Chapter 5

Methods and Techniques

The deliberation on the methodology has been made to understand the concept, methods and techniques which utilized to design the study, collection of information, analysis of the data and interpretation of the findings for revelation of truths and formulation of theories. This present chapter deals with the method and a procedure used in the study and consists of eight main parts.

A well defined methodology is very essential for any activity that requires concrete results. The study tried to assess the Determining the differentials and determinants of migration process in the rural areas of West Bengal. This chapter describes the scientific procedure employed while conducting this research study is presented under following sub headings.

- Locale of research
- Pilot study.
- Methods of sampling.
- Preparation of interview schedule
- Pre-testing of schedule
- Techniques of field data collection

ISBN: **978-93-85822-69-8**

- Variables and their measurement
- Statistical tools used for data analysis

Locale of Research

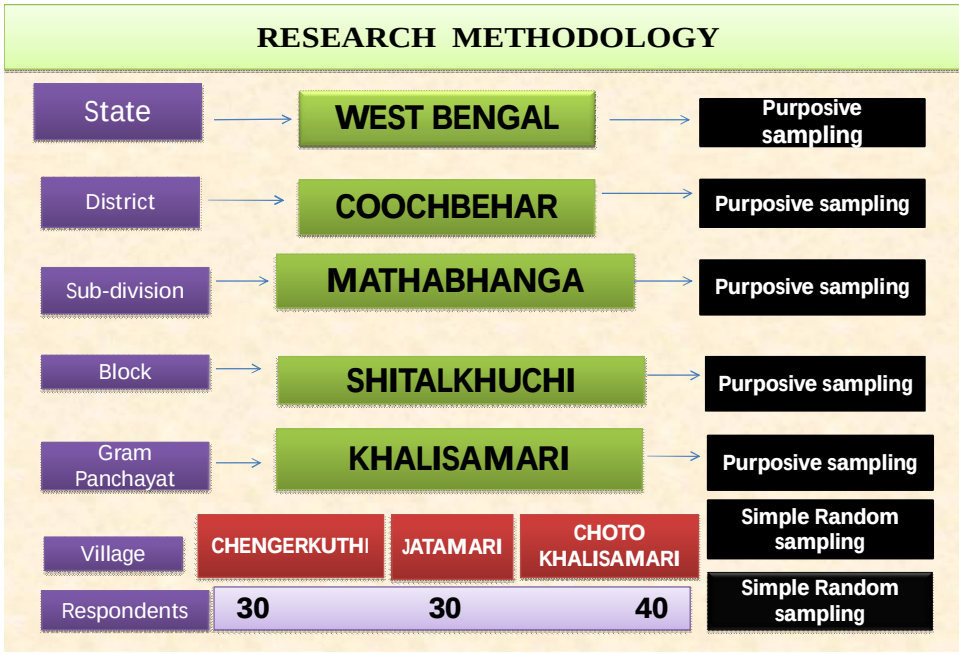
The village namely Chengerkuthi Khalisamari, Choto Khalisamari, Jatamari of Khalisamari gram panchyate of Shitalchuchi block in Cooch Behar district in West Bengal was selected for the study. The area had been selected for the study because of the availability of appropriate respondents, people as well as the local language. The topic of study i.e. labour migration process in the rural areas seems to be relevant in this area.

Pilot study

Before taking up actual study, a pilot study was conducted to understand the areas, it people, institutions, the programme's activities related to migration process in the research area. Basis of situational and background information of respondents were collected during the period of pilot study.

Methods of sampling

Purposive as well as simple random sampling techniques were adopted for the study. For selection of state and district, block and gram panchyate purposive sampling techniques was adopted because the area was ideal with respect to the problem, convenient for researcher and having the infrastructural facilities and in case of selection of village and respondents simple random sampling technique was taken up. From the village Chengerkuthi Khalisamari 30 numbers, from Jatamari 30 numbers and from Choto Khalisamari village 40 numbers of respondents were selected by simple random sampling. For participatory rural appraisal a heterogeneous group was formed with including some aged respondent.



