CHAPTER THREE

RESEARCH METHODOLOGY

In the previous chapter, literature on Women and Credit, Women in Development and impact and gender specific studies revealed certain lacunas.

Above all, a dearth of a scientific approach plus a comprehensive socio-economic analysis of the impact of credit on women and a gender analysis with special reference to the Female Headed Households was experienced.

In view of this, the present chapter makes a humble attempt to develop appropriate indicators for impact analysis. It also presents the source of data, evaluation technique, sampling design and questionnaire.

3.1 Source of Data

The study is based on primary data collected by filling-up of questionnaires by interview cum informal conversations. The IRDP beneficiaries were the respondents. However, very often other members of the families had to participate in the discussions.

The main frame list of IRDP beneficiaries in Vadodara District was collected from the Annual Action Plans of District Rural Development Agencies (DRDAs), Block Development Office, Bank Branch Records and Village and District

Panchayat Offices. From this list, the sample units of 120 beneficiaries were selected.

3.2 Pre and Post Loan Approach

There are two commonly used methods for undertaking credit impact analysis. These are : the with and without and pre and post loan approaches. In this study, we have adopted the pre and post loan approach for specific reasons. Mainly, because the financed activity is milch cattle where the gestation period is short and hence the recalling lapses are minimal.

Secondly, IRDP evaluations require a two point study for providing information on sustainability of the beneficiaries above the poverty line threshold.

Thirdly, on reviewing the literature relevant to impact of credit, it was found that majority of the important studies on IRDP; such as Punjab National Bank (1987), J.S. Sodhi (1987), Mohiuddin (1987), NIRD (1990), have adopted the pre-post evaluation technique for assessing the impact of credit.

The reference period for selecting the beneficiaries was 1986-87 and the study was conducted in 1990-91, so that we had a gestation period of three years for credit to make its impact felt in real and monetary terms. The sample data relates to 1986-87 which is the pre loan year and continuous yearly data on impact indicators was collected for three years of post loan period from 1987-88 to 1990-91. The

average values of these three years on each indicator were used for the analysis. The average yearly values of these indicators for all the sample is presented in Appendix IV.

3.3 Sample Design

The factors taken into consideration while formulating the stratified sampling design were : gender of the beneficiary, geographic location, bank customarship under IRDP and activity financed.

In the first stage of sampling, data on coverage of female beneficiaries (FBs) in Vadodara District and its blocks in the base year was collected (Appendix I). The data revealed that in Vadodara District there were 12843 beneficiaries of which 2691 were females.

Further, amongst 14 development blocks in the district the highest proportion of FBs to total beneficiaries was noticed in Padara Taluka. Hence, we identified Padra Taluka for our study. Restriction of this sort was necessary for maintaining homogeneity of sample data and also because it is a single handed study.

In the second stage, information on the various economic activities pursued in the District and Block was collected. Results indicated that within the District and Taluka more than two-third of the FBs were financed for milch cattle under the Animal Husbandry Activity.

In the third stage, villages for the study within the Taluka were selected from two bank branches with the maximum coverage of FBs. Thus, seven villages from the State Bank of India (SBI) and five villages from the Bank of Baroda (BOB) were selected for the survey.

In the final stage 120 beneficiary households including 90 FBs and 30 MBs (Male Benificiaries) were selected for the study. Out of 90 FBs, 9 female headed households (FHHs) were identified by using the criteria of marital status, principal earner and head of the household. The MBs were purposively selected to match the characteristics of the FBs, for bringing out the gender disparities. Further, for a more meaningful analysis the sample was also bifurcated into BHs with one loan (who recieved one financial dose of assistance) and two loans (who recieved two doses of financial assistance during the study period : 1986-87 to 1990-91) to measure the differential degree of impact in both the loan categories.

Female beneficiaries selected for the study formed 3.34 per cent of the 2691 FBs assisted in Vadodara District and 23.43 per cent of FBs in Padra Taluka. Further, the sample beneficiaries formed 0.93 per cent of the total beneficiaries granted assistance under IRDP in Vadodara district in 1986-87.

3.4 Questionnaire

The first draft of the survey questionnaire was developed both in English and Gujarati. The final revision

was made after pre-testing the questionnaire and making necessary changes. A copy of the questionnaire is found in Appendix II.

3.5 Development of Impact Indicators

Impact analysis of programme intervention is an intricate process, involving analysis of women's multiple roles within the household in lieu of the network of factors interacting within it.

Hence, effective and systematic impact evaluation requires development and application of suitable quantitative and qualitative indicators. The present section concentrates on development of socio-economic impact indicators viz., Income, Employment, Consumption, Production and Decision Making.

