CHAPTER II
Universe of the Study
and
Research Methodology
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PART – I – Universe of The Study

Universe of the study -

SAGAR DIVISION of Madhya Pradesh also known as BUNDEL KHAND REGION.

Three districts (SAGAR, DAMOH and PANNA) of Sagar Division of Madhya Pradesh. Bundelkhand is a most backward but a developing region of the Madhya Pradesh which includes five Districts (SAGAR, DAMOH, PANNA, CHATTARPUR and TIKAMGARH) of SAGAR Division. For this study three districts (SAGAR, DAMOH, and PANNA ) are chosen. The criteria for choosing these district is through Random sampling method. This has helped to avoid inequality of no. of ICT users among SAGAR district Vs. other four Districts of the region. These three districts represent majority of the population of ICT users in the division.

Madhya Pradesh

Madhya Pradesh\(^9\), in its present form, came into existence on November 1, 2000 following its bifurcation to create a new state of Chhattisgarh. The undivided Madhya Pradesh was founded on November 1, 1956. Madhya Pradesh, because of its central location in India, has remained a crucible of historical currents from North, South, East and West. Paleolithic, Mesolithic, Neolithic, Chalcolithic and Iron Age Cultures have flourished in the state along Narmada Valley and other river valleys. Rich archaeological wealth has been unearthed in various parts of the state throwing light on its history. See Map 2.1

Evidences of earliest human settlements have been found in Bhimbethika and other places of Raisen district. Over 600 rock shelters have been discovered in Bhimbethika. About 500 caves have rock paintings, which depict the life of pre-historic cave-dwellers. Sanchi in Raisen district is a world renowned Buddhist centre known for its stupas, monuments, temples and pillars dating from 3rd century B.C. to 12th century A.D. The most
famous Sanchi stupa was built by the Mauryan Emperor Ashoka, then governor of Ujjain.
Bhojpur, in the same district is famous for its incomplete but marvelous Shiva temple, built
by legendary Parmar King of Dhar, Raja Bhoj (1010-53). Khajuraho in Chhatarpur district is
renowned the world over for its unique temples. Built by Chandela rulers from 950-1050
A.D., in a truly inspired burst of creativity these temples are a unique gift to the world.
Orchha in Tikamgarh district is a medieval legacy in stone built by Bundela rulers in the 16th
and 17th centuries. This land is hallowed by the memories of the great warrior Chhatrasal
who illumined the pages of history by his heroic deeds. Madhya Pradesh has a number of
important pilgrimage centres. While Ujjain and Omkareshwar have special significance due
to Shrines having two of the twelve jyotirlingas, Maheshwar, Mandleshwar, Amarkantak,
Hoshangabad are also important in their own rights.

Madhya Pradesh has produced great men and women who are held in high
esteem due to their great deeds. India's immortal poet-dramatist Kalidas belonged to Ujjain
and great musician Tansen to Gwalior.

Map 2.1 : MAP of MADHYA PRADESH
Bravery of great women like Durgawati, Avantibai, Kamlapati and Devi Ahilya Bai is inscribed in golden letters in history. In the freedom struggle, many movements were successfully launched in Madhya Pradesh coinciding with the Non-Cooperation Movement and Quit India Movement. Flag Satyagraha of Jabalpur in 1923, Salt Satyagraha of 1930 in Jabalpur and Jangle Satyagraha started by tribals are the notable movements. Almost all parts of the state were active in freedom struggle, though at different times. Madhya Pradesh is the second largest Indian state in size with an area of 308,000 sq. kms

SAGAR –

The district of Sagar\(^10\) lies in the north central region of Madhya Pradesh. It was spelled as Saugar during the British period. It is situated between 23 deg 10' and 24 deg 27' north latitude and between 78 deg 4' and 79 deg 21' east longitude, the district has a truly central location in the country. The tropic of cancer passes through the southern part of the district.

The district is bounded on the north by Jhansi district of Uttar Pradesh, on the south by the district of Narsinghpur and Raisen, on the west by the district of Vidisha, and on the east by the district of Damoh, which was previously formed the part of Sagar District. On the northeast and northwest, the district adjoins Chhatarpur and Guna districts, respectively.

The origin of the name comes from the Hindi word SAGAR meaning lake or sea, apparently because of the large and once beautiful lake around which the town of Sagar has been built. Sagar district is the sixteenth largest district in size in the State, and the third largest in the Jabalpur revenue division.