Preparation of the Interview schedule

On the basis of findings of pilot study a preliminary interview schedule was formed with the help of literature and by the assistance of chairman of advisory committee and subsequent discussion with the members of the advisory committee. The interview schedule consisted of seven major parts according to the specific objectives of the study.

Pre-testing of schedule

Before starting final data collection, entire schedule was pretested for elimination, addition and alternation with programme provider respondents of the study area.

Techniques of field data collection

This was personally interviewed during puja vacation (specially in this time of the year from Mahalaya to Eid festival where the maximum migrants return to their homes) and summer vacation.

The questions were asked in Bengali as well as English version in a simple term so that the respondent can easily understand the queries. The entries were done by the researchers at the time of interview.

Attributes and their measurement

After reviewing various literature related to the field of study and consultation with the respected chairman of advisory committee and other experts, a list of variables was prepared. On the basis of selected variables, a schedule was formed

RESEARCH VARIABLES

Dependent variables

Considering the objective of the study, duration of migration, distance of migration and perceived benefit of migration are considered as the dependent variable of the study.

Independent variables

Independent variables that were supposed to influence the dependent variables were identified and classified under, socio-economic, psychological variable and communication variable. The independent variables were studied to know the relationship and influence on the dependent variables. The classifications of independent variables were done based on the pilot survey, researcher perception as well as review of the past work.

Dependent Variables

Distance of Migration: This denotes the geographical distance covered by the migrant due to migration. It is calculated in kilometer.

Duration of Migration: This denotes the time period involved in the migration process. It differs according to type and place of migration.

Perceived Benefit of Migration: According to the perception of the respondent's three important factors determines the extent of benefit from the migration process. The three factors are

A. Social esteem

B. Economic satisfaction

C. Job satisfaction

Respondents give score against each factor out of ten according to their situational perception. The perceived benefit of migration is then calculated by dividing the total score by three.

Perceived Benefit of Migration = {Social esteem (score) + Economic satisfaction (score) + Job satisfaction (score)} /3

Independent Variable

Age of the Migrant at the time of Migration

In all societies, age is one of the most important determinants of social status and social role of the individual. In the present study, age of the respondent was measured on the basis of their chronological age. Age was measured as the number of calendar years completed by the respondent at the time of migration. Based on the completed years the respondents were classified as follows.

Table 1: Age of the Migrant at the time of Migration

Category	Score
Young	18-35 years
Middle	36-55 years
Old	above 55 years

Age of the Migrant at the time of Survey

It refers to the chronological years of the respondent. Age was measured as the number of calendar years completed by the

ISBN: **978-93-85822-69-8**

respondent at the time of survey. Based on the completed years the respondents were classified as follows.

Table 2: Age of the Migrant at the time of Survey

Category	Score
Young	18-35 years
Middle	36-55 years
Old	above 55 years

Religions: The respondents simply asked about from which category he/she belongs to and accordingly the scoring is done.

Table 3: Religions of the Respondents

Category	Score
Hindu	1
Muslim	2
Christian	3
Others	4

Caste: The respondents simply asked about from which category he/she belongs to and accordingly the scoring is done

Table 4: Castes of the Respondents

Category	Score
General	1
Schedule caste	2
Schedule tribes	3
Other backward classes	4

Education of Migrant Education is instrumental in building personality structure and helps in charging one's behaviour in social life. Education operationalised as the amount of formal schooling attained/ literacy acquired by the responded at the time of

ISBN: **978-93-85822-69-8**

interview. The education had been divided into seven categories that is Illiterate (0), Can read only (1), Can Read and write (2), Primary (3), Secondary (4), Higher secondary (5) and Graduate and above (6).

Table 5: Levels of Education of the Respondents

Level of education	Scores
Illiterate	0
Can read only	1
Can read and write	2
Primary	3
Secondary	4
Higher Secondary	5
Graduate and above	6

Based on scores frequencies and percentage was calculated for this variable.