3.5.1 INCOME

The impact of credit disbursed under IRDP on beneficiaries and their households in one and two loan categories of BHs has been measured using the following parameters :

i) Income Generated from Asset Financed (Post Loan)

ii) Household Income (Pre and Post Loan)

iii) Activity-Wise Household Income (Pre and Post Loan)

iv) Income of Beneficiary and Spouse/Kin -

   a) From Milch Cattle Activity (Post Loan) and;
   b) Agricultural Wage Labour Activity (Pre and Post loan).

v) Beneficiary's and Spouse's/Kin's Contribution to the Household Income (Pre and Post).

3.5.1.1 INCOME GENERATED FROM ASSET FINANCED

Income generated from the asset financed leads to a change in the household income and subsequently to family's well being. We have defined the income generated from the asset financed in the following manner:

eqn.1

[Income from Asset Financed] = [Gross Income from Asset Financed] - [Expenditure Incurred on Maintaining Asset]

where;

[Gross Income Per Annum] = [Production in Liters] (Per Annum) x [Price] (Per Litre)

All the figures are presented in averages and are derived after considering the status of the asset in every year during the post loan period. That is gross income, expenses and production are taken only for the period that the asset is intact and in use.

3.5.1.2 HOUSEHOLD INCOME (Pre and Post Loan Period)

Impact of credit cannot merely be measured on the basis of poverty line threshold as an index of improvement in the household income as it is observed that change in household income is a gradual process which is better captured by shifts in the household income through a series of stratified income layers.

Household income is studied with the purpose of :

- Ascertaining the improvement in household income level over the post loan period through the poverty line threshold and income strata,
- To make a cross comparison of the extent of improvement in level of incomes of all categories of BHs and;
- Examining the income allocation streams from various activities in order to study the survival strategies adopted by the households and to study the main and subsidiary activities pursued by the household.

Household income in the pre loan period is studied not only for a base line comparative analysis in the post loan period but also to identify households which have been wrongly disbursed credit under the IRDP.

Household income in the pre loan period is derived by computing the individual incomes of all household members and also includes income derived from other sources.

eqn. 2

[Pre Loan Household Income] = [Individual Income of Household Members] + [Income from Other Sources]

Post loan period household income is average sum of income derived by the household in the post loan period from all its members through economic activities perused, net income from the financed activity and income from other sources.

eqn. 3

[Post Loan Household Income] = [Individual Income of House hold Members]
+
[Net Income from Asset Financed]
+
[Income from Other Sources]

The poverty line of Rs.6400 was considered and the data on post loan household income, computed as above, was used to undertake the analysis of whether the beneficiary households crosssd over the poverty line or not.

There are three activities pursued by the benificiary households :

a) Milch Cattle
b) Wage Labour
c) Farming

For each activity, the pre and post loan household incomes were calculated separately in the following manner :

eqn. 4

[Household Income from Activity] = [Sum of Individual Incomes of Household Members from that Activity]

3.5.1.3 GENDER-WISE INCOME PARTICIPATION IN AGRICULTURAL WAGE LABOUR AND MILCH CATTLE ACTIVITY

Though a loan is given to a specific person who is responsible for its use and repayment, other members are also found to be participating in contributing their labour time. A look into our data led us to conclude that there were generally two persons (one female and male) intensively

working on tending to milch cattle. We have allocated the computed net income from the asset financed amongst these household members on the basis of time spent in terms of labour hours by them on tending to milch cattle.

eqn. 5

[Income from Milch Cattle Activity] = [Income of Beneficiary] (on the basis of time spent) + [Income of Spouse] (on the basis of time spent)

Income from agricultural wage labour activity was computed for the beneficiary and spouse in the pre and post loan period to study the gender wise wage rate discrimination and income changes as a result of labour substitution as follows :

eqn. 6

a) [Agricultural Wage Labour of Beneficiary] = [Number of Labour Days] x [Wage Rate Per Day]

b) [Agricultural Wage Labour of Spouse] = [Number of Labour Days] x [Wage Rate Per Day]

3.5.1.4 INCOME OF BENEFICIARY AND SPOUSE (Pre and Post Loan Period)

This analysis is undertaken with the objective of ascertaining how the economic incentives affect the income redistribution of the two genders within the household. This is studied by assessing the extent to which the beneficiary and his/her spouse contribute towards the household income.

eqn. 7

[Beneficiary's/Spouse's Income (Pre and Post Loan)] = [Income from All Activities Pursued by Them (Pre and Post Loan Period)]

a) Beneficiary's Contribution (in per cent) = [Beneficiary's Income] / [Total Household Income] x [100]

b) Spouse's Contribution (in per cent) = [Spouse's Income] / [Total Household Income] x [100]

3.5.2 EMPLOYMENT

The main concern of policy makers has been the efficient utilization of surplus labour and thereby maximization of benefits for rural households. Credit disbursed leads to productive assets, the use of which in turn generates employment and brings about a change in activities of the household members.