The district is divided into nine tahsils, viz, Sagar, Banda, Khurai, Rehli, Garhakota, Bina, Rahatgarh, Kesli and Deori each in the charge of a Tahsildar or a Sub-Divisional Officer. See map 2.2.
According to the Surveyor-General of India, the district has a total area of 6375 sq Kms and is shaped roughly like a triangle. It has industries such as oil and flour milling, saw-milling, ghee processing, handloom cotton weaving, bidi manufacture and railway and engineering works. It is known in all over India due to its University named as Dr. Harisingh Gaur University and Army Cantonment and recently it has come into lime light due to "Bhagyodyay Tirth" a charitable hospital named after a Jain Sant Shri VidyaSagarji Maharaj. It is known for Police Training College which are only two in Madhya Pradesh other one is in Indore. Head quarter of Forensic Science Lab is also in SAGAR. Sagar lies in an extensive plain broken by low, forested hills and watered by Sonar river. Wheat, chickpeas, soughum, and oilseeds are chief crops of the region, there is extensive cattle raising. Sandstone, Limestone, iron ore and asbestos deposits are worked. The archaeological site nearby Eran has revealed several Gupta inscriptions. District Sagar is predominantly a Scheduled Caste/Backward class district. These together form about 75% of the district. The district has sizable population of tribals who are named as Rajgonds after their kingdom. Most widely
spoken language of the district is Hindi. The people of Sagar possess a rich heritage of songs and dance. The most popular folk-dances commonly known are, baredi, moni, saira and dhimaryai. Baredi is a folk-dance of cattle herds who often perform it immediately after Diwali festival. Moni dance derives its name from the practice of observing silence throughout the day the dance is performed. Saira dance is performed with sticks in hand, usually accompanied with meaningful and melodious songs.

As of 2001 India census, Sagar district had a population of 20,21,783. Males constitute 53% of the population and females 47%. Sagar town has an average literacy rate of 74%, higher than the national average of 59.5%; male literacy is 80%, and female literacy is 68%. Sagar district has 9 tehsil (Bina, Khurai, Deori, Rahatgarh, Garhakota, Banda, Rehli, Kesli and SAGAR) and 11 block areas. Economic status of Sagar is based on Bidi and Agerbatti industries.

**PANNA** — **Panna** district is located in the north-eastern part of Madhya Pradesh. It forms the northern district of Sagar Commissionerate Division. The district extends from 23o45' N to 25o10' N and from 79o45' E to 80o40' E. The shape of district is roughly triangular. As per the 1991 census, the population of Panna district was 687945 out of which the rural population was 598378 and urban was 89567.

The district is divided into five revenue blocks in which there are 1048 villages and 6 towns. Panchayat-wise, Panna has one Zila Panchayat and five Janpad Panchayats. Panna is famous for its diamond mines located in a belt of about 80 kms across the town.

Panna district is entirely dependent on road transport. Panna is picturesque place lying strategically in a valley amidst forest covered by lofty hills. Panna is famous for its temples which strikes a very fine blend of Hindu and Muslim architecture. There are in all 314 temples in Panna. Also there are Maszids in Panna for offering Namaz and Churches for prayers. With a sanctuary for rare wild life and avifauna & a diamond mine, Panna has transformed a royal past into a vibrant and lively present.

Though famous for its rich Diamond mines, Panna is industrially still a backward district and hence the State Industries Department has placed it in "C" category.
The District Industries Centre has established small scale industrial areas at Satna Naka Panna and Udyog Giri Puraina Panna. There are only small scale industries in Panna. Most of them are engaged in Stone mining and others are engaged in making Coal Brackets, Chlorinated Paraffin Box, Ice, Edible Oil, Agricultural Implements, etc. There are government and private colleges in Panna. Schools are also government and private. Government schools are clustered into groups and the centre of the group is a Higher Secondary or a High School under which a number of middle and primary schools come.

The only Diamond City in India is Panna. Panna is beautifully calm and serene: roll-on meadows dotted with evergreen trees, rocks, hills, forests Panna is famous for its temples which strikes a very fine blend of Hindu and Muslim architecture. Panna is the most sacrosanct pilgrimage for the followers of the Pranami sect world over. With a sanctuary for rare wild life and avifauna & a diamond mine, Panna has transformed a royal past into a vibrant and lively present.

As of 2001 India census, Panna had a population of 45,666. Males constitute 53% of the population and females 47%. Panna has an average literacy rate of 74%, higher than the national average of 59.5%: male literacy is 90%, and female literacy is 67%. In Panna, Panna
district has 5 tehsil and 5 block places. Though famous for its rich Diamond mines, Panna is industrially still a backward district.