Marital status: The respondents were asked whether they are married or unmarried, Married (3) / Unmarried (2)/ others (1)

Family size

The family size had been divided in to two categories of the social system that is upto 5 members and above 5 members. It had been measured with the help of Pareek and Trivedi (1964) scale is socio-economic status (rural) and the weightages had been given as upto 5 members – (1) and Above 5 members – (2).

Family Type

The attribute family type had been operationalised as the family type of our rural system. The family type had been divided in to two categories of the social system that is Nuclear family and Joint family. It had been measured with the help of Pareek and Trivedi (1964) scale is socio- economic status (rural) and the weightages had been given as Nuclear family – (1) and Joint family – (2).

Family educational status

It refers to the score obtained by the each respondent's family according to average educational status. Education is the process of producing desirable changes in the behavior of an individual. In this study, this variable referred to the number of years of formal schooling undergone by the respondents. The respondents were asked to indicate the type of education they had, from among the fallowing seven types. The maximum score one could get was 6 and minimum score was 0. The corresponding scores assigned are given below.

Table 6: Level of Family Education Status

Sl. No.	Level of education	Scores
1	Illiterate	0
2	Can read only	1
3	Can read and write	2
4	Primary	3
5	Secondary	4
6	Higher Secondary	5
7	Graduate and above	6

By adding the total score of each family member and divided the total educational score by total no. of family member family educational score had been calculated.

Family educational status = Total educational score / Family members.

Based on the scores obtained the respondents were grouped in to three categories using mean and Standard Deviation as a measure of check.

ISBN: **978-93-85822-69-8**

Category	Criteria
Low	<(mean - ½ SD)
Medium	(mean ± ½ SD)
High	>(mean + ½ SD)

Duration for taking decision for Migration:

This refers to the duration of time one respondent took decision for migration, Duration for taking decision for migration = (age of the migrant at the time of survey - age of the migrant at the time of migration)

Family Present Income (Per capita/month)

The annual incomes earned by the respondent were assessed considering the following items.

a. Remittance Due to Migration:

It was conceived as the income derived due to migration per month.

b. Subsidiary income:

Income obtained by other sector per month

Now, Total Income = Remittance Due to Migration + Subsidiary income

Family Present Income (Per capita/month) = Total Income / Total No. of Family Member

Source of Money for Migration

The migrant were asked to indicate the possible source of money required for migration from among the fallowing seven types. The maximum score one could get was 6 and minimum score was 0. The corresponding scores assigned are given below.

ISBN: **978-93-85822-69-8**

Table 7: Source of Money for Migration

Sl. No.	Level of education	Scores
1	No money required	0
2	Own saving	1
3	Family saving	2
4	Private money lender	3
5	By selling land	4
6	Bank	5
7	Govt. Subsidy	6

Family Land Holding

The migrant were asked the amount of land holding they had, from among the fallowing seven types. The maximum score one could get was 6 and minimum score was 0. The corresponding scores assigned are given below.

Table 8: Family Land Holding

Land Holding	Scores
No land	0
Up to 1 bigha	1
Up to 5 bigha	2
Above 5 bigha	3
Up to 15 bigha	4
Up to 20 bigha	5
Above 20 bigha	6

Family House Type

It had been measured with the scale developed by the Pareek and Trivedi (1964) and weightages as the No house, Hut, Kachcha house, Mixed house, Pucca house, Mansion. Socio-economic status (rural) and the weightages had been given as No house –(0), Hut–(1), Kachcha house–(2), Mixed house –(3), Pucca house–(4), Mansion–(5).

ISBN: **978-93-85822-69-8**

Table 9: Family House Type

Type of House	Scores
No house	0
Hut	1
Kachcha	2
Mixed	3
Pucca	4
Mansion	5

Family Total Social Participation

In order to assess the extent of family social participation, the Migrant were asked to state the association with different organization and status of the association in social sector.

Table 10: Family Total Social Participation

SL. No.	Criteria	Response
1.	No membership (0)	
2.	Member in one organization (1)	
3.	Member in more than one organization (2)	
4.	Office bearer in one organization (3)	
5.	Office bearer in more than one organization (4)	
6.	Distinctive features (MLA and MP) (6)	

Material possession

The attribute material possession had been operational shed as the material possession of the respondent in the social system. The migrant were asked to indicate which materials they had, from among the fallowing. The total score is for the list of material one respondent have is taken into account. The corresponding scores assigned are given below.

