
<td>Size of Family</td>
<td>-do-</td>
</tr>
<tr>
<td>6.</td>
<td>Sources of information</td>
<td>-do-</td>
</tr>
<tr>
<td>7.</td>
<td>Utilization of information sources</td>
<td>-do-</td>
</tr>
<tr>
<td>8.</td>
<td>Type of house</td>
<td>-do-</td>
</tr>
<tr>
<td>9.</td>
<td>Monthly income</td>
<td>-do-</td>
</tr>
<tr>
<td>10.</td>
<td>Size of Land holding</td>
<td>-do-</td>
</tr>
<tr>
<td>11.</td>
<td>Material possession</td>
<td>-do-</td>
</tr>
<tr>
<td>12.</td>
<td>Livestock Possession</td>
<td>-do-</td>
</tr>
<tr>
<td>13.</td>
<td>Sources of irrigation</td>
<td>-do-</td>
</tr>
<tr>
<td>14.</td>
<td>Training Received</td>
<td>-do-</td>
</tr>
<tr>
<td>II.</td>
<td><strong>Dependent variables</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Knowledge</td>
<td>Self-developed scores</td>
</tr>
<tr>
<td>2.</td>
<td>Participation</td>
<td>Self-developed scores</td>
</tr>
<tr>
<td>3.</td>
<td>Training need</td>
<td>Self-developed scores</td>
</tr>
</tbody>
</table>
3.5. OPERATIONALIZATION OF THE VARIABLES:

In this study, there are various terms and concepts used with specific meaning which were defined and operationalized.

**Independent variables**

**Socio economic variables:**

**Age**

It was operationalized as the number of years an individual has completed at the time of interview was measured as per actual chronological age of an individual. The categories developed were young age group (20-35 years), middle age group (36-50 years) and old age group (50 years and above).

The categorization was made as per chronological age and grouped into three categories as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Young age group (20-35 years)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Middle age group (36-50 years)</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Old age group (50 years and above)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Caste**

Caste is an endogamous group where the status of an individual related to a group is determined by birth. These are numerous castes in India. The categorization and coding were as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Caste</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Scheduled Caste</td>
<td>3</td>
</tr>
</tbody>
</table>
Education

It refers to the level of education/formal schooling completed by the respondents. Education is measured as per procedure given in the scale developed by Trivedi and Pareek (1963) as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Illiterate</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Primary school</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Junior High School</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>High School</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Intermediate</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Graduation and above</td>
<td>5</td>
</tr>
</tbody>
</table>

Family type

It indicates to the number of family members living together under one roof and having a common made of cooking and eating. The respondents were categorized into three groups as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Nuclear family</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Joint family</td>
<td>2</td>
</tr>
</tbody>
</table>

Size of family

Family size was operationally defined as total number of members residing together in the family at the time of interview. The scores assigned were as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Up to 5 members</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>6 – 10 members</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>11 – 15 members</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>16 – 20 members</td>
<td>4</td>
</tr>
</tbody>
</table>
**Type of house**

House types are categorized into three groups viz. thatched, semi-cemented and cemented. All the three types have its utility, longevity and comfort depending on the material used and design adopted. However, the cemented or semi-cemented houses are considered to be better and comfortable, but expensive.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Thatched</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Semi-cemented</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Cemented</td>
<td>3</td>
</tr>
</tbody>
</table>

**Monthly income**

It was operationalized by considering the total income earned by the family from all the sources for a period of one month. The Department of Rural Development, GOI, 2011 has prescribed norms for the categorization of monthly income and that was made use in the present investigation. It is obvious that the person with high monthly income takes more interest in improving their standard of living.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Upto Rs. 2500</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Rs. 2501 – 5000</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Rs. 5001 – 7500</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Rs. 7501 – 10000</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Above Rs. 10000</td>
<td>5</td>
</tr>
</tbody>
</table>

**Land holding**

It is an area of farm possessed by an individual for the purpose of cultivation and was measured as per norms stated in the Government policy as under:
S.N. | Land holding (in Ha.) | Score
---|-----------------------|-----
1. | Up to 1 (Marginal)    | 2   
2. | 1 – 2 (Small)         | 1   
3. | Landless              | 0   

**Material possession**

The rural women are grouped on the basis of material they possess.