**DAMOH** — As of 2001 India census, Damoh had a population of 112,160. Males constitute 53% of the population and females 47%. Damoh has an average literacy rate of 73%, higher than the national average of 59.5%: male literacy is 79% and, female literacy is 66%. Damoh district has 7 tehsil, 7 blocks, 456 gram panchayats and 1193 habituated villages. The total area of the district is 7306 Sq. Kilometers. The district has 1110 electrified villages, 1437 km long tar road, and 1112 km. other roads. Damoh has 2 Govt. P.G. colleges, It has a considerable cattle-market, and a number of small industries, such as weaving, dyeing and pottery-making. See map 2.4

*Map 2.4 : Map of Damoh District*

**Madhya Pradesh Human Development Report 2001**

Madhya Pradesh Human Development Report, published by M.P. Government in the year Nov. 2002, clearly indicates that the districts selected for the study were for behind as compared to the average index of the state. See table 2.1
Table 2.1 : The Gender Related Development index 2001

<table>
<thead>
<tr>
<th>Districts of the Region for study</th>
<th>Education</th>
<th>Health</th>
<th>Income</th>
<th>Gender related Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Literacy Rate</td>
<td>Child Enroll</td>
<td>Education Index</td>
<td>Expectancy of life</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>SAGAR</td>
<td>74</td>
<td>47.8</td>
<td>91.5</td>
<td>88.7</td>
</tr>
<tr>
<td>DAMOH</td>
<td>80</td>
<td>54.5</td>
<td>92.2</td>
<td>90.9</td>
</tr>
<tr>
<td>PANNA</td>
<td>65.5</td>
<td>39.4</td>
<td>89.3</td>
<td>83.7</td>
</tr>
<tr>
<td>M.P.</td>
<td>62.8</td>
<td>55.4</td>
<td>95.5</td>
<td>92.4</td>
</tr>
</tbody>
</table>

Source : Madhya Pradesh Human Development Report 2002

Internet Connection Status - Internet Connection status in the region is determined by the data collected from BSNL official web site on 11th May 2006 and the data collected from regional offices of Airtel and Reliance on Phone. See table 2.2 and fig 2.1

Table 2.2 : Internet Connection in the Region

<table>
<thead>
<tr>
<th>District</th>
<th>Total Net Connections</th>
<th>Internet Dhabas</th>
<th>Total</th>
<th>Percent Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAGAR</td>
<td>3913</td>
<td>10</td>
<td>3923</td>
<td>70%</td>
</tr>
<tr>
<td>DAMOH</td>
<td>1157</td>
<td>7</td>
<td>1164</td>
<td>21%</td>
</tr>
<tr>
<td>PANNA</td>
<td>492</td>
<td>5</td>
<td>497</td>
<td>9%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5562</td>
<td>22</td>
<td>5584</td>
<td>100%</td>
</tr>
</tbody>
</table>

Fig 2.1 : Internet Connection Share among districts of the region

Internet Connections Share in the area

- SAGAR 70%
- DAMOH 21%
- PANNA 9%
This clearly shows that SAGAR district has the majority of 70% internet connections share in the whole region of study in Bundelkhand.

**PART – II - METHODOLOGY**

**Toward an evaluation methodology**

Evaluating the social impact of centre experiences in the communities they are intended to serve is no easy task. To date, more resources are being dedicated to setting up pilot centres than to understanding their uses and impact, while few efforts are specifically addressing the problem of evaluation. A notable exception is the collective and systematic effort led by the ITU’s Johan Ernberg¹, to devise a framework for the evaluation of multipurpose community centres (MCT) pilot projects implemented by ITU² and its partners (Ernberg, 1998, Towards a framework for evaluation of Multipurpose Community Telecentre Pilot projects). This evaluation framework is in the process of being tested and enriched in collaboration with IDRC³ and the PACT⁴ Institute, through study of centres in Mali and Uganda.

ITU’s approach seeks to design a common framework for the evaluation of pilot MCTs, including research questions to be answered, and the formulation of indicators and tools appropriate to the evaluation of impact. Taking the evaluation beyond the collection and analysis of data and turning it into a community empowerment tool, PACT is in the process of experimenting with ways to establish a results-oriented learning system for MCT operations as an integral part of the evaluation process (PACT Institute, 1998).