ISBN: **978-93-85822-69-8**

Table 11: Family Total Material Possessions

List of Materials	Scores
Cycle	1
Radio	2
Television	3
Improved agricultural Implements	4
Motor bike	5
Colour Television	6
Computer	7
Car	8

Based on the scores obtained the respondents were grouped in to three categories using mean and Standard Deviation as a measure of check.

Category	Criteria
Low	<(mean - ½ SD)
Medium	(mean ± ½ SD)
High	>(mean + ½ SD)

Family Cosmopoliteness

In order to assess the family cosmopoliteness, the migrant were asked to state as to frequency of visit to the following places.

Table 12: Family Cosmopoliteness

Place	Most often (3)	Often (2)	Sometimes (1)	Never (0)
a) Block Head quarter	3	2	1	0
b) Gram Panchayat Office	3	2	1	0
c) Police station	3	2	1	0
d) Sub Divisional town	3	2	1	0
e) District Head quarter	3	2	1	0
f) State Capital	3	2	1	0
g) Entrepreneurs of other areas	3	2	1	0

h) Other town	3	2	1	0
i) Outside state	3	2	1	0

Based on the scores obtained the respondents were grouped in to three categories using mean and Standard Deviation as a measure of check.

Category	Criteria
Low	<(mean - ½ SD)
Medium	(mean ± ½ SD)
High	>(mean + ½ SD)

Mass media exposure

In order to assess the extent of use of mass media by the respondents, different mass media were listed and the migrant were asked to state as to how often they used these mass media. The total score is for the list of material one respondent have is taken into account.

Table 13: Mass Media Exposure

Source	Most often (3)	Often (2)	Sometimes (1)	Never (0)
Mass Media	3	2	1	0
a) Radio	3	2	1	0
b) News Paper	3	2	1	0
c) Educational Film	3	2	1	0
d) Farm publication	3	2	1	0
e) Demonstration	3	2	1	0
f) Enterprise fair	3	2	1	0
g) Exposure visit	3	2	1	0
h) Poster on enterprise	3	2	1	0
i) Television	3	2	1	0
j) Group meeting	3	2	1	0
k) Campaign	3	2	1	0
l) Entrepreneurship day	3	2	1	0

Based on the scores obtained the respondents were grouped in to three categories using mean and Standard Deviation as a measure of check.

Category	Criteria
Low	<(mean - ½ SD)
Medium	(mean ± ½ SD)
High	>(mean + ½ SD)

Sources of Information

The respondents were asked to indicate the source of information .The maximum score one could get was 3 and minimum score was 1. The corresponding scores assigned are given below.

Table 14 Sources of Information

Information Source	Scores
Relatives	1
Friends	2
Institutions	3

Income increased per capita per month

It is simply calculated by:

Income increased per capita per month = **{**per capita per month present income (After Migration) -Per capita per month previous Income (before Migration)**}**

Income increased per kilometer

It is simply calculated by dividing the total per capita income per month by the distance of migration.

Satisfaction Perceived by the Migrant

The Migrant were asked to indicate the Satisfaction level they enjoy. The maximum score one could get was 3 and minimum score was 1. The corresponding scores assigned are given below.

Table 15: Satisfactions Perceived by the Migrant

Information Source	Scores
No satisfaction	1
Partial satisfaction	2
Full satisfaction	3

Some open ended questions were asked to the farmers to collect some information which is essential to fulfill the objectives. The questions are mainly linked with the comparative analysis about the socio-economic situation before and after migration.

Analysis of push and pull factor

Push factors are the aspect or conditions that motivates one to leave in one own region, place, organization etc where as pull factors are the aspects or conditions that attracts the migrants to move to the new location. According to respondents perception there are some push and pull factors which play the crucial role for the migration process. For determine the real reason of rural labour migration the perceived push and pull factors are identified with the help of the respondents and according the perceived importance factors contribution to migration process respondents give score each of the factors out of ten.