S.N. | Categories     | Score
---|----------------|-----
1. | Bike           | 1   
2. | Cycle          | 2   
3. | Motor cycle    | 3   
4. | Radio          | 4   
5. | Television     | 5   

**Livestock possession**

The rural women are grouped on the basis of livestock they possess.

S.N. | Categories   | Score
---|--------------|-----
1. | Cow          | 1   
2. | Buffalo      | 2   
3. | Goat         | 3   
4. | Poultry      | 4   

**Empowerment**

Level of socio-economic empowerment of women respondents was measured by using a schedule developed for the study. A woman can be said to be empowered if the positive changes is observed on a set of selected parameters. During the interview, the women were rated on a three-point rating scale. The scores of all the following sixteen parameters were added to get the level of empowerment score of each individual respondent.
Table 3.3. Parameters of socio-economic empowerment and their operational definitions

<table>
<thead>
<tr>
<th>S. N</th>
<th>Parameters</th>
<th>Three-Point Scale and the scores</th>
<th>Operational Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Knowledge of enterprise</td>
<td>High</td>
<td>Level of knowledge possessed by the respondent on her enterprise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Skill</td>
<td>Highly skilled</td>
<td>Level of skills acquired by the respondent for running her enterprise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less skilled</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not skilled</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Practices</td>
<td>High acceptance</td>
<td>Level of acceptance (and/or adoption) of improved practices in managing her enterprise efficiently</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low acceptance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No acceptance</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Size of enterprise</td>
<td>Big</td>
<td>The scale or size of enterprise that the woman entrepreneur is managing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Level of participation</td>
<td>High</td>
<td>Extent to which the respondent spends her time or gets involved in managing her enterprise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Income and Profit</td>
<td>High</td>
<td>Extent of income and profit earned by the woman entrepreneur</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Social recognition</td>
<td>High</td>
<td>Extent to which the woman entrepreneur enjoys prestige and recognition among her peers in her society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Opinion leadership</td>
<td>More</td>
<td>Extent to which the woman entrepreneur enjoys being sought after (for opinion, help, support and leadership) /among her peers in her society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Employment generation</td>
<td>High</td>
<td>Extent to which employment generated (in terms of manpower or man days) by the respondent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Decision making ability</td>
<td>High</td>
<td>Extent to which the woman entrepreneur exhibits her ability in making right decisions for the successful running of her enterprise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Family recognition</td>
<td>High</td>
<td>Extent to which the woman entrepreneur enjoys prestige and recognition among her members of her family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
12. Standard of living
High | Medium | Low | Extent to which the woman entrepreneur enjoys a standard of living in her family or society

13. Ability in overcoming socio-cultural barriers
High | Medium | Low | Extent to which the woman entrepreneur exhibits her ability in overcoming socio-cultural barriers

14. Knowledge of rights and responsibilities
High | Medium | Low | Level of knowledge possessed by the respondent on her rights and responsibilities in society

15. Social contact frequency
High | Medium | Low | Frequency and extent to which the woman entrepreneur maintains contacts among people in society and market

16. Problem solving ability
High | Medium | Low | Extent to which the woman entrepreneur exhibits her ability in solving her problems in running her enterprise and her family.

The maximum score that a respondent can get is 48 and the lowest score is 16.
The empowerment index for each respondent is calculated by the following formula:

\[
\text{Empowerment Index Score} = \frac{\text{Total obtained score}}{\text{Total obtainable maximum score}} \times 100
\]

The data were collected from each respondent on the above sixteen parameters and the raw scores were added to get the level of empowerment score of each respondent. Then the empowerment index for each respondent was calculated.
Participation

Participation refers to different mechanisms for the public to express opinions and ideally exert influence regarding political, economic, management or other social decisions.