IDRC’s ACACIA⁵ program initiative (http://www.idrc.ca/acacia/) seeks to empower sub-Saharan African communities with the ability to apply information and communication technologies to their own social and economic development. Telecentre projects have been introduced in various African countries (some in collaboration with ITU and UNESCO, e.g. in Mali and Uganda). In addition to describing the diverse centre experiences being supported by ACACIA in Africa, the ACACIA Telecentre Evaluation Framework (Whyte⁶,
1998) outlines basic guidelines to evaluate these projects. The framework is aimed at addressing fundamental questions about the role of ICTs as catalysts for community development, as well as more specific questions about the ways in which community participation or different management models are success factors in the operation of centres.

IDRC's experience is informed by research it has supported concerning the impact of information on development (Menou 7, 1993; McConnell 8, 1995), as well as various evaluations of projects which involve ICTs.

The study used a robust methodology that included both qualitative and quantitative methods to collect rich data from actual and potential ICT users of the communities. These methods included observations, and interview schedules.

**Work Plane —**

Research Framework

The principal components of the four stages of the research are:

**Stage I** - Exploring the feasibility and scope of a substantive investigation of "impact."

**Stage II** - Formulating an appropriate methodology for assessing the impact of information on development.

**Stage III** - Implementing and refining the methodology through several case studies and associated research.

**Stage IV** - Reviewing and disseminating the findings for greatest effect.

**Sampling Technique —**

In the case of heterogeneous population, or when there are different segments or strata of the universe, the technique to **stratified random sampling** 14 is applied. For this purpose the whole population is divided into homogeneous groups according to some criteria. These groups comprise the whole population and do not overlap. This technique increases the precision of sample estimate and effectively reduces the variability in population.
**Proportionate stratified Sampling** – It is a kind of sampling in which the items are taken from each stratum in the proportion of the units of the stratum to the total population.

The principal of Proportionate alloaction holds true if

\[
\frac{n_1}{N_1} = \frac{n_k}{N_k} = \frac{C}{C}
\]

N is number of units in population.
n is number of units in sample.
C is constant ratio.

**Sample Size** - (Total - 300). Determined by the Sample Technique (stratified random sampling– Proportionate stratified Sampling method) adopted for it. The table given below shows the district wise distribution of sample size through Proportionate stratified Sampling method.

**Table 2.3 : Sample size distribution in the region among districts**

<table>
<thead>
<tr>
<th>District</th>
<th>Individuals</th>
<th>Internet Centers</th>
<th>Total</th>
<th>Percent Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAGAR</td>
<td>150</td>
<td>55</td>
<td>205</td>
<td>68%</td>
</tr>
<tr>
<td>DAMOH</td>
<td>40</td>
<td>23</td>
<td>63</td>
<td>21%</td>
</tr>
<tr>
<td>PANNA</td>
<td>20</td>
<td>12</td>
<td>32</td>
<td>11%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>210</td>
<td>90</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>
Fig 2.2 : Sample size distribution in the region among districts

Sample Size Share in the area

<table>
<thead>
<tr>
<th>District</th>
<th>Individuals</th>
<th>Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>SAGAR</td>
<td>108</td>
<td>42</td>
</tr>
<tr>
<td>DAMOH</td>
<td>31</td>
<td>09</td>
</tr>
<tr>
<td>PANNA</td>
<td>14</td>
<td>06</td>
</tr>
<tr>
<td>TOTAL</td>
<td>153</td>
<td>57</td>
</tr>
</tbody>
</table>

Notations - M-Male, F-Female,
Table 2.5: Sample fram classification between Urban/Rural among districts

<table>
<thead>
<tr>
<th>District</th>
<th>Individuals</th>
<th></th>
<th>Centers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ur</td>
<td>Ru</td>
<td>Total</td>
<td>Ur</td>
</tr>
<tr>
<td>SAGAR</td>
<td>100</td>
<td>50</td>
<td>150</td>
<td>39</td>
</tr>
<tr>
<td>DAMOH</td>
<td>23</td>
<td>17</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>PANNA</td>
<td>12</td>
<td>08</td>
<td>20</td>
<td>09</td>
</tr>
<tr>
<td>TOTAL</td>
<td>135</td>
<td>75</td>
<td>210</td>
<td>64</td>
</tr>
</tbody>
</table>

Notations - Ur-Urban, Ru-Rural.

Tool & Techniques -

1. Survey Instrument for Data Collection -

Primary Data Collection - Interview Schedules.