Analysis of constraints and opportunity: migrants and migrant's family perception

According to respondents perception there are some constraints and opportunity associated with the migration process. Obviously it differs to Migrant and his family member's perception. The perceived (by Migrant and his family member's both) constraints, opportunity are listed here is totally on the basis of Migrant and his family perception. According the perceived importance respondents give score each of the opportunity and constraints out of ten.

Statistical tools used for data analysis

The statistical methods used for analysis and interpretation of raw data were

- Percentage
- Mean
- Standard deviation
- Coefficient of variation
- Multiple Regression analysis
- Correlation of coefficient
- Paired t- test
- Factor Analysis

Percentage

Percentage was used in descriptive analysis for making simple comparison. For calculating percentage the frequency of a particular cell was multiplied by 100 and divided by the total number of respondents in their particular category to which the cell belonged.

Mean

The mean is the arithmetic average and is the result obtained when the sum of the value of individual in the data is divided by the number of individuals in the data. Mean is simplest and relatively stable measure of central tendency. The mean reflects and is affected by every score in the distribution.

When the data are expressed in a frequency distribution (grouped), the mean calculated by the formula use was as follows –

$$X = \frac{\sum_{i=1}^{N} fixi}{N}$$

Where,

x = Mean of the observation

fi = Frequency of the class

xi = Mid value of the class

N = Total number of observation

Standard deviation

Standard deviation (SD) of a set of observation is the square root of the arithmetic mean of the squares of the deviations. The deviations being measured from the arithmetic mean of the distributions. It is commonly denoted by the symbol (Sigma). To measure the average deviation from the standard value of the data standard deviation is used. It is less affected by sampling errors and is a more stable measure of dispersion.

The standard deviation of the data grouped in the form of frequency distribution is computed by the formula use was as follows –

$$S.D. = \sqrt{\frac{\sum_{i=1}^{N} fixi^2}{N}} - \left[\frac{\sum_{i=1}^{N} fixi}{N}\right]^2$$

Where,

S.D. = Standard deviation of the observation

fi = Frequency of the class

xi = Mid value of the class

N = Total number of observation

Coefficient of variation

A measure of variation which is independent of the unit of measurement is proved by the coefficient of variation. Being unit

free, this is useful for comparison of variability between different populations. The coefficient of variation is standard deviation expressed as percentage of the mean.

Coefficient of variation is measured by the formula use was as follows

$$C.V. = \frac{S.D.}{Mean} \times 100$$

Multiple Regression Analysis

Generally a number of antecedent variables simultaneously contribute or influence the consequent variable, as in the case under study. It is of immense practical value to know the extent to which the antecedent variables, individually or jointly, could predict or contribute towards the consequent variable. This was done by computing multiple regression. If Y is the consequent variable and X_1, X_2, X_3, ... are the antecedent, the multiple regression equation is given by –

$Y = a + b_1X_1 + b_2X_2 + b_3X_3$ .....

Or, $Y=a+ \sum bx$

Where,

a =	Intercept constant
b =	Regression coefficient

The significance of the b values was judged by calculating their respective t values and comparing them to the table values, given by Fisher and Yates (1963) with n – p – 1 degree of freedom (where, n = number of respondents and p = number of antecedent variables) at 5 per cent and 1 per cent levels of significance.

The square root of the ratio of the regression sum of squares to the total sum of squares is known as multiple correlation coefficient

and is denoted by R. The square of the multiple corre1ation coefficients R^2 is called the multiple coefficient of determination and represents the fraction of the variation of y accounted for by its joint association with the varieties X_1, X_2, X_3, ...

Central to the application of multiple regression analysis is the interpretation of the final fitted mode. A significant F-value for R means that the fitted model is adequate. The significance of the F-value was judged by comparing it to the table value given by Fisher and Yates (1963) with p and n – p – 1 degrees of freedom (where, p = number of antecedent variables and n = number of respondents) at 5 per cent and 1 per cent levels.

The multiple regression analysis was done by following the procedure cited by Rangaswamy (1995).

Correlation of coefficient

When an increase or decrease in one variety is accompanied by an increase or decrease in other variety, the two are said to be correlated and the phenomenon is known as correlation. Correlation coefficient (r) is a measure of the relationship between two variables, which are at the interval or ration level of measurement and are linearly related. A person product-moment "r" is computed by the formula.

$$r_{xy} = \frac{N\sum XY(\sum X)(\sum Y)}{\sqrt{[N\sum X^2-(\sum X)^2][N\sum Y^2-(\sum Y)^2]}}$$

Where,

X and Y	=	Original scares in variables X and Y
N	=	Number of paired scores
∑XY	=	Each X multiplied by its corresponding Y, then summed
∑X	=	Sum of X scores
∑X²	=	Each of X squared, then summed
(∑X) ²	=	Sum of X score squared
∑Y	=	Sum of Y scores

ISBN: **978-93-85822-69-8**

$\sum Y^2$	=	Each of Y squared, than summed
$(\sum Y)^2$	=	Sum of Y score squared

The range of correlation coefficient is between -1 to + 1. This means that -1 is perfect negative correlation, + 1 is perfect positive correlation. A perfect correlation is, however, seldom achieved. An idea of positive and negative correlation is given here. If the numbers of errors increase with increase in typing speed, it indicates positive correlation. If the numbers of correct words decrease with increase in typing speed, it is indicative of negative correlation. A correlation coefficient to be acceptable should be statistically significant. Otherwise, we say that no significant relationship exist between the variables.

Paired *t*- test

If there is any kind of correspondence between the individual values in the two samples, they should be paired and samples and differences taken and analysed as per formula,

$t = \frac{\bar{d}}{S(\bar{d})}$ hhhWith n--1 df

Where, $\bar{d}$ = mean of the differences in each pair

n = pairs of observation

$S(\bar{d})$ = standard error of $\bar{d}$

$= \sqrt{\frac{S^2}{n}}$

$S^2 = \frac{1}{n-1} - \left[\sum d^2 - \frac{(\sum d)^2}{n}\right]$

Factor Analysis

Factor analysis is a very useful and popular method of multivariate research technique, mostly used in social and behavioral sciences.

According to Kothari (1996), factor analysis seeks to resolve a large set of measured variables in terms of relatively few categories, known as factors. This technique allows the researcher to group variables into factors (based on correlation between variables); the factors so derived may be treated as new variables (often termed as latent variables) and their value derived by summing the values of the original variables, which had been grouped into the factor. The meaning and name of such new variable is subjectively determined by the researcher. Since the factors happen to be linear combinations of data, the coordinates of each observation or variable is measured to obtain what are factor loadings. Such factor loading represent the correlation between the variable and the factor and are usually placed in a matrix of correlations of the variables and the factors. In the Factor Analysis the "Principle Component Method" was followed.

Participatory rural appraisal (PRA) used for data analysis

Appraisal – The finding out of information about problems, needs, and potential in a village. It is the first stage in any project.

Participatory – Means that people are involved in the process – a "bottom-up" approach that requires good communication skills and attitude of project staff.

Rural – The techniques can be used in any situation, urban or rural, with both literate and illiterate people.

PRA is intended to enable local communities to conduct their own analysis and to plan and take action (Chambers R. 1992). PRA involves project staff learning together with villagers about the village. The aim of PRA is to help strengthen the capacity of villagers to plan, make decisions, and to take action towards improving their own situation.

Two important tools of PRA was used in this study

A. Matrix ranking

B. Time trend analysis

A. Matrix ranking:

It is a tool of PRA in which rank schedule is prepared for different choices. The respondents themselves give score against each of the statements according to their perception. By calculating the scores researcher can easily get sequential series of ranking of the choices.

B. Time trend analysis:

Time trend shows the qualitative and quantitative changes in agro-ecosystem over specific period of time. The changes occurred in different variables over the years provide insight about the respondents socio-cultural trend of different attributes of the study area. As there is no proved and authorized data about the total no of migrants in a particular period for analysis of migration rate trend line analysis as PRA tool is used.