<table>
<thead>
<tr>
<th>S.N</th>
<th>Participation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fully Participated</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Partially Participated</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Not Participated</td>
<td>1</td>
</tr>
</tbody>
</table>

Training need

Training need is concerned with addressing skills gaps at the organisational level, the group level and the individual level, and falls under the remit of learning and development. Training need is the training requirements of a target group in terms of number of trainees, their educational and professional background, their present level of competence, and the desired behavior or skill level acquired at the completion of training.

Dependent variables

Knowledge

Knowledge may be defined as the sum of all information which particular individual possess about a practical item at a specific time. It can be defined as a body of understood information as possessed by an individual. Knowledge is a familiarity, awareness or understanding of someone or something such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering or learning. Knowledge can refer to a theoretical or practical understanding of a subject.

Level of knowledge of rural women involved in agri-based enterprises

The level of knowledge of rural women involved in agri-based enterprises was measured with the help of thirty six objective questions, which required specific
answers. The total score of these replies could be thirty six to the maximum extent. The total score were categorized into three levels of knowledge on the basis of equal intervals. The table given below shows three categories as per score obtained which were taken into account for the purpose of the study.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Level of knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
</tr>
</tbody>
</table>

Knowledge index = \[
\frac{\text{Scores obtained}}{\text{Obtainable scores}} \times 100
\]

Knowledge index = \[
\frac{X_1 + X_2 + X_3 \ldots + X_n}{N} \times 100
\]

Where \(X_1 + X_2 + X_3 \ldots + X_n\) are correct answers for first, second, third \(\ldots\) and \(n^{th}\) question and ‘\(N\)’ is the maximum score possible to secure. Finally, the knowledge level of the respondents was expressed in term of percentage.

3.6 SOURCES, TOOLS AND TECHNIQUES OF DATA COLLECTION

Sources, tools and techniques of data collection are described as follows:

3.6.1 Sources

a. Primary sources:

The primary data were collected personally by interviewing the selected respondents with the help of structured and pre-tested interview schedule.

b. Secondary sources:

The secondary data were collected from various Government reports, publications and statistical records.
3.6.2 Development of Interview schedule:

An interview schedule was prepared to collect the data from the women involved in agri-enterprises by the researcher herself, as given in the Appendix I. It covered various independent and dependent parameters of the study, keeping in view the defined objectives of the present investigation.

3.6.3 Pre-Testing and finalization of interview schedule:

The interview schedule was pre-tested on twenty women involved in agri-enterprises of the nearby area of the actual study area. On the basis of the responses of the women, the schedule was modified and finalized.

Pre-testing of the schedule:

A pilot, or feasibility study, is a small experiment designed to test logistics and gather information prior to a large study, in order to improve the quality & efficiency. A pilot study can reveal deficiencies in the proposed experiment or procedure and then be addressed before time and resources are extended on a large scale study. In order to address this issue, the schedule was pre-tested with 20 respondents other than the real respondents through personal interview technique. The pilot study pointed out some of the components which required slight modifications; these minor amendments were suitably incorporated before final print of the schedule was done for the purpose of present study.

3.6.4 Collection and analysis of the data:

The data were collected from the selected respondents with the help of a pre-tested interview schedule by the researcher herself. The data from the sample women were collected personally with the help of interview schedule by survey method.

3.7. STATISTICAL TOOLS USED FOR ANALYSIS OF DATA

To give appropriate statistical treatment, the data thus, collected were transferred on excel sheet. They were then tabulated, analyzed and given statistical
treatment. The Tables were prepared and the data was interpreted in the light of the objectives of the study. The quantitative data obtained was analyzed using SPSS (Statistical Product and Service Solutions) version 20.0. The qualitative data were analyzed manually.