The Interview Schedule’s design was adapted from some Interview Schedule used by researchers of other countries, for Impact assessment study mainly designed by Menou Model (1993). The original Interview Schedules were, however, modified to suit the Indian conditions and circumstances. The Interview Schedule for this study was test-piloted by 30 ICT users. Their comments assisted the researcher in improving the quality of the final instrument administered.

The Interview Schedule was designed separately for both Individuals and ICT centers.

Individuals means persons having ICT setup for their personal use.

ICT centre or Tele Centre appears to have no universally accepted definition, beyond the general concept of a physical centre to provide public access to long-distance communication and information services, using a variety of technologies, including phone, fax, computers, and the Internet. Telecentres can be publicly or privately owned, be part of a public or private franchise, or be provided by international donors. They run the spectrum from “phone shops” through to “cybercafés,” cottage centres for telework or telecommuting, and specially constructed multipurpose community centres (MCTs), some with advanced services, such as medical diagnosis and telemedicine.
This empirical study is exploratory in nature. A Five-paged structured Survey Instrument in the form of Interview Schedule was used to collect data. The Interview Schedule included five major sections:

“A” Basic Parameters.
“B” Indicators of Service Performance,
“C” Indicators of Social Impact,
“D” Indicators of Economic Impact, and
“E” Other open Indicators of Impact.

All most all sections required the respondents to check the boxes, or answer in Yes/No.

The respondents were assured of confidentiality if they were willing to answer the questions. In total, 311 Interview Schedules were retrieved. This represented approximately an 89% return rate.

2. **Statistical Analysis** through MS-EXCEL and SPSS (Statistical Programs for Social Sciences). The MS-EXCEL program is used for Tabulation and basic analysis work. SPSS has been used for calculating Correlation between some dependent variables vs. independent variable to find significance.

**Microsoft Excel**

Microsoft originally marketed a spreadsheet program called Multiplan in 1982, which was very popular on CP/M systems, but on MS-DOS systems it lost popularity to Lotus 1-2-3. The first version of Excel was released for the Mac in 1985 and the first Windows version (numbered 2.05 to line-up with the Mac and bundled with a run-time Windows environment) was released in November 1987. Lotus was slow to bring 1-2-3 to Windows and by 1988 Excel had started to outsell 1-2-3 and helped Microsoft achieve the position of leading PC software developer. This accomplishment, dethroning the king of the software world, solidified Microsoft as a valid competitor and showed its future of developing GUI software. Microsoft pushed its advantage with regular new releases, every two years or so. The current
version for the Windows platform is Excel 12, also called Microsoft Office Excel 2007. The current version for the Mac OS X platform is Microsoft Excel 2008.

Excel was the first spreadsheet that allowed the user to define the appearance of spreadsheets (fonts, character attributes and cell appearance). It also introduced intelligent cell recomputation, where only cells dependent on the cell being modified are updated (previous spreadsheet programs recomputed everything all the time or waited for a specific user command). Excel has extensive graphing capabilities, and enables users to perform mail merge. It has around 14 types of Charts such as Bar, Pie, Surface, Bubble, Stac, Area, Line, XY etc.

Fig 2.3 : MS EXCEL Screen while working on the Computer

This Study uses Excel for Simple Data Processing, Tabulation work, and for making Charts to define and explain tabular data.
SPSS

SPSS\textsuperscript{15} (originally, Statistical Package for the Social Sciences) was released in its first version in 1968 after being founded by Norman Nie, then a political science postgraduate at Stanford University, and now Research Professor in the Department of Political Science at Stanford and Professor Emeritus of Political Science at the University of Chicago. SPSS is among the most widely used programs for statistical analysis in social science. It is used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations and others. In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary is stored with the data) are features of the base software.

Statistics included in the base software:

- Descriptive statistics: Cross tabulation, Frequencies, Descriptives, Explore, Descriptive Ratio Statistics
- Bivariate statistics: Means, t-test, ANOVA, Correlation (bivariate, partial, distances), Nonparametric tests
- Prediction for numerical outcomes: Linear regression
- Prediction for identifying groups: Factor analysis, cluster analysis (two-step, K-means, hierarchical), Discriminant etc.

This Study uses SPSS for complex statistical analysis such as Correlation Data Processing, Tabulation work, and for making Charts to define and explain tabular data.
References


10. SAGAR; www.sagar.nic.in/ official Government web site of Sagar District; visited on 05 Jan. 2008

11. PANNA www.panna.nic.in/ official Government web site of Panna District; visited on 05 Jan. 2008

12. DAMOH; www.damoh.nic.in/ official Government web site of Damoh District; visited on 05 Jan. 2008