The employment generated from the asset financed is measured with reference to:

i) Employment Generated from Asset Financed;

ii) Allocation of Employment Generated Between the Two Genders and Resultant Changes in Labour Allocation Pattern Within the Household; and

iii) The Changes in the Activity-Mix Pursued.

3.5.2.1 EMPLOYMENT GENERATED FROM ASSET FINANCED

The policies and programs are required to combat poverty through positive employment generations to eliminate the existent and growing dimensions of unemployment. In view of this, employment generated by credit assumes immense importance.

Employment from livestock production ranges from cutting the grass, cleaning shed, getting the fodder, feeding, washing and milching the animals and selling the milk. An observation into the micro-processes reveals that females, irrespective of the beneficiary's status, were intensively involved in tending to milch cattle for the whole year through, contributing 3 hours daily in case of one animal and 4 to 4.5 hours in case of two animals. While males were found to be working for 1 to 1.5 hours daily on one milch cattle and 2 to 2.5 hours on two milch cattle.

Hence, employment generated from the asset financed comprised of:

a) Employment for the Beneficiary
b) Employment for the Spouse/Kin

eqn. 8

[Employment from Asset Financed]=[Employment of Beneficiary]
+
[Employment of Spouse/Kin]

eqn. 9

[Employment of Beneficiary/Spouse/Kin] (per annum) = [Number of Labour Hours in a Day] x [Number of Days worked in a year]

3.5.2.2 EMPLOYMENT FROM AGRICULTURAL WAGE LABOUR ACTIVITY (Pre and Post Loan Period)

Labour participation trend of the beneficiary and spouse/kin in agricultural wage labour activity was studied with reference to pre and post loan period.

The objective was to:

Understand the labour participation and substitution trend of two genders in the only other activity pursued by them, as a consequence of the program intervention.

eqn. 10

[Employment in Agricultural Wage Labour Activity] (Beneficiary/Spouse/Kin) = [Number of Working Hours in a Day] x [Number of Working Days in One Year]

3.5.3 CONSUMPTION

Changes in consumption of basic necessities by the family depends on the incremental income as also on the individual who controls the income.

For capturing the changes in consumption of various items viz., milk, cereals, vegetables, clothing and housing. responses were gathered on a three point scale of increased, decreased and no difference, in consumption of each item.

3.5.4 WOMEN'S PARTICIPATION IN DECISION MAKING

Women's participation in decision making assumes importance due to numerous reasons:

- It justifies their entitlement to access of credit or productive resources and helps in improving the access of credit.
- Because empowerment of women is directly dependent on the decision making role.
- Status of women is measured often in terms of the participation in decision making.

Decision making with reference to loan, asset utilization, marketing and consumption were studied and the responses were classified as : mainly by the beneficiary, mainly by spouse/kin and with a joint opinion of beneficiary and spouse.

Decision Making Areas :

Loan Decisions	:	Type of asset to be purchased, size of loan installment to be repaid.
Asset Utilizations	:	Work allocation, quantity of inputs, disinfection of sheds, veterinary services and vaccination of animals.
Consumption Decisions:		Decisions on use of income, quantity and quality of food and clothing purchased and money spent on housing.
Marketing Decisions	:	Quantity of milk to be sold and the market place for selling the milk.

3.5.5 PRODUCTION FUNCTION

The choice and combination of various factors of production affects the output. The production function

estimations aim to find out the empirical relationship of value of production with labour input and capital input.

The estimated function was :

$Q = f(W,L)$

Where,

Q = Output
W = Working expenses
L = Labour

The above function assumes that output is an increasing function of all the inputs i.e., there is a positive relationship between all the inputs and output.

Output (Q) is the monetary value of milk production. It has been calculated by multiplying the price of milk per litre by the total amount of milk produced. This method of monetizing the output brings homogeneity in the output as price of milk is determined by the fat content in the milk. Working Expenses (W) account for the total expenses incurred in managing the cattle during the time period of the study and is again measured in terms of Rs.

Labour (L) refers to the labour hours put in by the beneficiary and spouse in tending to milch cattle.

Using the ordinary least square method, we have estimated the above function for the whole sample, and the two loan categories of it i.e., gender and loanwise.

Five equations are estimated as follows :

a)	Whole sample (all beneficiaries)	eqn (1)
b)	Female beneficiaries	eqn (2)
c)	Male beneficiaries	eqn (3)
d)	Beneficiaries with one loan	eqn (4)
e)	Beneficiaries with two loans	eqn (5)

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