**Frequency**

Frequency was number of times a specified periodic phenomenon occurs within a specified interval. Frequency was calculated to find out the number of respondents in a particular cell.

**Percentage:**

Percentage was used for making the simple comparison. For calculating percentage, frequency of particular cell was multiplied by 100 and divided by total number of observation or respondents in that particular category to which a cell belonged. The equation can be put up as follows:

\[ P = \frac{n}{N} \times 100 \]

Where,

- \( n \) = Frequency of a particular cell
- \( N \) = Total number of respondents in a particular cell
- \( P \) = Percentage

**Mean:**

The values of the variables are multiplied by their respective frequencies and the products so obtained are summed up. This total is divided by the number of items, which in a discrete series, is equal to total of the frequencies. The resulting quotient is a simple arithmetic average of the series.

**Weighted mean score (WMS)**

The weighted mean score was computed during the analysis of data to calculate the order of preference given by respondents. For each item, the frequencies falling under each rating were tabulated. Then the frequencies in each of the category were multiplied by the assigned scores and added. The resulting sum of each aspect
was divided by the total number of respondents. In this way, the mean weighted scores in each aspect were calculated by using the following formula:

\[ \mu = \frac{W_1X_1 + W_2X_2 + \cdots + W_kX_k}{W_1 + W_2 + \cdots + W_k} \]

where,

\begin{align*}
W_1 & \quad \text{are the frequencies} \\
X_1 & \quad \text{are the weights}
\end{align*}

**Chi-square (\(\chi^2\)):**

For the purpose of testing the association between two variables, Chi-square (\(\chi^2\)) test was worked out to know whether there was any association between the variables.

The formula used for Chi-square (\(\chi^2\)) test was-

\[ (O - E)^2 \sum \frac{\chi^2}{E} \]

d.f. = (r - 1) (c - 1)

Where \(\sum\) = Summation of

O = Observed data or frequency

E = Expected observation

d.f. = Degree of freedom

C = Number of columns in the table

r = Number of rows in the table

The \(\chi^2\) value, thus obtained by using formula, were referred to the table value of \(\chi^2\) for corresponding degree of freedom to test whether the association was significant or not.
Correlation:

In order to know the relationship between variables, correlation is applied. In this study correlation coefficient between dependent variables ‘Y’ with each of the selected independent variable ‘X’ were applied. It often happens that change in one variable is accompanied by change in another and definite relation exits between two. In other words, there is correlation between the two variables. Thus, correlation technique was applied to measure the simultaneous variation between two variables. The correlation coefficient (r) is a measure of the degree of closeness of linear relationship between two variables.

It was calculated by using the following formula:

\[ r_{x_1y_1} = \frac{\Sigma x_1y_1 - b \Sigma x_1 \Sigma y_1}{\sqrt{\Sigma x_1^2 - n \Sigma x_1^2} \times \sqrt{\Sigma y_1^2 - n \Sigma y_1^2}} \]

Where \( \bar{y} = \frac{\Sigma y_1}{n} \)

\( \bar{x} = \frac{\Sigma x_1}{n} \)

Where \( r = \) correlation coefficient

\( x_1y_1 = \) Two variables for which test is applied

\( n = \) number of observations

In this study, correlation between dependent variables: \( y_1, y_2, y_3 \) and selected independent variables \( x_1, x_2, x_3, \ldots, x_{14} \) were applied. It often happened that change in one variable is accompanied by change in another and then a definite relationship exists between the two. The value of ‘r’ always lies between –1 and +1. Positive value of ‘r’ indicates that both the variables are increasing in some direction and negative value of ‘r’ indicates a tendency of opposite direction of other variables. For the test of significance the value of \( r – \) tabulated is located at (n-2) degree of freedom which was tested with the help of following formula.

\[ T = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \]