



RELOCATION AS A CONSERVATION TOOL:
A STUDY OF SARISKA TIGER RESERVE RAJASTHAN

Thesis submitted for the award of the degree of

DOCTOR OF PHILOSOPHY
IN
WILDLIFE SCIENCE

By

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to

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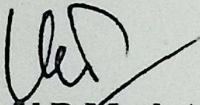
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I, hereby, declare that the work conducted under this thesis titled “Relocation as a Conservation Tool: A Study of Sariska Tiger Reserve, Rajasthan,” is a record of original and independent research work done by me and subsequently submitted for the award of the degree of Doctor of Philosophy in Wildlife Science to the Saurashtra University, Rajkot (Reg. No: 18151 dated 01.01.2018). This research work has been carried out under the guidance and supervision of Dr. V B Mathur, Former Director, Wildlife Institute of India, Dehradun. The work has not formed the basis for the award of any other degree, diploma and any other qualification. I also declare that the thesis embodies my own work, analysis, observation, understanding and particulars given in it are true to the best of my knowledge.


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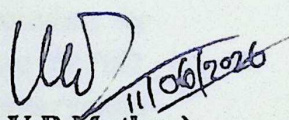


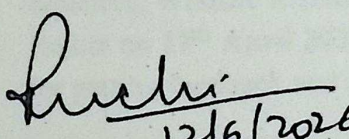
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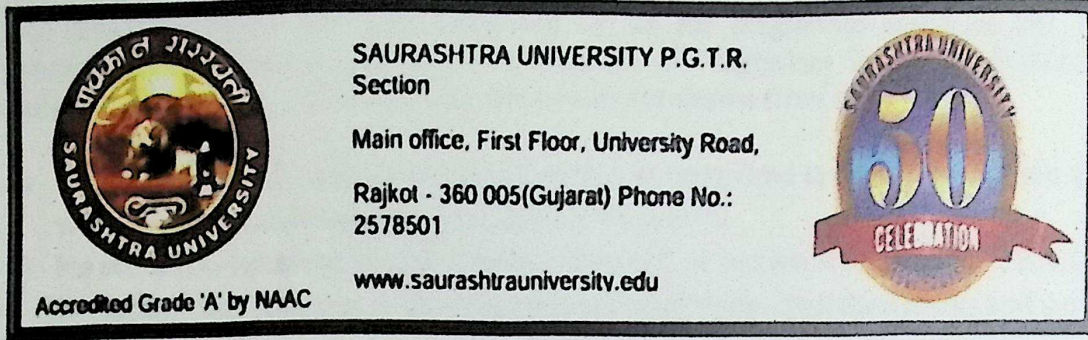
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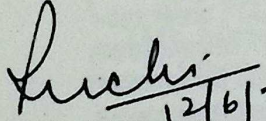
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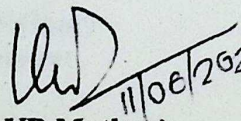
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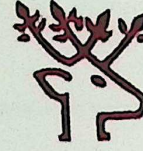


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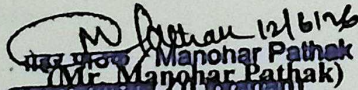
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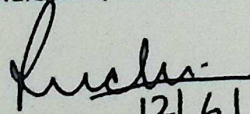
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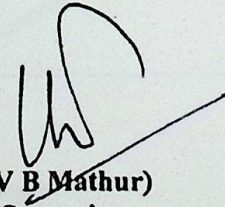
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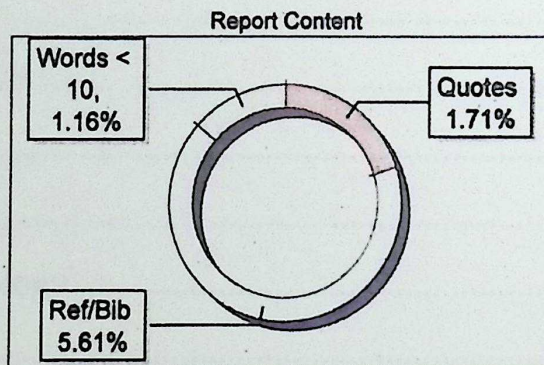
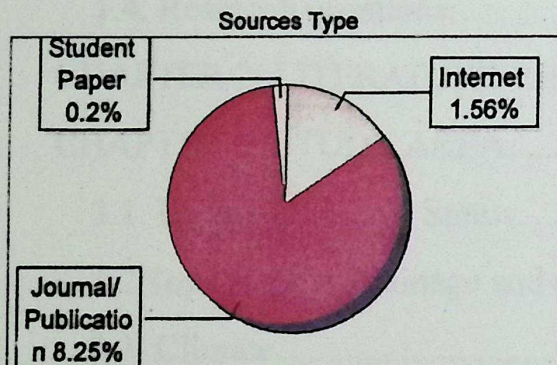
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Content

Acknowledgements	1
List of Figures	5
List of Tables	8
Executive Summary	9
Thesis Structure.....	15
List of Publications and Conferences.....	18
CHAPTER 1: INTRODUCTION	19
1.1 Background	19
1.2 Scope of Study	23
1.3 Objectives.....	25
1.4. Research questions:.....	25
CHAPTER 2: LITERATURE REVIEW.....	27
CHAPTER 3: STUDY AREA.....	34
3.1. Extent and Legal Status.....	34
3.2 Topography, Drainage and Geology	35
3.3. Climate.....	36
3.4. Vegetation.....	36
3.5. Fauna.....	37
3.6: History and Past Management	39
3.7: Settlements.....	40
3.8: Intensive Study Area:.....	41
Chapter 4: IMPACTS OF RELOCATION ON THE RELOCATED FAMILIES OF VILLAGES EARLIER SITUATED IN THE CRITICAL TIGER HABITAT OF THE TIGER RESERVE.	42
4.1. Introduction: Relocation in Sariska.....	42
4.2. Objective	48
4.3. Methodology:.....	48
4.3.1 Sampling of Relocated Villages	49

4.3.2	Distribution of Families across package Types:.....	51
4.4	Results and Discussions	52
4.4.1	Responses of Satisfaction levels across packages:.....	52
4.4.2.	Comparison of livestock population:	54
4.4.3.	Comparison of Daily Activity Schedule:	54
4.4.4.	Economic transition:	56
4.4.5	Standard of Living:	59
4.4.6	Application of the Cernea IRR model:.....	60
4.5.	Conclusions.....	73
CHAPTER 5: ANALYSE THE QUALITY-OF-LIFE INDICATORS OTHER THAN THE ECONOMIC INDICATORS (AS MENTIONED IN OBJECTIVE 1) OF THE FAMILIES AT THE RELOCATED SITES AND INSIDE THE FORESTS.....		81
5.1	Introduction:.....	81
5.2	Assessment of Psychological Well-being.....	82
5.3	Satisfaction levels across the three packages (Option I, II and Hybrid)	83
5.3.1	Assessment of Mental Health:.....	86
5.3.2	Assessment of Satisfaction of Health:.....	89
5.3.3	Assessment of Standard of Living, Education and Electricity amenities: .	91
5.4	Results and Discussions.....	92
CHAPTER 6: EVALUATING THE EFFICACY OF THE SARISKA RELOCATION MODEL VIS A VIS OTHER RELOCATION MODELS OF IMPORTANT TIGER RESERVES IN INDIA.		95
6.1	Introduction.....	95
6.2	Rajasthan State Relocation Package 2002	96
6.3	NTCA Revised Relocation Guidelines 2008	99
6.4	Satpura Relocation Model.....	100
6.5	Relocation Model of Maharashtra.....	110
6.6	Relocation at Buxa Tiger Reserve.....	116
6.7	Karnataka Model:.....	119
6.8	Results and Discussion:	122

Chapter 7: FORMULATION OF A REHABILITATION PACKAGE FOR ASSISTING THE GOVERNMENT OF RAJASTHAN, TO MEET ITS STATED POLICY OBJECTIVES, AFTER COMPARING THE EXISTING RELOCATION POLICIES OF IMPORTANT TIGER RESERVES OF INDIA.	125
7.1 Introduction.....	125
7.2 Amendment in State Relocation Package on 07.09.2022	127
7.3 Analysis of Rajasthan Relocation Package:	129
7.3.1 Why land package is more attractive?	129
7.4 Challenges in Relocation of villagers	131
7.4.1 Inclusion of children above 21 years in surveys after 2008:.....	131
7.4.2 Pending Land Rights since relocations in 2008	133
7.4.3 Status of land rights at five relocated sites	134
7.4.4. No Loan by Banks:.....	135
7.4.5 Inclusion of relocated forest land/revenue land in Panchayat/Nagar Nigam area.....	135
7.4.6 Handholding:.....	136
7.4.7 Non-consent by 269 families from priority villages:	136
7.5 Recommendations for revising the Rajasthan State Policy:	139
7.6 Results and Discussions	146
Chapter 8: HABITAT USAGE BY TIGERS AND PREY BASE AFTER RELOCATION OF VILLAGES IN SARISKA TIGER RESERVE.....	151
8.1 Introduction.....	151
8.2 Vegetation growth and habitat restoration	152
8.3 Increase the wildlife movement and occupancy	152
8.4 Results and discussion:	156
REFERENCES.....	158
ANNEXURES.....	167
Paper Publication.....	167
Certificates of Publication and Conferences.....	180

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RAJESH KUMAR GUPTA

List of Figures

Figure No.	Description
4.1	Relocation Village Map of Sariska Tiger Reserve
4.2	Location of five relocated sites outside Sariska Tiger Reserve
4.3	Distribution of families across package types
4.4	Comparison of Satisfaction levels across packages
4.5	Comparison of Satisfaction levels across priority villages
4.6	Comparison of Satisfaction levels at relocated sites
4.7	Livestock Population Comparison pre & Post-relocation
4.8	Comparison of Daily Activity schedules (4AM – 10 PM)
4.9	Number of families in different income groups
4.10	Average Income per family across packages
4.11	Average Income trend as per type of livelihood(Pre/Post relocation)
4.12	Comparison of Satisfaction level of Standard of living
4.13	Trend of the cash package vis a vis land package in the last 15 years
4.14	Average Land Holding by Package Type
4.15	Number of Families vis s vis income from milk products
4.16	Income generated from different sectors pre & post relocation
4.17	Housing availability to families-pre/post relocation
4.18	Comparison of time taken to reach PHC- Pre/Post-relocation(fam.)
4.19	Comparison of time taken to reach PHC- Pre/Post-relocation (%)
4.20	Opinion about Relocation from Sariska
5.1	Satisfaction level of three package types
5.2	Happiness levels in families
5.3	Comparison of happiness levels (packages)
5.4	Comparison of Mental Health (Focus) across families after relocation
5.5	Mental health (Sleep)Comparison

5.6	Comparison of daily activities
5.7	Comparison of stress level (families)
5.8	Comparison of stress level (package)
5.9	Health Satisfaction in families (%)
5.10	Comparison of time taken to reach PHC- Pre/Post-relocation (fam.)
5.11	Satisfaction level for standard of living
5.12	Electricity avail. Pre/Post Relocation
5.13	Satisfaction level of families w.r.t. education facilities pre & post relocation
6.1	Chronology of Relocation Policy/packages of Central and State Governments
6.2	Amount earmarked (in %) for Option II families
6.3	Meeting in Village Dhain (first relocated village in 2004-05) outside Satpura Tiger Reserve
6.4	Meeting and discussions with relocated villagers from Satpura under Option II
6.5	Meeting with villagers in 2nd cluster on highway (Land package) in Satpura
6.6	Meeting with villagers in Land package in Satpura
6.7	Meeting with villagers of Pattan (Cash Package) in Satpura Tiger Reserve
6.8	Village Relocation at Tadoba Andhari Tiger Reserve
6.9	District level meeting at Buxa Tiger Reserve
6.10	Homestays by Option I families relocated from Buxa tiger Reserve
7.1	Status of land rights of relocated families (%) in 5 sites outside Sariska
7.2	Meeting with villagers in Nangli Roondh (Bardod) relocated in 2007-08
7.3	Coaching centre of Lalluram at Barodo Houses constructed at Bardod
7.4	A House in Nangli Roondh relocated in 2008 signifying prosperity
7.5	Discussion with villagers of Dewri in Sariska tiger Reserve
7.6	Meeting with Relocated villagers at Mojpur Rund

7.7	Trend of the cash package vis a vis land package in the last 15 years
8.1	Trend of tiger population after reintroduction in 2008
8.2	Tiger breeding in relocated sites in CTH of Sariska Tiger Reserve
8.3	Village relocation map of Sariska Tiger Reserve
8.4	Tiger ST 22 with cubs movement near village Panidhal
8.5	Leopard and Spotted movement near Panidhal

List of Tables

Table No.	Description
3.1	Progress of Relocation in Sariska Tiger Reserve till 2025
3.2	% of families vis a vis activities in daily activity patterns
3.3	% distribution of families in different income groups pre & post-relocation
3.4	Features in Relocation Packages of NTCA
3.5	List of relocated sites and no. of villages/families settled post-relocation
6.1	Progress of relocation in Tadoba Tiger Reserve
6.2	Comparison of Sariska Relocation Model with Satpura Model
6.3	Comparison of Tiger Reserves
7.1	Progress of relocation of families post Sariska debacle
7.2	DLC Rates in the relocated villages
7.3	Increase in the number of families due to change in cut-off date in 5 villages
7.4	Increase in the number of families due to change in cut-off date in 5 villages
7.5	Status of land rights of relocated families in 5 sites outside Sariska
8.1	Tiger Occupancy and Breeding Status in Relocated and Priority Relocation Villages of Sariska Tiger Reserve (STR)

Executive Summary

The present study is focussed on the Voluntary Relocation of villages from Sariska Tiger Reserve. It all re-started in 2006 after the Sariska debacle, when Sariska Tiger Reserve lost all its tigers by 2005, due to poaching. The Central Government and the State Government, constituted two separate Task Forces, which submitted the Reports with numerous corrective measures to be undertaken in management of tiger reserves by Project Tiger (now National Tiger Conservation Authority). The Tiger Task Force, commissioned by the Government of India, in its Report "Joining the Dots" called for priority to be given to resettlement of villages from core areas of tiger reserves for the long-term survival of the species. One of the prominent recommendations of both the Committees, was Relocation of villages, which was emphatically depicted and there was almost unanimous agreement that co-existence in core areas of tiger reserves was not congenial or feasible for breeding population of tigers.

Simultaneously, resurrection efforts were initiated in Sariska Tiger Reserve, to repopulate the western-most limit of tiger population, by reintroducing tigers from Ranthambhore. But among the other pre-requisites, the most important one was to relocate four villages from the Core Area of the Tiger Reserve. Consequently, the process of relocation was restarted after a failed attempt in 1976 (Kiraska was relocated to Sirawas but returned back) with the Relocation Package of Rajasthan 2002 and old Project Tiger Relocation amount of 1 lakh per family. The first village selected was Bhagani, comprising of 21 families, was relocated to Bardod Rund (90 kms away

from Sariska) in Alwar District near Behror. Till 2025, 5 complete villages and 6 partial villages, consisting of 1041 families out of 1471, have been relocated to different places under Option I (Cash Package) & Option II (Land Package).

The objective of the study was broadly to ascertain the impacts of relocation on the relocated families, analyse the quality-of-life indicators other than the economic indicators, evaluate the efficacy of the Sariska Relocation Model vis a vis other relocation models of important Tiger Reserves in India and based on it, formulate/recommend a Rehabilitation package for assisting the Government of Rajasthan, to meet its stated policy objectives. Through Questionnaire survey, focused interviews, informal discussions, the study was done in all the 5 sites where families of 11 villages have been resettled under the Option II (Land package) and also other locations, where families were relocated under the Option I (Cash Package). 108 families were surveyed [44 families (41%) selected from Option I, 49 families (45%) from Option II and 15 (14%)] families from Hybrid. Families have been selected in random, without any bias. In order to ensure a confidence level of more than 90% and margin of error less than 10%, a total of more than 100 families needed to be selected as sample. The target of 10.4 % families has been carried out to get statistically relevant data for analysis and inferences.

Satisfaction scores were found to be highest in the Hybrid package (8.47/10) compared to Cash (7.68/10) and Land (7.63/10) packages. Among the 5 relocated sites Bardod Rund indicated highest satisfaction levels, the results also signified the significance of the quality of land, especially with respect to water availability and soil

quality, for overall happiness of the relocated families. Based on the mean satisfaction scores across villages, the ANOVA results indicated a statistically significant difference among villages ($p = 0.001$). As predicted, the livestock population of the villagers, pre and post relocation had reduced due to shifting from pastoralist economy to agrarian economy. The data revealed 40.7% of the families owned cattle numbers in the range of 50-100/family and 38.9% owned 25-50 cattle/family in the pre-relocation phase. In the Post-relocation phase, this number has drastically reduced to zero in the range of 50-100 cattle /family. 92.6% families own very less number of cattle in the range of 1-25 cattle/family. The income also saw increase in the relocated families. The average income per family in the Hybrid families (Rs.5.25 lakhs/family) is highest compared to Option I (Rs.3.99 lakhs/family) and Option II (Rs.4.11 lakhs/family) packages. Chi-square analysis revealed a statistically significant change in the distribution of household income following relocation ($p = 0.000021$). The income surge shows a 105% increase in hybrid families, 33.4% in Option I families and 51.1% in Option II families. Decline in Milk Products and Livestock Sale as livelihood generators, whereas increase in labor and agriculture, was observed. Income category shifting observed from Rs. 0-3 lakhs and Rs. 3-6 lakhs, in pre-relocated villagers to higher income group, indicating economic prosperity.

Cernea's (2002) Impoverishment Risks and Reconstruction Model for Resettling Displaced Populations (IRR) was also compared to test the relocation model adopted in Sariska and the eight impoverishment risks, proposed by Cernea, was also assessed for the relocated families in Sariska. Almost all the risks were found to be

very less/negligible, as per the analysis based on the data.

As far as the quality of life-indicators were assessed, it became clear that the psychological well-being of the relocated families were found satisfactory with 57 (53%) families expressing happiness more than the pre-relocation phase. 42 (39%) families opined happiness same as the pre-relocation phase and 9 (8%) families exhibited less happiness in the post-relocation phase. Across the packages, Hybrid packages shows highest level of happiness (80%), closely followed by Cash and land packages. 18% of the land package families, show less happiness than before. Level of stress assessed in the families through the questionnaire revealed that stress level remained the same in 25 families and reduced in 74 families. In some families, stress level was more than before. The Questionnaire survey indicates that more than 96% of the families are satisfied with the health facilities, provide/available in the relocated sites. 95% of the families are satisfied with the present standard of living. 68% families expressed high satisfaction on the education facilities compare to Sariska and more than 86.11% families are provided with electricity compared to 91.6 % families who were deprived of electricity.

The Sariska Village Relocation Model was compared to the best Relocation Model in the country (Satpura Tiger Reserve) apart from Maharashtra and Buxa in West Bengal. The importance of additional funding support from the State Governments, was emphasised in the study. The Sariska relocation commenced from 2007, which has been the case for relocation in all tiger reserves mainly because of the recommendation of the Tiger Task Force Report in 2005 post - Sariska crisis, that

finally paved way for paradigm shift in focus towards village relocation and issuance of revised relocation package by NTCA. In the same span of 17 to 18 years different areas have performed differently. The pace of relocation in Satpura has been particularly exemplary. Around 50 villages have been relocated in the last 17 years whereas, 5 villages in Sariska, 8 in Ranthambore, 19 in Melghat, 2 in Buxa and 5 villages in TATR, have been completely relocated. Where Satpura has been completely freed of human habitations in the CTH, TATR has also created inviolate spaces by relocation of 5 out of 6 villages. Sariska on the other hand, is still facing a challenging task of relocation and has been able to relocate 5 completely and 6 partial villages out of 29 villages.

A comparison of the Relocation done in some of the States were done and it was found that the valuation of land in Option I (Cash package) families in Maharashtra is better, with handholding and grievance redressal mechanism in Satpura as the best. The involvement of CSR funds in relocation in Satpura was found worth emulating in Sariska. West Bengal's initiative in Buxa tiger reserve to provide additional land (homestead land for homestay) to Cash package families was found as a good liberal initiative for successful livelihood security options for the relocated families. The relocation policies of Rajasthan, NTCA and some other states were analysed. In Rajasthan 1.6 hectares of unirrigated land or 0.8 hectares of irrigated land is provided to landless villagers along with compensation of own land, and other structures @ Rs.15 lakh per family. For option I families, only an amount of Rs.15 lakhs, is provided to the families with no additional compensation for land surrendered.

In the National Capital Region of Alwar, the land cost being exceedingly high, the trend of Cash options has reduced drastically and families are demanding Option II (Land Package) only for obvious reasons. The trend has reversed completely over a period of 15 years. The challenges in relocated families, were identified and recommendations were listed for future improvement of the Relocation package, including identification of isolated forest blocks for diversion under Forest Conservation Act, 1980, providing land rights at faster pace and convergence of schemes of different departments in an institutionalised way involving the District Administration. Handholding option of the families, especially the Cash package families was also proposed.

At the end, the advantages of relocation of villages in creating 'involute space' for tigers was ascertained. It was clearly visible that tigers have selected the core natal areas in relocated village areas and tiger-cubs birth data indicated that that tiger occupancy and breeding has improved magically in area where village been relocated completely compared to partially relocated villages or non-relocated areas. In comparison, villages with lower relocation progress have shown comparatively less tiger use and no breeding records. The Pearson correlation value ($r = 0.67$) shows a positive relationship between relocation and tiger breeding success, while the Spearman correlation value ($\rho = 0.69$) also supports the same trend.

Thesis Structure

Chapter 1 deals with the Introduction of the topic and depicts the Sariska debacle of 2005, when all the tigers were poached, that led to constitution of two Task Forces, one by the Central Government and the other by the Government of Rajasthan. Relocation of villages came into focus, as coexistence was no longer an accepted model by National Tiger Conservation Authority. It also deals with the impacts of conservation induced relocation from the perspectives of a conservationist and a social scientist. The Scope of the study, the objectives and the research questions are defined in this chapter.

Chapter 2 deals with the Literature review. It mentions in detail about the researches done on relocation of villages in Ethiopia, Mozambique, Royal Chitwan Park, Nepal, Central Asia, Guatemala and also in India by different researchers and scientists for Protected areas in India, like Tadoba-Andhari in Maharashtra, Kuno Sanctuary, Melghat Tiger Reserve, Corbett Tiger Reserve, Simlipal Tiger Reserve, Bhadra Tiger Reserve and Sariska Tiger Reserve.

Chapter 3 deals with the Study Area in Sariska Tiger Reserve, its extent, legal status, forest types, faunal diversity, history of past management, presence of 29 villages inside the Core Area(Critical Tiger Habitat).

Chapter 4 deals with the Objective 1 of the research, i.e., impacts of relocation on the relocated families, earlier situated in the Core Area of the Sariska Tiger Reserve. It gives a detailed overview of the Relocation package types followed in India w.r.t.

State Relocation Package and the NTCA revised guidelines for voluntary relocation of villages post-Sariska crisis. The methodology adopted for the selection of the villages for the study and the assessment based on the questionnaire survey has been delineated. Analysis of the data to assess the satisfaction level in the cash package, land package and the hybrid package families has been done. The economic assessment wr.t. income levels before and after relocation and the transition from pastoralism to agrarian economic has been discussed in detail based on the data collected. An assessment of the impact of relocation in Sariska, based on the eight impoverishment risks envisaged in Cernea's Impoverishment Risks and Reconstruction Model for Resettling Displaced Populations (IRR), has been made in this chapter. The Chapter concludes with inferences about the livelihood patterns transition and the financial well-being achieved in the process of voluntary relocation.

Chapter 5 deals with the Objective 2 of the research which analyses the quality of life-indicators other than economic indicators for the relocated families. It uses the survey data to ascertain the happiness, satisfaction, psychological well-being w.r.t. stress, mental health, and focus and other factors of health, education and standard of living pre and post-relocation phases.

Chapter 6 deals with the Objective 3, i.e., evaluating the efficacy of the Sariska Relocation model with other relocation models of important tiger reserves in India. This chapter mentions in detail about the Rajasthan Relocation package of 2002, the approach it envisaged with the quantity of land provided to the landless and land-owners for voluntary relocation. The NTCA revised package of 2008 is also dealt in

detail, especially the option I (Cash Package) and Option II (Land package). An attempt has been made to study the Satpura Relocation Model, which has received the NTCA Excellence Award twice for exemplary work done in village relocation. The additional and innovative initiatives of some States for expediting the relocation process has been studied. Other relocation works at Buxa, Melghat were also studied and a comparison drawn on the efficacy of the models vis a vis Sariska.

Chapter 7 deals with Objective 4, which is formulation of a rehabilitation package for Rajasthan. It recommends some important changes in the existing package of 2002, taking into consideration the field level grievances of the relocated villagers. It examines the challenges in Sariska relocation process that is creating impediments in execution. It provides insights into the process adopted till now based on the feedback of the people due to problem assessment during informal discussions and suggestions for expediting the voluntary relocation process to create more 'involute spaces' for the growing number of tigers now reaching a figure of 56 in 2026 from zero in 2008.

Chapter 8 deals with the positive impact on habitat recovery and prey-base increase due to relocation of the villages. A correlation has been established between completely relocated villages and tiger occupancy especially w.r.t. creation of undisturbed core natal areas, leading to breeding tigresses with litter size of 4 cubs in 4 tigresses in a span of 3 years from 2024-2026.

List of Publications and Conferences

Publication: (1) [Annexure- page 166-179]

Gupta, R., Sen, M, Sadhu, A. (2025). “How much is enough: Analyzing the Relocation Model of Sariska Tiger Reserve with other important tiger Reserves in India”. International Journal for Innovative Research in Multidisciplinary Field, Online Publication, 35-48.

Link: <https://www.ijirmf.com/wp-content/uploads/ICS EGT-2025>

[PUBLICATION.pdf?utm_source=chatgpt.com](#)

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Conferences: (3) [Page 179-182]

S. No.	Type of Conference	Date	Topic/Paper
1	International Conference on Sustainable Environment and Green Technology	11-12 th October 2025	How much is enough: Analysing the Relocation Model of Sariska Tiger Reserve with other important Tiger Reserves in India.
2	International Conference on Biodiversity Informatics and Conservation Data Analytics (ICBICDA-26)	26 th April 2026	Impact of Relocation: A Glimpse through the lens of Cernea's IRR Model for Biodiversity Conservation in Sariska
3	Pastoralism in India: Changes and Continuity (IIT -Hyderabad)	8-9 th May 2026	Changing Lives of Graziers to Agriculturists: The Sariska Story of Relocation of Villages.

CHAPTER 1: Introduction

1.1 Background

India is credited to be one nation of the world having the most extensive network of Protected Area (PA) systems, with 1014 Protected Areas, covering an area of 5.28% of the total geographical area of the country. But, most of our PAs, including the prestigious Tiger Reserves of the country, have enclave settlements within (Kothari et al 1989). In India, approximately five million people live inside these protected areas, and another 147 million depend on the resources these areas provide. Given the 18% increase in the human population since 1990 in India, the dependence on the resources of protected areas is likely only to increase. There are numerous fringe human settlements in the fringe areas of these PAs. Consequently, the conservation-livelihood conflict, has been a challenge in Natural resource management in India. The semi-arid tropics are home to a large section of the India's rural poor, who eke out precarious livelihoods from land and other natural resources in hilly, upland and forested areas. Forests and common property resources (CPR) are critical to the coping strategies of the poor in India's drylands (Jodha 2003, Saxena 2007). CPR decline has led the rural poor to exert increased pressure on productive forests to meet their requirements of fuel, fodder, food and marketable NTFP. The people living inside these PAs are also denied any infrastructural development in their village as the PA legislation prohibits activities such as construction of roads, schools, primary health centers, etc., inside enclave settlements. Consequently, India's forests (including the

Protected areas) have become sites of severe conflict for limited and critical natural resources.

Global estimates range from 8.5-14.4 million persons that have become--either voluntarily or not- displaced for conservation purposes (Feldman, Geisler & Silberling, 2003) though the major gaps in the basic information in the WCMC database, it is difficult to estimate the number of displaced as a result of establishment of protected areas. In India, roughly 1500 villages consisting of 3,25,00 people resided in the Core/buffer zones of the Tiger Reserves (Tiger Task Force Report 2005). Out of 848 villages consisting of 89808 families in the Core Areas of 54 Tiger Reserves in India, 257 villages with 25007 families have been relocated since the initiation of Project Tiger on April 1, 1973. 591 villages with 64801 families are in the process or still to be relocated (NTCA Report 2024).

The extermination of all its tigers till 2004 in Sariska Tiger Reserve by poaching gangs, highlighted the issue of relocation of villages from Tiger Reserves in the country, which has over 75%% of the wild tiger population in the world among tiger range countries. In fact, the State Empowered Committee formed by the Government of Rajasthan in 2005, highlighted in its report, that villagers residing in the core area of the tiger reserve, informed the poachers about the movement of the tigers in the specific area of the forest, as they were aggrieved of their cattle killed by the tigers. They cooperated with the poachers for eliminating the tiger. (page 17-18, SEC Report 2005). Consequently, the Committee emphatically proposed for rehabilitation of the villages with utmost priority. Simultaneously, the Tiger Task Force, commissioned by the Government of India, after the Sariska imbroglio in 2005, in its Report "Joining

the Dots” called for priority to be given to resettlement of villages from core areas of tiger reserves for the long-term survival of the species (Ministry of Environment and Forest, Tiger Task Force Report 2005, page 19).

Consequently, relocation was taken on priority and the revised guidelines for relocation of villages were issued in 2008 by National Tiger Conservation Authority (NTCA).

A study had found that reintroduced tigers of Sariska, especially females, are stressed due to human disturbance affecting their breeding (Bhattacharjee et al., 2015). Studies also have linked anthropogenic disturbance with stress and reduced reproductive success in wildlife. Studies suggested that habitat complexity and quality are key factors that influence how animals perceive and adapt to these disturbances, ultimately leading to chronic stress and lower reproductive outcomes (Malviya et al., 2018).

Relocation of villages being a sensitive issue, a clear polarization has emerged between two schools of thought, one that advocate continued use of resources from PAs and the other, championing a hands-off-approach (Saberwal and Rangarajan 2003). The case of people’s relocation from PAs has been on the hypothesis that human use of resources depletes their availability. In short, the hypothesis is that people and wildlife cannot co-exist. National Tiger Conservation Authority (NTCA) has established that tiger occupancy of forest was dependent on availability of wild prey and low impact on the habitat. Good source populations of tigers were found in areas devoid of human settlements and least human impacts. NTCA established that it

is essential to have a minimum inviolate area of 800-1200 sq.km to support a population of 20 breeding tigresses.

Though, as discussed above, the rationale for relocation may be strong, relocating these communities is not an easy task, especially as most of them have strong socio-cultural roots in the area and are usually unwilling to move voluntarily. Despite this, many studies show that attachment to place is a characteristic feature of any community and the development of a sense of spatial identity is a critical component of attachment experiences (Bonaiuto et. al. 2002; Sangkapitux et. al. 1999; Fried 2000). As a consequence of such spatial identity, built on the convergence of physical places and social relationships, displacement from the community entails at times widespread negative attitudes toward natural PAs (Bonaiuto et. al. 2002). These experiences with relocation have mostly aggravated the hostility of the relocated people towards wildlife conservation. Biologists and Social Scientists often have different ways of asserting an argument on relocation. Biologists tend to assess the issue of relocation in terms of the viability of habitats, ecosystems and endangered species. Many scholars have referred to the ability of prey and predator populations to recover in zones free of human settlements in prominent Tiger Reserves (Karanth 2006). In contrast, social scientists tend to see the issues of equity and justice as central to sociological and historical analysis of conservation processes. Such perspectives have helped unravel why and how displacement, even when a biological success, can impose high costs on underprivileged groups (Jalais 2005). Critics point to the recurrent pattern of displacement of communities and loss of livelihoods caused by PAs (Brockington 2002; Schmidt- Soltau 2003). Biological evidence needs to be

backed up with concomitant understanding of the social and economic analysis. Clearly, there is a need to combine the insights of the biological and sociological disciplines to examine issues at hand.

There have been past experiences which have taught lessons in handling this conservation and social issue. Resettlement should not be seen as a problem to be solved quickly as possible, but as a responsibility and a long-term commitment. In the process of ensuring that the relocated community gets a fair economic deal, occasionally their economic status becomes better. Therefore, there is need for careful planning and execution keeping the mental health costs of displacement into consideration, especially the highest level of positive emotional well-being related to happiness, life satisfaction, optimism for the future, and spiritual contentment—in ways not easily repaired by even well-intentioned relocation programs focused on material compensation and livelihood re-establishment.

1.2 Scope of Study

The Relocation program in Sariska had restarted in 2007 after 1976 and a number of families have been relocated since then. 5 villages have been relocated completely with the rest under progress. From past experiences it is clear that relocation remains an area of risks and challenges, both for the relocated villagers and the department. The primary goal of any community resettlement process is to prevent impoverishment and to improve the livelihood of resettlers. In nutshell, there is no systematic documentation of wise and bad practices of village relocation programs in PAs. An attempt is proposed to be made to understand and evaluate what worked and what did not.

The study attempts to identify and analyse the impacts of relocation initiatives by surveying the relocated families out of Sariska tiger Reserve since 2007 to 2024, underlying issues of the Rajasthan State Relocation Package 2002 and National Tiger Conservation Authority's (NTCA) Relocation Guidelines and ascertaining possible future strategies including review of the relocation models for developing a framework suitable for Sariska. It will be important to understand the approach and effectiveness of relocation as a tool for sustainable biodiversity conservation. This study intends to study the relocation policies of the NTCA and the Tiger Range States in India, with an attempt to develop the best suited model for Sariska.

It is important to assess the efficacy of the relocation done in Sariska and to recommend necessary strategies to develop rural livelihoods, undertake land reforms and regenerate agricultural livelihoods particularly with the aim of integrating hitherto marginalized people into the mainstream economy.

The aim of the study is to assess the pre and post relocation impacts on the villages earlier situated in the Sariska Tiger Reserve in terms of livelihood parameters and life quality indicators and to take into consideration the costs and benefits to the Gujjars of Sariska, determine the effectiveness of the Sariska Model vis a vis other successful models in the country and to suggest possible management interventions for successful relocation outcomes.

Apart from the economic indicators, the psychological well-being, satisfaction level based on the amenities provided to the new relocated sites, the stress levels and other parameters will also be assessed through questionnaire survey and

interviews, to assess whether the risks envisaged by M. M. Cernea in Impoverishment Risks, and Reconstruction Model of 2002, has been eliminated or not. This would help to clear the doubt about social issues in Relocation.

1.3 Objectives

1. Ascertaining the Impacts of relocation on the relocated families of villages earlier situated in the Critical Tiger Habitat of the Tiger Reserve.
2. Analyse the quality-of-life indicators other than the economic indicators (as mentioned in Objective 1) of the families at the relocated sites and inside the forests.
3. Evaluating the efficacy of the Sariska Relocation Model vis a vis other relocation models of important Tiger Reserves in India.
4. Formulation of a Rehabilitation package for assisting the Government of Rajasthan, to meet its stated policy objectives, after comparing the existing Relocation Policies of important Tiger Reserves of India.

1.4. Research questions:

1. What is the current economic status of the relocated families vis a vis families still residing in the Tiger Reserve?
2. Has the conservation induced displacement of villagers, resulted in a better quality of life to the people who voluntarily opted to relocate?
3. With respect to other parameters, other than economies, what has been the

level of satisfaction for the families after relocation from Sariska ?

4. What are the constraints for relocation in Sariska and where does the Sariska Model stand, in comparison to other relocation models in the Tiger Reserves of the country?
5. Can a relocation model be framed for Sariska that is implementable and also acceptable to the stakeholders?

CHAPTER 2: Literature Review

The impacts of villages in a Protected Area, has always been a matter of debate. Nevertheless, biologists always feel the necessity of relocating the villagers from the pristine left area of nature to save the last vestige of the biodiversity. Social Scientists remain skeptical about the relocation process and often are critical about the process of relocation. However, there is enough empirical data to prove that the removal of anthropogenic pressures from wilderness areas have always been positive to the ecosystem.

Glucocorticoid stress responses in the reintroduced tigers in relation to the anthropogenic disturbance owing to villagers in the Critical Tiger Habitat, have been studied during 2011 to 2013 in Sariska Tiger Reserve by *Bhattacharjee, S., V. Kumar, M. Chandrasekhar, M. Malviya,*

A. Ganswindt, K. Ramesh, K. Sankar and G. Umapathy (2015). The research has ascertained anthropogenic disturbance such as encounter rates of livestock and humans, distance to roads and efforts to kill domestic livestock associated with an elevation in fecal glucocorticoid metabolite (FGCM) concentrations in the monitored tigers. It was possible to discern that tiger's FGCM levels were significantly positively related to the time spent in disturbed areas. Resulting management recommendations include relocation of villages from core areas and restriction of all anthropogenic activities in the entire STR.

An assessment of existing literature on relocation, shows that there are 17 in depth studies of resettlement of indigenous people from Protected Areas worldwide

(Brockington and Igoe 2006). The paper by *Daniel Brockington, James Igoe 2006*, mentions that they examined nearly 250 reports from over 180 protected areas, and argued that there has been a remarkable surge of publications about relocation after 1990, yet most protected areas reported in these publications were established before 1980.

Tessema, T. B., M. Jungmeier and M. Huber (2012) study analyses the effects of the relocation of the village Arkwasiye in the Simien Mountains National Park, a most spectacular landscape in the northern highlands of Ethiopia. results indicate that the relocated villagers are satisfied with the new infrastructures and social services. However, relocation has also brought certain disadvantages with far-reaching consequences for the everyday life of the villagers, and thus their livelihoods, as these have led to a considerable loss of earning opportunities and against the aims of the relocation - to intensified grazing in the area.

Lunstrum, E. (2010) in his paper investigates how history and memory are deployed as strategic political resources to justify competing claims to space, in this case the rural village of Massingir Velho slated for relocation and the larger Great Limpopo Transfrontier Park (GLTP) / Mozambique's Limpopo National Park (LNP). Residents of Massingir Velho who are critical of the planned relocation reconstruct a strikingly different history. They draw on intimate place- based and lived memories of two prior displacements to question the legitimacy of the current round of relocation. *McLean, J. and S. Stræde (2003)* presents findings from an analysis of the resettlement program in Royal Chitwan National Park (RCNP). documenting the consequences of the relocation process on people's livelihood and cultural heritage. The results show

that local people have had little influence on the relocation process and park planning. The article challenges the existing conservation paradigm currently practiced by the RCNP and calls for park management to reassess the resettlement policy by initiating new policies toward a more collaborative paradigm integrating conservation and development needs.

Also, apart from *Schmidt-Soltau's (2003)* study of conservation-related resettlement in 12 PAs of Central Africa, none of the studies have attempted to apply any theory or framework to conservation-induced resettlement. In this study, the author has tried to apply Cernea's (2000) Impoverishment Risks and Reconstruction (IRR) model used for development-induced resettlements to the situations arising out of conservation-induced resettlement and concluded that the World Bank Guidelines on resettlement should be strictly followed although this may cause the cost of resettlement to increase substantially.

Margolius et al. (2002) discussed the case of voluntary relocation in Guatemala as opposed to the involuntary relocation which is quite common. They identified land tenure and security, good soil fertility, adequate water availability, road access, appropriate community structure and proper follow-up by implementing agencies as critical factors for success which underlines the essential similarity between all types of resettlements – voluntary, involuntary, development- induced, conservation-induced or war-induced (refugees).

In the Indian context, research papers portray relocation with criticism and also with positive feedbacks.

Snodgrass, J. G., C. Upadhyay, D. Debnath and M. G. Lacy (2016) research suggests that the loss of homeland compromises mental health—and especially the highest level of positive emotional well-being related to happiness, life satisfaction, optimism for the future, and spiritual contentment—in ways not easily repaired by even well-intentioned relocation programs focused on material compensation and livelihood re-establishment.

Ghate, R. (2005) opines that the future of local residents of villages within the Tadoba-Andhari Tiger Reserve in Maharashtra, currently facing relocation, appears uncertain. Even as the reserve has been conferred the status of a national park, local residents, however, have had little say in deciding their own relocation, whether on matters of livelihood security, availability of amenities such as water and electricity, or education. In another article *Shahabuddin et.al. (2005)* examined the renewed efforts at relocation of villages from Sariska and opines that there is lack of dialogue and poor planning which may cause another failure of relocation in Sariska. *Kabra (2003)* examined the impacts of relocation on Sahariya tribes displaced from Kuno Wildlife Sanctuary. It was noted that the forest dwellers depended to a large extent on CPRs for their livelihood and relocation reduced their access to these CPRs. It concluded that a majority of the relocated households transitioned from poor but largely self-sufficient agriculturalists and hunter-gatherers to highly insecure marginal farmers and itinerant wage laborers.

Sekar, N. (2016) study in Melghat Tiger Reserve suggests that strong implementation of free, prior and informed consent (FPIC) and state responsiveness

post-relocation are both necessary to safeguard forest-dwelling people from disadvantageous relocations. *Hussain, A., S. Dasgupta and H. S. Bargali (2016)* examines the perceptions and attitude of the semi-nomadic pastoral community —Van Gujjarsl on the use and conservation of natural resources in Corbett Tiger Reserve, India. In this research article, in-depth interview and questionnaire data (n = 340) about demography and perceptions were examined from both qualitative and quantitative information. *Mahapatra, A. K., D. D. Tewari and B. Baboo (2015)* examined income and poverty profile of tribal residents in Simlipal Tiger and Biosphere Reserve in India, relative to the households relocated out of the reserve. . The results contradicted common perception about impoverishment outcome of relocation. It showed an increase in the per capita income for poorer segments with an overall 8 % increase in absolute household income and corresponding improvement in the poverty ratio (head count ratio) and FGT index (0.241) for the relocated community

Beazley, K. (2009) investigates the year leading up to the relocation of Botezari village from Tadoba-Andhari Tiger Reserve, India, and suggests that it does not accord with the conventional scholarly theory of the powerless outsee. The village's pre-relocation phase was characterized by genuine local openness to displacement; a socially-aware displacement authority; lively NGO and press presence; and a relatively assertive and astute village community.

Lasgorceix, A. and A. Kothari's (2009) paper provides brief case studies of displacement (past, ongoing, or proposed) from protected areas, number of villages/families displaced, the place where these villages/families were relocated to, governance of the relocation process, and the kind or nature of relocation (voluntary,

induced or forced). It finds that not even a single study shows the ecological costs and benefits of relocation, comparing what happens at the old site to what happens at the rehabilitation site. This is a shocking gap, given that relocation is always justified from the point of view of reducing pressures and securing wildlife habitats.

Karanth, K. K. (2007) analyzed a relocation and resettlement project in India's Bhadra Wildlife Sanctuary. He examines the relocation experience of 419 households who moved to two villages located outside the reserve. Four years after relocation, all households have access to electricity, water, schools, health care, transportation, and communication facilities. Many households have increased their income and assets. Yet, there were differences between the two different- resettlement villages, with one of them faring better in terms of economics, hardships, and uncertainty. This paper draws out insights important for improving conservation practices related to resettlement efforts. It documents short to mid-term successes and challenges that affect the communities involved.

Ghazala, S., K. Ravi and S. Manish (2007) suggests more participatory and rational ways to deal the issue of relocation in Sariska and appraises the role of village relocation as a management tool for identifying the aspirations of the proposed outsees in relation to the proposed outsees. *Shahabuddin and Shah (2003)* reporting on a seminar on the issue noted that one needs to have a more objective assessment of both the achievements as well as problems in PA management in general and relocation of people in particular. The various stakeholders (PA managers, researchers, and people) should share information and be open to alternative approaches.

Jain, P. and H. Sajjad (2015) has empirically analysed the identified factors influencing local communities' willingness in getting relocated outside the STR using logit model. Results revealed that —restriction of access and —market access are the most influential factors and positively associated while forest dependency is negatively associated with local communities' willingness.

Torri, M. C. (2011) presents findings from an analysis of the resettlement program, documenting the consequences of the relocation process on people's livelihood in the Sariska Tiger Reserve, Rajasthan, India. The results show that local people have had little influence on the relocation process, and hardly any say on the limitations of access and use of resources linked to the constitution of this protected area.

Mandal et. al. (2024) highlighted the challenge of human settlements within India's tiger reserves and proposes a strategic framework to prioritize village relocations for optimal conservation outcomes. The study stressed that approximately 666 villages located within the core areas of tiger reserves, relocating all is neither feasible nor cost-effective. The study emphasizes the necessity of prioritizing villages for relocation to maximize conservation benefits. Additionally, the authors developed a multi-level framework to prioritize village relocations by setting national, landscape, and site-specific goals.

Mathur, 1991 demonstrated that habitat composition is an all-important factor in large herbivore biology and that animal density may be used as an indicator of habitat quality. *Sankar, 1994* studied the ecological relationships of three large sympatric herbivores with special reference to the management of Sariska TR.

CHAPTER 3: Study Area

3.1. Extent and Legal Status

Nestled in the world's oldest Aravalli mountain ranges, Sariska Tiger Reserve is the westernmost limit of the Tiger distribution in India. The Sariska Tiger Reserve (STR), ($76^{\circ}17'E$ to $76^{\circ}34'E$ and $27^{\circ}5'$ to $27^{\circ}33'N$) is situated in the Aravalli and lies in the semi-arid part of Rajasthan.

Prior to the formation of the state of Rajasthan, these forests were part of the princely state of Alwar and were managed as hunting reserves. Following India's independence, the forests came under the jurisdiction of the Government of Rajasthan. The Reserve Area was officially declared under Section 5 of the Rajasthan Wild Animals & Birds Protection Act, 1951, through Notification No. F.39(2)For./55 dated November 7, 1955, and published on November 19, 1955. 492 sq. kms of the Reserve was notified as Sariska Wildlife Sanctuary through Notification No. No. F39(2) Rev.-A/54 dated 5th August 1958. Sariska was included in the list of Tiger Reserves by Government of India in 1978 as the 11th Tiger Reserve. In 1982, an area of 274 sq.km was declared as Sariska National Park vide Preliminary Notification NO. F11 (22) Raj-8/78 Jaipur Dated 27th August 1982 under Wild Life Protection Act 1972 (Central Act No. 53) section 35 (1).

The total Area of the Tiger Reserve is 1213.33 sq. kms with a CTH of 881.11 sq. kms and a buffer of 332.22 sq. kms.

3.2 Topography, Drainage and Geology

Sariska TR is characterized by rugged terrain, valleys and plateau with the altitudinal variation from 540 m to 777 m. The two main plateaus are Kankwari (524 m) and Kiraska (592 m). The most remarkable characteristics of the hills are their homogenetic regularity of height, level summits and uniform appearance, stretching out from northeast to south-west (Soni 2000).

The Ruparel River runs through the middle of the Tiger Reserve in North South direction. The drainage from most areas of the northern portion of the Tiger Reserve including Bandipul stream flows into the Ruparel River, while the drainage of the southern part of the Tiger Reserve flows into the Mansarovar Lake. Major part of the area is occupied by rocks of Delhi system and Aravalli system comprising of quartzites, conglomerates, grits, Limestone, phyllites, granites and schists (Pascoe 1950). Most of the high ridges are comprised of quartzites, conglomerates and grits. Evidences of lava conglomerates are also occasionally seen. These ancient crystalline and metamorphic rocks with gneiss and schists etc. are generally covered by red sandy soils. Red soils are poor in nitrogen, phosphorus and humus contents and alkaline in nature. There are comparatively rich, fertile and dark coloured soils in plains and river valleys. The depth of soil layer is more than 1 m in valleys, whereas it is only a few centimetres deep on the hill slopes. The soil is sandy loam and alkaline with pH varying from 7.25 to 8.00 (Yadav and Gupta 2006).

3.3. Climate

Sariska Tiger Reserve is characterized by sub-tropical dry climate with distinct winter (November-February), summer (March-June), monsoon (July- August) and post-monsoon (September-October) seasons. The highest temperature (above 47°C) is recorded in May-June and the lowest (up to 20°C) in December-January. The bulk of the precipitation is from South West monsoon and occurs during the months of July to September. Average annual rainfall recorded is 650 mm (Sankar 1994). The rainfall during the period from June-September constitutes about 92% of the annual rainfall. The relative humidity is generally low in most parts of the year; it becomes as low as 10 to 15 percent during summer months. However during the rainy days the relative humidity goes over 60%.

3.4. Vegetation

The vegetation of Sariska TR correspond to (1) Northern tropical dry deciduous forests (subgroups 5B; 5/E1 and 5/E2) and Northern Tropical Thorn Forest (subgroup 6B) (Champion and Seth 1986). *Anogeissus pendula* is the dominant tree species covering over 30% area of the forest. *Boswellia serreta* and *Lannea coromandelica* grow at rocky patches. *Acacia catechu*, *Butea monosperma* and *Zizyphus mauritiana* are common in the valleys. *Dendrocalamus strictus* is extremely limited in distribution and is found along well drained reaches of the streams and moist and cooler parts of the hills. *Albizia lebbek*, *Diospyros melanoxylon*, *Holoptelia integrifolia* and *Ficus sp* are found in moist localities (Sankar 1994). A number of exotic invasive species have become common in the heavily grazed areas of the

Reserve, such as the annual herb *Cassia tora* and the short-statured tree *Prosopis juliflora*. *Adhatoda vasica*, though a native under storey species, has become very common in disturbed and overgrazed areas, and appears to suppress grass and other native herbaceous species.

Parmar (1985) and Rodgers (1985) have classified vegetation of Sariska TR as follows:

1. *Anogeissus pendula* forest
2. *Boswellia serrata* forest
3. *Acacia catechu* forest and
4. *Miscellaneous forest*, which is further sub-divided into three categories viz.
 - a) *Butea monosperma* forest
 - b) Forest along nallas and
 - c) Scrub land

3.5. Fauna

The large carnivores found in Sariska Tiger Reserve include Tiger (*Panthera pardus*), leopard (*Panthera pardus*) and hyena (*Hyena hyaena*). Smaller carnivores include jungle cat (*Felis chaus*), ratel (*Mellivora capensis*), palm civet (*Paradoxurus hermaphroditus*), small India civet (*Viverricula indica*), common mongoose (*Herpestes edwardsii*), small Indian mongoose (*H. auropunctatus*) and ruddy mongoose (*H. smithi*). In 2009, desert cat (*Felis sylvestris*) was reported from Sariska (Gupta *et. al.* 2009). Till 2004, tigers survived in most parts of the Tiger Reserve but, unfortunately, poaching exterminated this animal from Sariska Tiger Reserve.

National Tiger Conservation Authority, New Delhi, Wildlife Institute of India, Dehradun and the Rajasthan State Forest Department, in their joint effort, reintroduced eleven tigers from Ranthambore Tiger Reserve to Sariska Tiger Reserve during 2008-2019 and due to good conservation efforts the present population has crossed 50.

The wild ungulates of the park are spotted deer (*Axis axis*), sambar deer (*Rusa unicolor*), nilgai (*Boselephous tragocamelus*) and wild pig (*Sus scrofa*). Common langur (*Seminopithecus entellus*) and rhesus macaque (*Macaca mulatta*) are the two primate species found. The other smaller mammals found are rufous tailed hare (*Lepus nigricollis*), pangolin (*Manis crassicaudata*) and porcupine (*Hystrix indica*). Due to presence of villages inside and on the periphery a large variety of domesticated animals also occur within the park. These include buffalo (*Bubalus bubalis*), cow (*Bos indicus*), goat (*Capra hircus*), sheep (*Ovis aries*), camel (*Camelus dromedarius*), dog (*Canis Familiaris*) and domestic cat (*Felis domesticus*).

Eleven species of small rodents were captured during the present study. Indian gerbil (*Tatera indica*), Indian bush rat (*Golunda ellioti*), spiny tailed mouse (*Mus platythrix*), house mice (*Mus musculus*), little Indian field mice (*Mus booduga*) long tailed tree mouse (*Vandeleuria oleracea*), sand colored Rat (*Millardia gleadowi*), soft fur field rat (*Millardia meltada*), brown rat (*Rattus norvegicus*), house rat (*Rattus rattus*) and pygmy gerbil (*Gerbillus nanus*) are the potential prey for small carnivores found in Sariska.

Sariska also holds a variety of bird species including some winter migrants. Sankar *et al.* (1993) recorded 211 species of birds, of which 120 resident, 73 were

migrant visitors and 18 considered as vagrants. It has very high density of peafowl as well as grey francolin (Kidwai 2008).

Though there is no perennial river or water stream, there are a number of ephemeral streams and pools found in Sariska Tiger Reserve. Except for a few natural springs, water in these locations dries up in summer (Sankar 1994). The common fish species found in water bodies in this park are *Noemachilus botia*, *Labio boggut*, *Puntius sarana*, *Garra gotyla* and *Rasbora daniconius* (Ajith kumar and Sankar 1993).

3.6: History and Past Management

Sariska is a relic of the past. The Pandavas of Mahabharata are said to have passed the secret year of their exile in the forests of the Matsya King Vairata and Pandupole. It conceals the medieval history of the Moghuls and the Maharajas in the forts of Kankwari & Bhangarh, Sariska Palace and the Shikar Oudhies. Sariska is a land visited by Akbar and Jahangir for hunting tigers and panthers. Dara Shikoh was kept in exile by the Mughal ruler Aurangzeb, in the Kankwari fort in the heart of Sariska forests.

Sariska was a part of the Alwar Princely State and was managed as a hunting reserve. It preserved and housed the majestic Tigers and Leopards and is the westernmost limit of tiger distribution in the country. The rulers of Alwar protected and managed these areas through a separate Shikarkhana with Shikarpaltans and the British were invited for shooting the majestic Tigers and leopards. Shooting blocks in Sirawas, Siliserh, Khoh, Ajabgarh, Rampur, Narainpur and Akbarpur were permitted for hunting by DFO Bharatpur, in the second fortnight of the month for a mere 95 rupees for a Tiger and 55 rupees for a Leopard.

The Dhok and Khair forests were felled repeatedly, on rotational basis in the name of management, objective being the forest revenue. Prior to 1900, Sariska was managed as Roondhs (Grass reserves) and Banis (Fuel and Game preserves) Departments. Under the charge of the first forest officer of the Alwar State, Mr F L Coombs, these Departments were merged into the Forest Department in 1903. He proposed working plans and felling of timber under Selection system and for firewood under Coppice with Standards (CWS) system among other prescriptions. Later different silvicultural prescriptions institutionalized the CWS system where, 15-20 Dhok trees per hectare were left as 'standards' to serve as seed bearers to ensure regeneration and supplement coppice regeneration while also replacing the trees that had exhausted their coppicing vigour by repeated cut back. Annual Coupes were marked by officers and staff for firewood, charcoal and katha, which resulted in exploitation and degradation of the best and easily accessible forests by private contractors.

Sariska's green forests were spared the axe only after 1970s, even though it was declared a Reserve Area in 1955 for approx.100 sq.kms. and upgraded to a Sanctuary in 1958. In 1978, Sariska was included in the list of Tiger Reserves by Project Tiger, 5 years after Ranthambore.

3.7: Settlements

There were 29 villages located inside the STR, out of which 11 were situated in the preliminary notified National Park area. About 10000 people in these villages along with 19132 livestock, live inside the Sariska Tiger Reserve (STR). Five villages have been relocated outside the Tiger Reserve and 6 are under progress. Villagers in

Sariska Critical Tiger Habitat depend totally on forests for their livelihood. These people are traditional pastoralist communities who graze their cattle in forest areas. Traditionally a pastoralist community, their main source of income is selling milk and its products like —Mawa & Ghee. The economy of villagers of Kankwari, Kiraska, Lilunda and Kundalka is totally dependent on animal husbandry, while villagers of Dabli, Sukola and Haripura also work as daily wage laborer in adjoining areas. More than 80% of the income of an average household still comes from the sale of milk, mawa & ghee, while 20% comes from their secondary occupations like daily laborer, drivers, farmers, govt. service etc. The villages like Dabli, Deori and Raikamala (located on the boundary of the reserve), being revenue villages have some agricultural land in core area, where they mainly grow wheat, corn, oat, mustard and gram. The economy literally subsists on the edge.

3.8: Intensive Study Area:

The present study was conducted in the villages within the tiger reserve and the relocated sites outside the tiger reserve for families who opted for Option I (Cash Package) and Option II(Land Package) and an unrecognized package-Hybrid, located in the 5 relocation sites.

Chapter 4: Impacts of relocation on the relocated families of villages earlier situated in the Critical Tiger Habitat of the Tiger Reserve.

4.1. Introduction: Relocation in Sariska

In the First Management Plan of Sariska Tiger Reserve approved by Chief Wildlife Warden, Rajasthan, Padam Shri Kailash Sankhala (1978-1982), mention has been made about the relocation of two guadas- 'Kalighati and Slopka in 1966-67, to the existing villages. The use of relocation as a PA management tool, took a more organized form in 1976, when relocation of villages, Karnakawas and Kiraska took place. The land was identified at Bandipul, Dulawa and Sirawas but several relocated families returned to resettle close to an existing village Kundalaka, where they established a new village- Naya Kundalka. Sariska Tiger Reserve witnessed relocation of village Kiraska in 1976 to Sirawas but due to ill-conceived displacement policy, the villagers returned to the Kiraska mala, putting a jolt to the efforts for the next 31 years, when Bhagani was relocated in 2007. Out of the 29 villages inside the Critical Tiger Habitat (CTH) of the Sariska Tiger Reserve, 5 villages (Bhagani, Umri, Rotkela, Panidhal and Dabli) have already been completely relocated, 11 villages are being considered for relocation on priority basis. Out of 11 villages in the CTH, one village Bhagani was relocated in 2007-08. Later Umri in 2011, Rotkela in 2012-13, Panidhal and Dabli in 2020-21, were shifted. The families were relocated under Option I (Cash Package) or Option II (Land Package) or an unrecognized Hybrid package (combination of both). Some families have been relocated to forest lands/revenue lands, outside the Tiger Reserve, whereas many had opted for 10 lakhs/15 lakh cash

package (Option II) and purchased khatedari lands and shifted as per their livelihood convenience.

After the failure of relocation attempt in 1976, when Kiraska returned back to their original village in Sariska from Sirawas in 1976, relocation re-started in 2006, as it was set as a pre-requisite for tiger reintroduction after all the tigers were exterminated till 2005. Consequently, as stated above relocation of the 1st village started in 2006 and was completed in 2007. Till 2025, 5 complete villages (322 families) have been relocated and 6 partial villages (719 families) have been relocated under Option I and Option II. Out of the 1041 families relocated out of 1471, 508 families have been relocated under Option I (Cash Package) and 533 under Option II (Land package).

S. No .	Village Name	Total Families	Consent given			Consent not given	Family relocated till Nov 2024	Year of relocation
			Option I	Option II	Total			
Completely Relocated Villages								
1	Bhagani	21	0	21	21	-	21	2007-08
2	Umri	93	39	54	93	-	93	2011-12
3	Rotkyala	52	49	3	52	-	52	2012-13
4	Panidhal	24	0	24	24	-	24	2020-21
5	Dabli	132	118	14	132	-	132	2020-21
	Total	322	206	116	322	0	322	
Partially Relocated Villages								
6	Sukola	64	17	25	42	22	42	2009
7	Kraska	210	132	38	170	40	131	2011
8	Devri	191	73	26	99	92	95	2011
9	Kankwadi	173	41	104	145	28	145	2008
10	Haripura	78	10	46	56	22	50	2011
11	Loj Nathusar	123	16	107	123	0	121	2022
		310	16	229	245	65	135	2023
	Total	1149	305	575	880	269	719	
Grand Total		1471	511	691	1202	269	1041	

Table 4.1: Progress of Relocation in Sariska Tiger Reserve till 2025

RELOCATION VILLAGE MAP OF SARISKA TIGER RESERVE

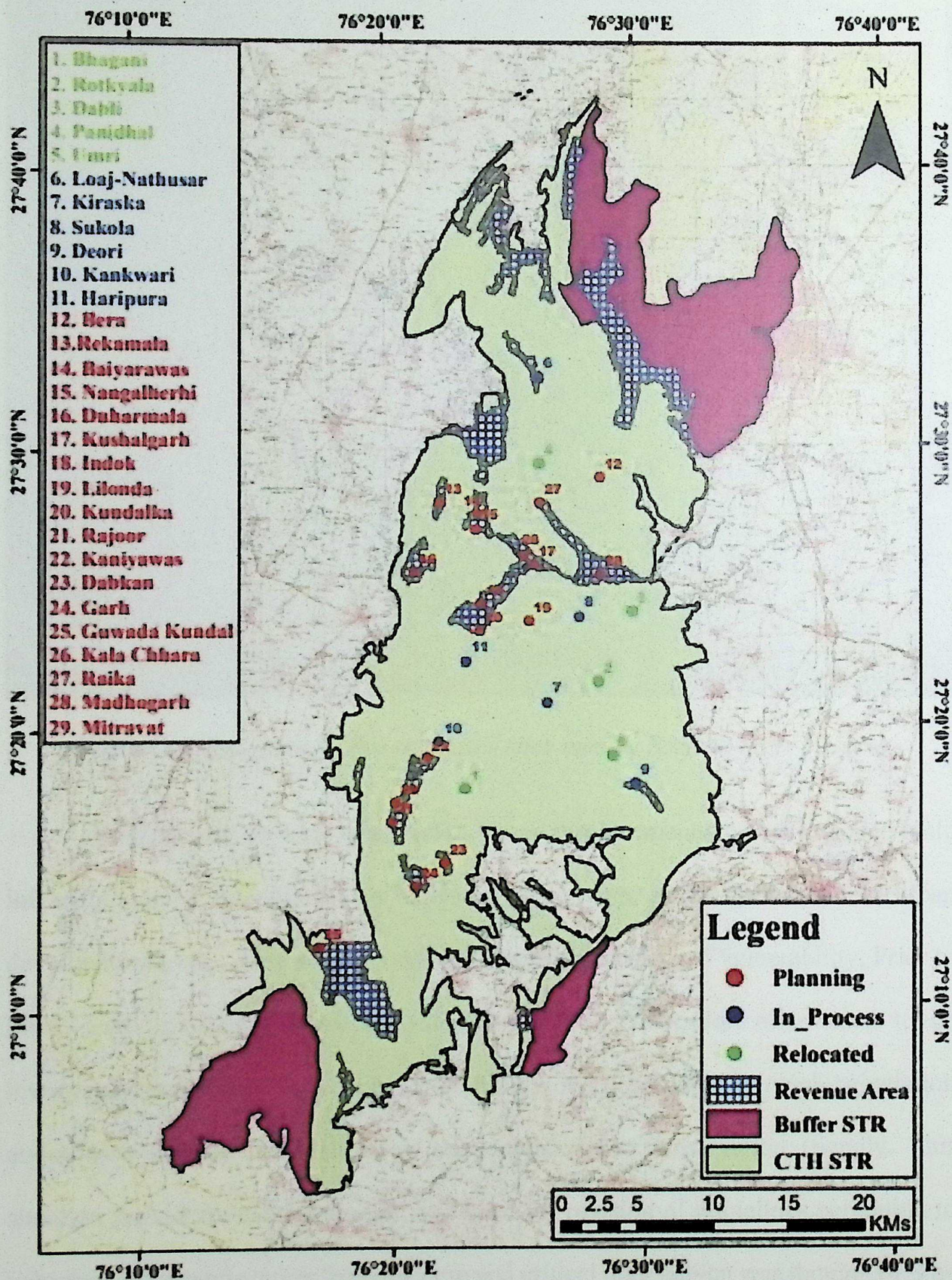


Figure 4.1: Relocation Village Map of Sariska Tiger Reserve

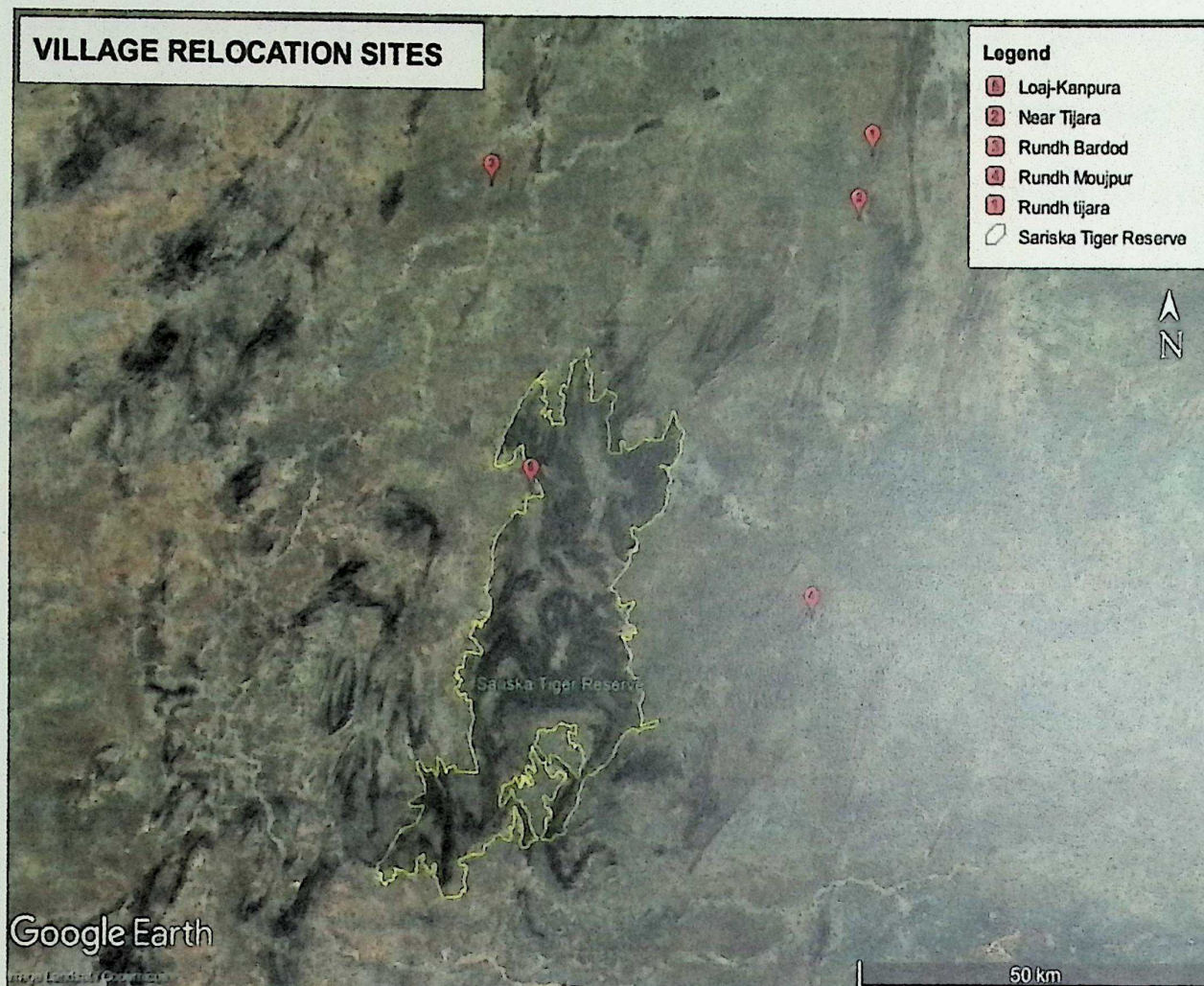


Figure 4.2: Location of five relocated sites outside Sariska Tiger Reserve

Displacements which were earlier forced displacements from the need to build infrastructure for new industries, irrigation, highways, power generation or urban developments, etc., were prone to risks of impoverishment and vulnerability. Prior to 2008, even conservation induced displacements or relocation often used to be involuntary in effect, where people were hardly in a position to do much negotiation about their choices. This situation was anything but conservation friendly. This situation provided food for thought and need for revision of guidelines pertaining to voluntary village relocation from the core and critical tiger habitat was thought of. The major paradigm shift in the policy was that relocation was made voluntary from tiger

reserves unlike development induced relocation where still, choice of people hardly matters. This was a unique feature which was considered to be conducive for conservation per se. Hence, it is important to study the impact of relocation on the lives and livelihood patterns of these families, having voluntarily consented to move out of the Tiger Reserve for a better living.

Cernea (2002) in his Impoverishment Risks and Reconstruction Model for Resettling Displaced Populations (IRR) identifies eight impoverishment risks that may result from relocation, namely (1) Landlessness; (2) Joblessness; (3) Homelessness; (4) Marginalization; (5) Increased morbidity and mortality; (6) Food insecurity; (7) Loss of access to common property resources and (8) Social disarticulation. Though the model was prescribed for involuntary displacements, but the components were found relevant to be used for assessment w.r.t. voluntary relocation in Sariska and was tested through the survey questions, to evaluate whether the risks have been eliminated or not. After implementation of the new package, whether the envisaged goals of better economic upliftment, better access to health, education and living standards, were fulfilled or not, have not been studied systematically and is a matter of setting up different research. The current status of those who chose to go for the option of relocation from the area where they were for a very long time, to an entirely new place must have brought significant changes in their life. Whether this process has yielded a positive result or negative or a mix of both, needs a comprehensive analysis. The findings of this study will pave the way for future relocation plans. The study is likely to provide a desired insight which can foster future planning by taking into account the boon and bane of the process. This will be helpful in designing the process in a

way in which it can provide maximum benefit to the field of conservation without antagonizing people.

4.2. Objective

The objective of this chapter is to ascertain the Impacts of relocation on the relocated families of villages earlier situated in the Critical Tiger Habitat of the Tiger Reserve.

4.3. Methodology:

Primary data on sources of livelihood, number of earning members, secondary occupations, income and expenditure estimates, assets and infrastructure, of relocated families was collected by questionnaire-based survey using semi-structured, unstructured and focus group interviews having open-ended and close ended questions. The data collected from the respondents through questionnaire survey and focused interviews from relocated families under Option I (Cash package), Option II (Land package) and Hybrid option (combination of land and Cash packages within families) were analysed for the different social and economic parameters. The TR Management maintained records of Option I and Option II but there was no record of the mix model of Option I and Option II, which has been termed as Hybrid Model for the purpose of research. Out of 508 families opted for Cash Package and 533 opted for Land package, families were selected proportionately from these 2 packages.

4.3.1 Sampling of Relocated Villages

As per information provided, a total of 11 villages have been relocated (5 completely and 6 partially). 1041 families have been voluntarily relocated from the core or critical tiger habitat of Sariska Tiger Reserve since 2007 to 2025 at 5 locations (Nangli Rund, Mojpur Rund, Tijara, Loj Kanpura and Maliyarjat) under the Option II (Land package) and numerous locations as per their own selection, under Option I (Cash package) .

Families have been selected in random, without any bias. In order to ensure a confidence level of more than 90% and margin of error less than 10%, a total of more than 100 families needed to be selected as sample. The target of 10.4 % families has been carried out to get statistically relevant data for analysis and inferences.

To select the respondent randomly from each relocated village, the total number of families in that relocated village (10.4%) was selected proportionately at every site and the families were surveyed by identifying a specific serial number, say 16 and its multiples in a list prepared by the Department. In some cases, minor adjustments had to be made and there were certain departures from the select list owing to the death of the person so selected, or due to non-availability of the respondent concerned with very fewer chances of finding him/her on another occasion.

In the study, the primary source of information is the villagers who got relocated voluntarily under the NTCA scheme. Initially, the questionnaire survey was thought of, but while validating the questions, it became apparently clear that the said method would not be helpful in extracting the desired information as the target population was mostly illiterate. Hence, structured interview schedule was also

considered to be a more prudent approach to seek the opinion of stakeholders as an elaborate explanation would have been required to let the proper understanding of what information is actually required. The main purpose of the interview schedule was to extract information on social, economic and ecological aspects. More than 75 questions were framed in a manner to so as to cover the pre-and post-relocation status of the villagers from satisfaction related to health, education, emotional well-being, happiness, daily schedule activity change, income change, societal coordination, and many other factors. While framing questions, objectives of the study were kept in mind.

Assessing satisfaction level

To assess the perceived satisfaction level of the target population at the relocated sites (including Option I, Option II and Hybrid package) regarding the choice of getting relocated and the process of relocation, opinion was sought from the respondents .

Assessing economic level

To assess the economic status of the respondents, information was sought on their annual income before and after relocation, including the infrastructure created at the relocated site, to assess the decrease/increase in income.

Total income of respondents was arranged under five income classes-

(i) Below Rs. 50000, (ii) Rs.50001-100000, (iii) Rs. 100001-200000, (iv) Rs. 20000-300000, (v) Above Rs.3, 00,000. This was done keeping in view that the rural population hardly opens up about their income and most of the times; they are also not in a position to assess their exact income. It is easier to tell about the range of income, which was also assessed through informal discussions understanding the productivity

and market value of the produce (milk/crops, etc.,)

Assessing ecological contribution/ impact

Besides secondary source of information, endeavor was put to come out with certain primary information from the respondents on parameters like number of cattle they were having while residing inside the core or critical tiger habitat and number presently after relocation, type of fuel used for cooking before and after relocation, in order to assess the biotic pressure faced by the forest and wildlife habitat. Questions on daily activity schedule to assess the shift/transition was also asked and analysed.

4.3.2 Distribution of Families across package Types:

5 relocated villages outside Sariska (Bardod, Tijara, Mojpur, Lojkanpura and Malyarjat) for Option II families, and proportionate families under Option I, dispersed in the revenue villages, were selected for the survey. Questionnaire survey was done by deploying local field assistants from the relocated villages, for 108 families. 44 families (41%) selected from Option I, 49 families (45%) from Option II and 15 (14%) families from Hybrid.

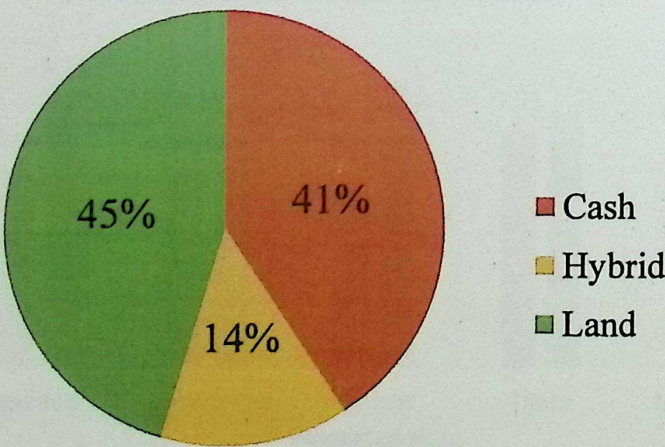


Figure 4.3: Distribution of families across package types

4.4 Results and Discussions

4.4.1 Responses of Satisfaction levels across packages:

Based on the survey and feedback of the respondents across the 3 package types, data revealed the satisfaction levels of the relocated families, based on the score in a scale of 1-10, 1 being the lowest and 10 being the highest level of satisfaction for pre-relocation and post-relocation phases.

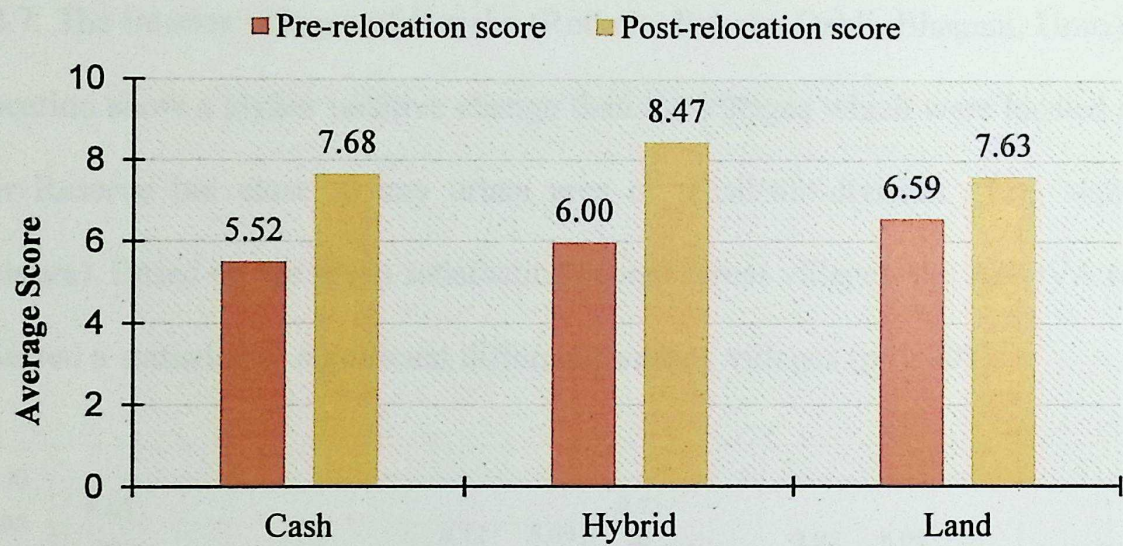


Fig 4.4: Comparison of Satisfaction levels across packages

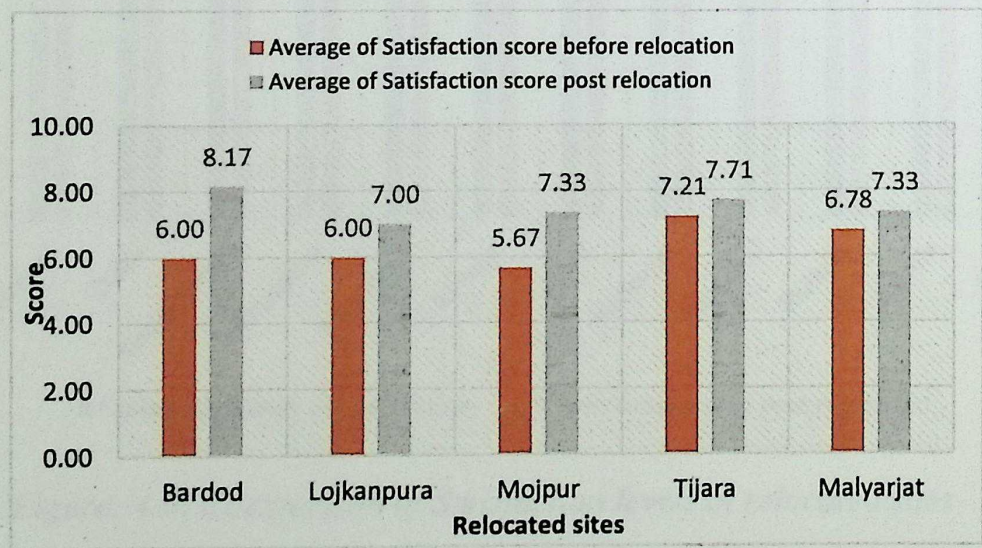


Fig 4.5: Comparison of Satisfaction levels across priority villages

The Hybrid Families exhibit highest level of satisfaction of 8.47/10 with an increase of 41.6 % from pre-relocation phase to post-relocation phase. Cage and Land package families opined with a satisfaction score of 7.68/10 and 7.63/10, with an increase of 39.1% and 15.78 % from pre-relocation to post-relocation phase.

The satisfaction score of 11 villages (5 complete and 6 incomplete) settled at different locations exhibit high level of satisfaction from a score ranging between 7.2 to 8.7. The interior villages of Sariska (Rotkela, Sukola, Dabli, Bhagani, Umri) after relocation show a higher positive change than the villages which were located in the tiger Reserve but close to any urban area or tehsil/sub-division. (Loj, Nathusar, Haripura). Based on the mean satisfaction scores across villages, the ANOVA results indicated a statistically significant difference among villages ($p=0.001$)

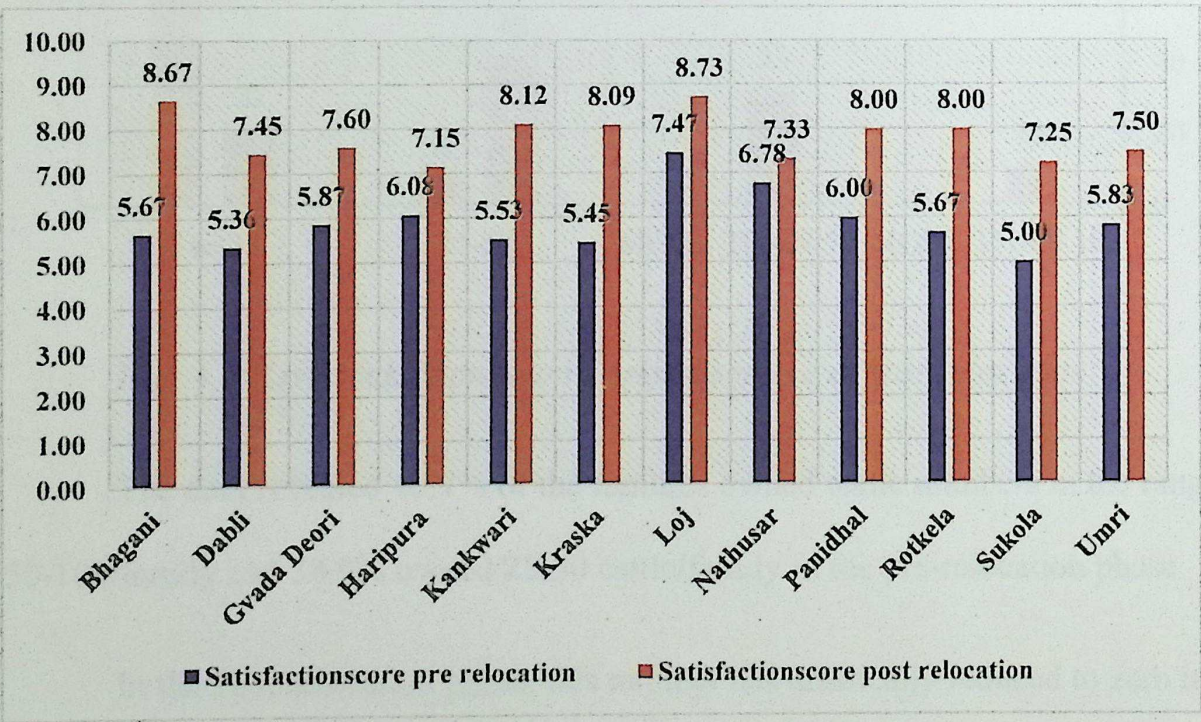


Figure: 4.6: Comparison of Satisfaction levels at relocated sites

The results indicate a preference for Bardod with highest satisfaction score., closely followed by, Tijara Malyarjat, Mojpur and Loj Kanpura in decreasing order of

satisfaction, based on the degree of difficulty of facilities at each site.

4.4.2. Comparison of livestock population:

As elaborated earlier, the villagers in Sariska are mainly pastoralists, residing on forest lands with no land of their ownership and free access to the forest resources as forest dwellers with large number of cattle, which was mainly used for milk, milk products (mawa for sale).

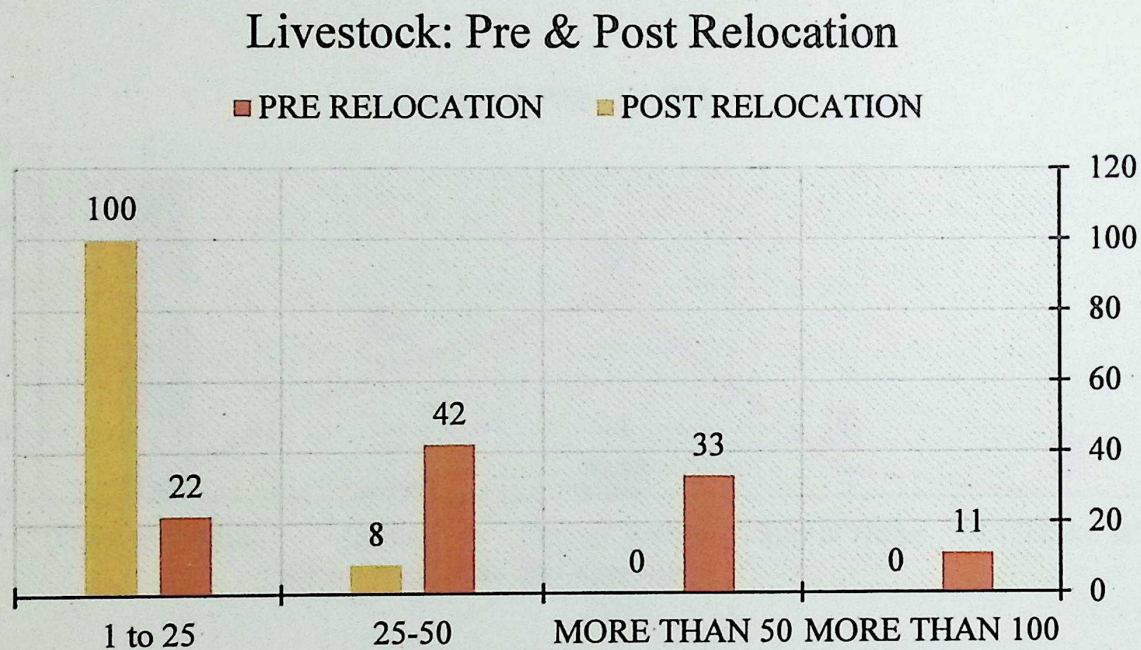


Fig: 4.7: Livestock Population Comparison pre & post-relocation

The data revealed 40.7% of the families owned cattle numbers in the range of 50-100/family and 38.9% owned 25-50 cattle/family in the pre-relocation phase.

In the Post-relocation phase, this number has drastically reduced to zero in the range of 50-100 cattle /family. 92.6% families own very less number of cattle in the range of 1-25 cattle/family.

4.4.3. Comparison of Daily Activity Schedule:

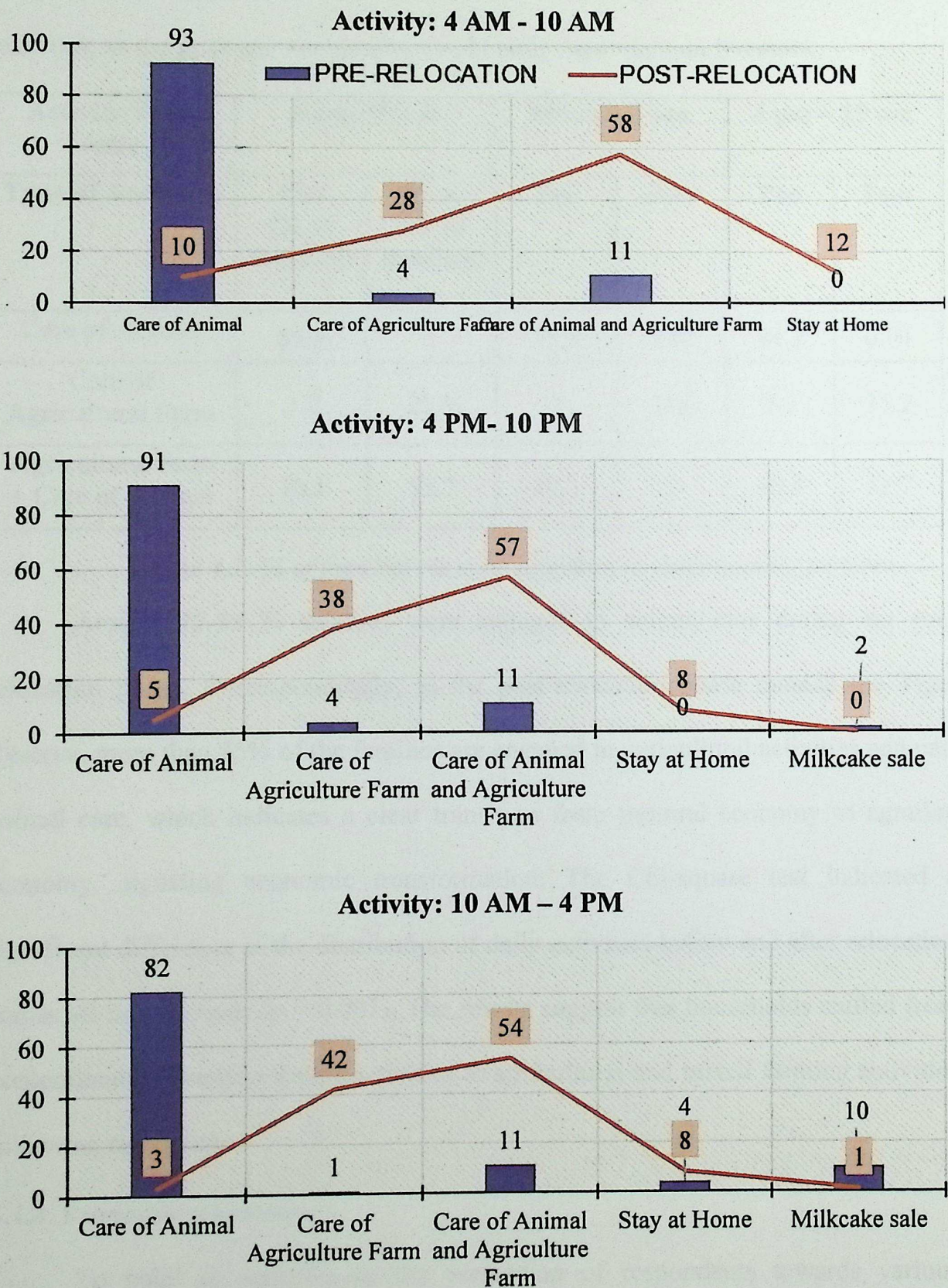


Fig: 4.8: Comparison of Daily Activity schedules (4AM – 10 PM)

The daily Activity Schedule of the families surveyed clearly indicated that in the pre-relocation phase most of the families were engaged in animal husbandry activities, as the principal occupation was heavily dependent on livestock.

Activity Time scale	4 am- 10 am		10 am – 4 pm		4 pm – 10 pm	
Type of Activities	Pre (% of families)	Post (% of families)	Pre	Post	Pre	Post
Care of Animal	85.2	1	75.9	0.02	84.2	0.04
Care of Agricultural Farm	3.7	25.9	1	38.8	3.7	35.2
Agricultural farm + Care of Animal	10.1	53.7	10.1	50	10.1	52.7

Table 4.2: % of families vis a vis activities in daily activity patterns

Around 75-85 % families were engaged in animal care during the pre-relocation phase. Correspondingly, in the post-relocation phase outside the Tiger Reserve, more than 85% of the families are engaged in agricultural activities and part animal care, which indicates a clear transition from pastoral economy to agrarian economy, signaling economic transformation. The Chi-square test indicated a significant difference in the distribution of daily activities before and after relocation across all time periods ($p < 0.001$). The results suggest that households shifted from predominantly livestock-based activities to agricultural and mixed farming activities following relocation.

4.4.4. Economic transition:

To build an opinion on the perception of respondents towards various parameters pertaining to the economic aspects, responses were invited from the

relocated families on issues like their annual income before and after voluntary relocation, employment opportunities available to them including earnings,

INCOME GROUP	PRE-RELOCATION	POST-RELOCATION
<3,00,000	41.7%	28.7%
3,00,000- 6,00.000	57.4%	49.7 %
6,00,000- 9,00,000	0.9%	19.4%
9,00,000- 12,00,000	0 %	2.7%

Table 4.3: % distribution of families in different income groups pre & post-relocation

Chi-square analysis revealed a statistically significant change in the distribution of household income following relocation (p =0.000021). The proportion of households in higher income groups increased substantially, indicating an overall improvement in economic status after relocation.

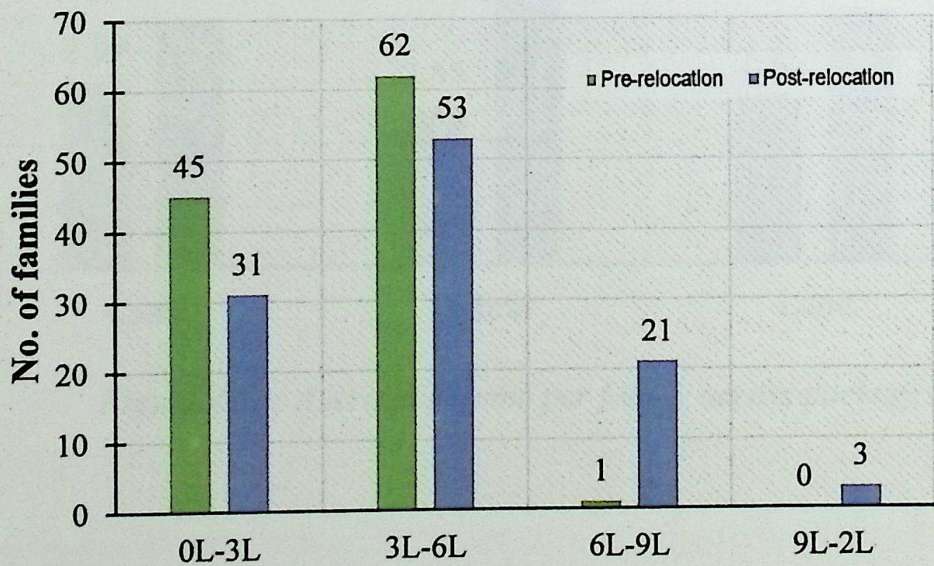


Figure 4.9: Number of families in different income groups

A significant change is visible in the annual income of the population after relocation. While the majority (57.4%) of the population was falling in the middle-

income group category i.e. income between Rs. 3 lakhs to 6 lakhs, prior to relocation, the percentage decreased slightly to about 49.1%.

The marked decrease was found in the lowest income group of below 3 lakhs (41.7% in pre-relocation to 28.7% in post-relocation phase). The most striking increase in income was ascertained in the income group of 6 lakhs to 9 lakhs in the post relocation phase, wherein 19.4 % crossed to this income level, signifying good economic jump. 2.7 % of the families crossed to a new income group of over 12 lakhs, which was non-existent in the pre-relocation phase. The income status showed an immensely positive improvement testifying the positive role of relocation strategies in families joining the mainstream of development.

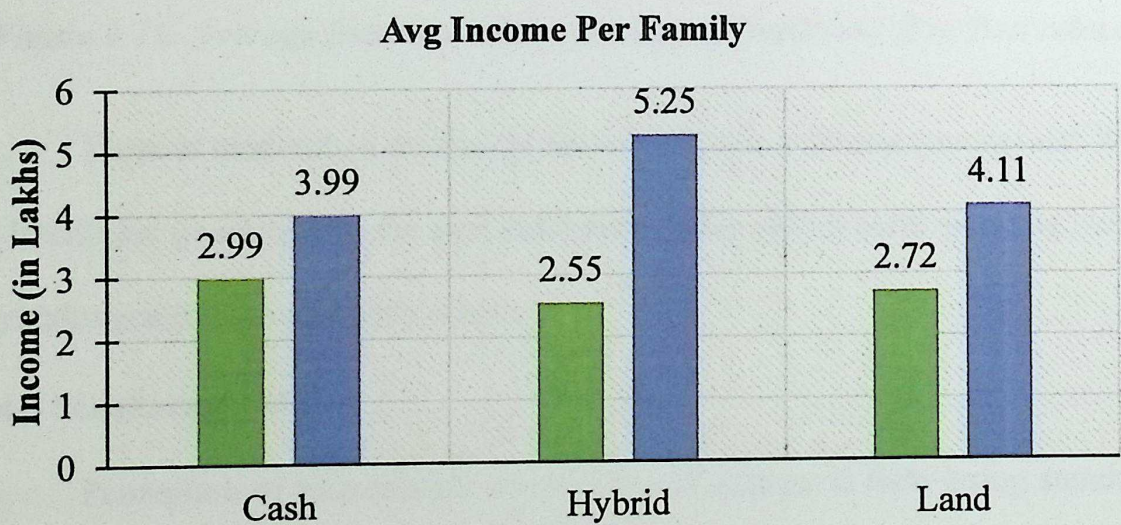


Figure 4.10: Average Income per family across packages

The average income per family in the Hybrid families (Rs.5.25 lakhs/family) is highest compared to Option I (Rs.3.99 lakhs/family) and Option II (Rs.4.11 lakhs/family) packages. The income surge shows a 105% increase in hybrid families, 33.4% in Option I families and 51.1% in Option II families.

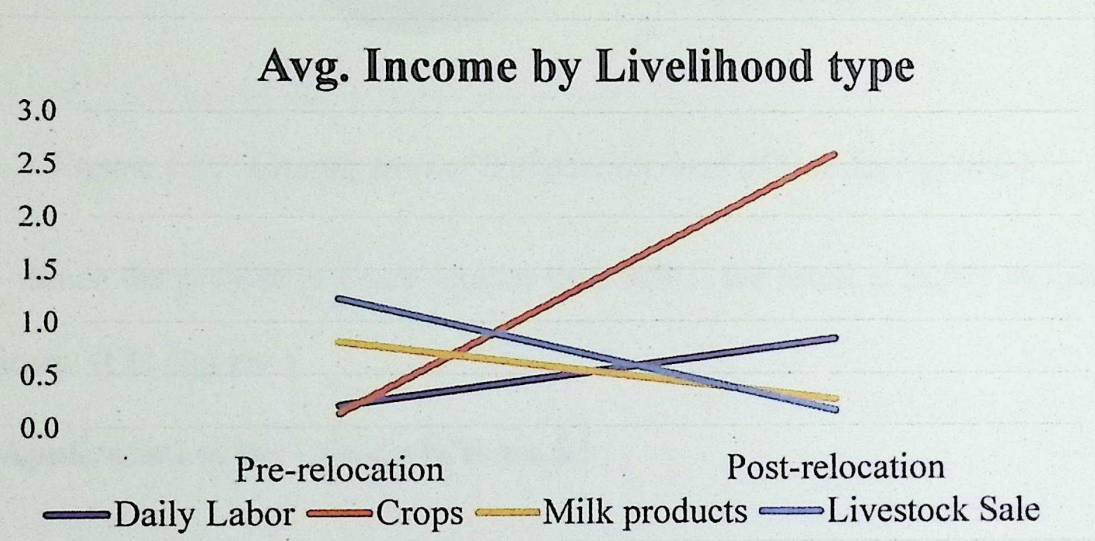


Figure 4.11: Average Income trend as per type of livelihood (Pre/Post relocation)

There is evidently a decline in the sale of milk products (mawa) and livestock as livelihood generators in the post-relocation phase with a corresponding increase in agriculture activities and daily wagher.

4.4.5 Standard of Living:

Perception of respondents on the issue of change in their living standard was gauged on the basis of responses of satisfaction levels. The overall response is depicted in the form of pie-chart, which clearly shows that the living standard of villagers has significantly improved after relocation. While 81% of respondents were satisfied with the standard of living, 14% showed very satisfied level. 5 % of the relocated villagers were not satisfied with the standard of living.

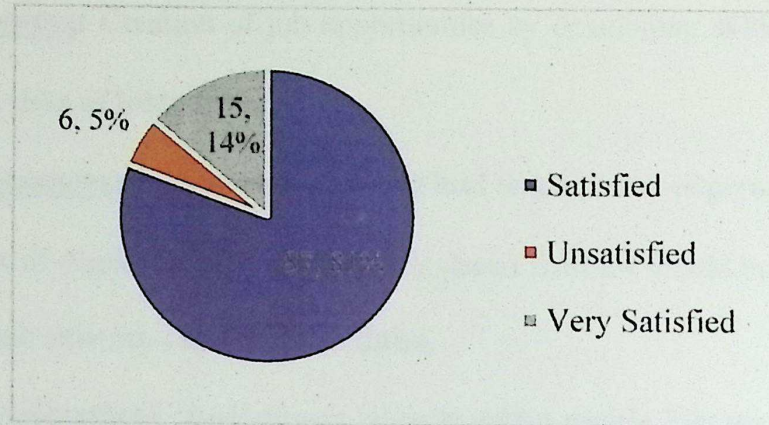


Figure 4.12: Comparison of Satisfaction level of Standard of living

Since the p-value is much smaller than 0.001, the result is highly statistically significant. (Chi-Square)

4.4.6 Application of the Cernea IRR model:

Cernea (2002) in his Impoverishment Risks and Reconstruction Model for Resettling Displaced Populations (IRR) identifies eight impoverishment risks that may result from relocation, namely (1) Landlessness; loss of land in the original habitat of the relocated community; (2) Joblessness; loss of wage employment; (3) Homelessness; loss of housing and shelter; (4) Marginalization; demotion of socio-economic status due to loss of economic power; (5) Increased morbidity and mortality; decline in health conditions; (6) Food insecurity; hunger caused by inadequate intake of calorie-proteins; (7) Loss of access to common property resources; inaccessibility of shared assets such as like forests, pump water wells, and playgrounds; and (8) Social disarticulation; disintegration of community structures, social networks, and ties.

1. **Landlessness:** People move out from their original place to a new one entailing risks towards poverty by losing their manmade assets and natural assets unless the displaced families acquire land and ensure livelihood opportunities.

2. **Joblessness**: Creation of job opportunities by developing skills to be ensured to prevent risks of joblessness.
3. **Homelessness**: Loss of housing could lead to temporary or permanent condition in the lives of displaced people. Hence displaced families should be provided housing with basic amenities and other facilities.
4. **Marginalization**: Risk occurs when resettled people lose economic, social and psychological power.
5. **Food insecurity**: Displacing people from their original place can increase the risks of malnutrition leading to morbidity and mortality.
6. **Increased morbidity and mortality**: Due to relocation induced-stress, psychological disorders, unsafe water supply and poor health services can lead to morbidity and mortality.
7. **Loss of access to common property resources**: Since the displaced people had already lost access to common assets such as pastures, forest lands, water resources, in their host origin, the risks for lack of availability of these resources need to be minimum.
8. **Social disarticulation**: Cernea (2000a:3666) argues that resettlement disperses and fragments communities, dismantles patterns of social organization, scatters interpersonal ties and kinship and disrupts informal networks of reciprocal help, local voluntary associations and self-organized mutual service with friends, neighbors etc.

An in-depth study of the IRR model was done and displacement risks of landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity, loss of access to common property resources and community disarticulation was reviewed

w.r.t. Sariska voluntary village relocation.

Understanding the Impacts on Relocated Families through the Lens of Cernea’s IRR Model

The relocation of villages from within the Critical Tiger Habitat (CTH) of the Sariska Tiger Reserve (STR) is part of India’s broader conservation strategy to secure protected areas for biodiversity, particularly for the endangered tiger population. While the ecological rationale behind such relocations is well established, the human cost of these processes has often been overlooked or inadequately addressed.

Relocation fundamentally alters the socio-economic and cultural fabric of affected communities, triggering a range of impoverishment risks identified by Cernea (2002) in his Impoverishment Risks and Reconstruction (IRR) Model. This document presents the findings of a survey conducted across **5 complete relocated villages and 108 families dispersed in different areas based on their package option**, assessing the effectiveness of the three relocation packages (Cash package, Land package and Hybrid Package) offered:

Package Type	Description	Key Features
Cash Package	INR 10 lakh/15 lakh (after 2021) lump sum compensation	Flexibility to buy land or assets independently, but subject to price volatility
Land Package	1.6 hectares of agricultural land + 90x60 ft homestead land	Long-term livelihood asset but lacks immediate liquidity
Hybrid Package (Not recognised in guidelines)	Combination of land for some and cash for others	Balances liquidity with long-term asset creation

Table 4.4: Features in Relocation Packages of NTCA

In addition to Cernea's framework, this study also **incorporates** Bhutan's Gross National Happiness (GNH) index, to evaluate subjective well-being and quality of life post-relocation. The Bhutan GNH questionnaire was reviewed and adapted to local field realities to develop a culturally appropriate survey instrument.

4.4.6.1 Results

A. LANDLESSNESS:

Landlessness is one of the most direct and immediate risks caused by involuntary relocation, particularly in the context of conservation-induced displacement from critical tiger habitats such as Sariska Tiger Reserve. When families are relocated, they lose the land they once owned or accessed in their native villages. This land was not only a primary source of income through agriculture, grazing, and forest-based livelihoods but also held cultural and historical significance.

Landholdings for cash package opted families:

Data revealed that the land purchased by the villagers under Cash Package of 10 lakhs till 2021 and 15 lakhs after 2021, varied between 0.13 to 1.2 hectares, average size of land-holding being 0.5 ha./family. Secondary data has revealed that out of a total of 508 families under Option I, 152 families resettled at different locations. The area of land purchased for Option I families, averages to 0.312 hectares per family.

As per the NTCA guidelines and the Rajasthan Relocation Policy, 2002, land has been provided to the relocated 691 families opted land package @1.6 hectare per

family. All the families relocated in the five locations under Option II, outside the tiger reserve have been provided 1.6 hectares land and homestead land of 60ft.x90 ft.

So, the issue of landlessness has been resolved and there is no family without any land-holding. Comparison of land-holding size between Land package opters and cash package opters vary due to amount given in cash to the cash package families vis a vis land package who were given forest/revenue land at a uniform rate of 1.6 ha.

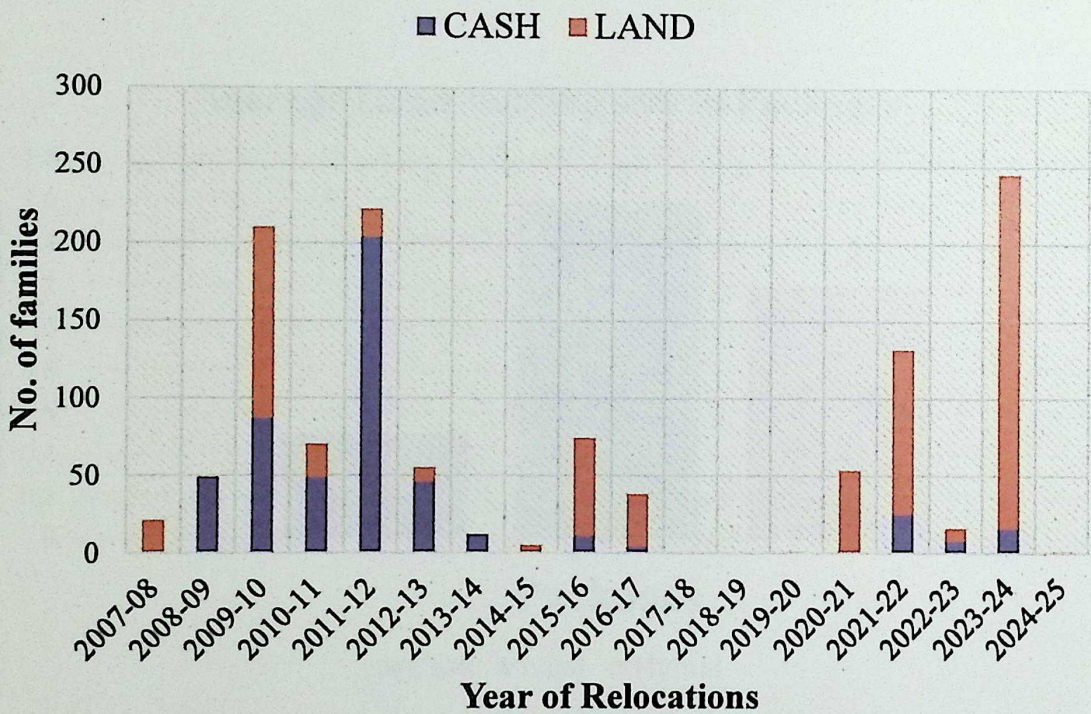


Figure 4.13: Trend of the cash package vis a vis land package in the last 15 years

The above packages of State and Central Governments, ensured land to all the Option II package owners, as stated above. In the case of the relocated villages from Sariska, families who opted for the Option I (Cash Package) the survey indicated that all the families bought land with the 2nd instalment of the cash amount, which was ensured by the Forest Department, by submission of registered deeds of land by the

relocated family for release of fund. The analysis of the land holdings by the families who opted for the cash package, reveals that the size of land varies between 0.3 to 1.0 hectares/family, which not comparable to the land package families. However, due to productive land chosen by the cash package families prior to 2011, the land holding size and the suitability for agriculture immediately on displacement was better than the land package families, where the land took time to reach a productive level. Hence, there was no risk observed in Landlessness criteria.

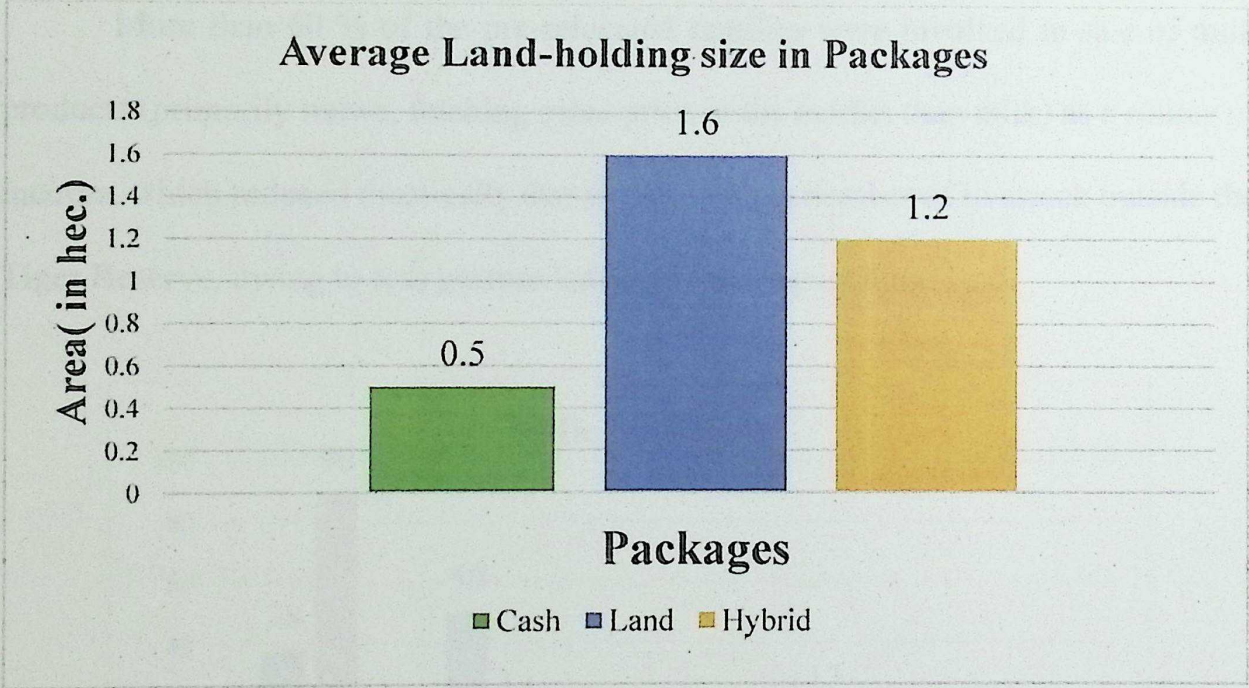


Figure 4.14: Average Land Holding by Package Type

B. Joblessness

The risk of joblessness emerges as a major consequence of relocation, especially when families are uprooted from their familiar economic environments. In Sariska’s relocated villages, traditional occupation was livestock rearing, and forest product collection—were deeply rooted in the ecological and social contexts of the

original habitat. Displacement fractured these economic relationships initially. The survey of the 108 families showed a positive trend of adjustment to agronomy from pastoralism. Around 75-85 % families were engaged in animal care during the pre-relocation phase. Correspondingly, in the post-relocation phase outside the Tiger Reserve, more than 85% of the families are engaged in agricultural activities and part animal care, which indicates a clear transition from pastoral economy to agrarian economy, signalling economic transformation.

More than 60 % of the pre-relocated families were involved in sale of milk products (primarily mawa, fetching more price in the market than milk) as a source of income, which reduced drastically due to reduction in number of livestock outside the Tiger Reserve, owing to less pasture land and more agricultural land.

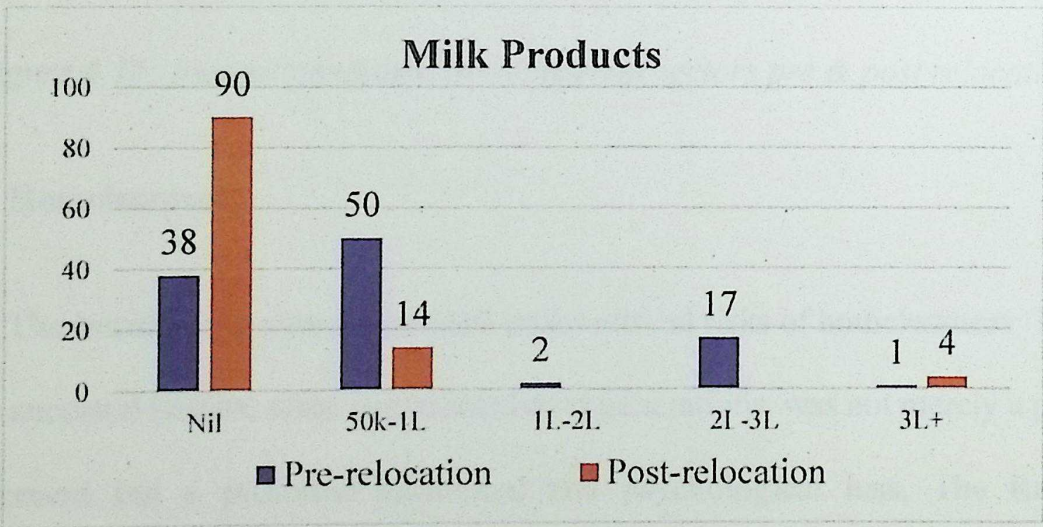


Fig: 4.15: Number of Families vis s vis income from milk products

Only 25 % families in the pre-relocation phase earned as daily wagers which increased to 73% in the post-relocation phase. The average income of the families in the pre-relocation phase increased from 2.8 lakhs/family to 4.2 lakhs per family in the

post relocation phase, signifying economic prosperity. The different sectors shows increase in income in labor and agriculture (post-relocation phase) compared to milk/milk products in pre-relocation phase.

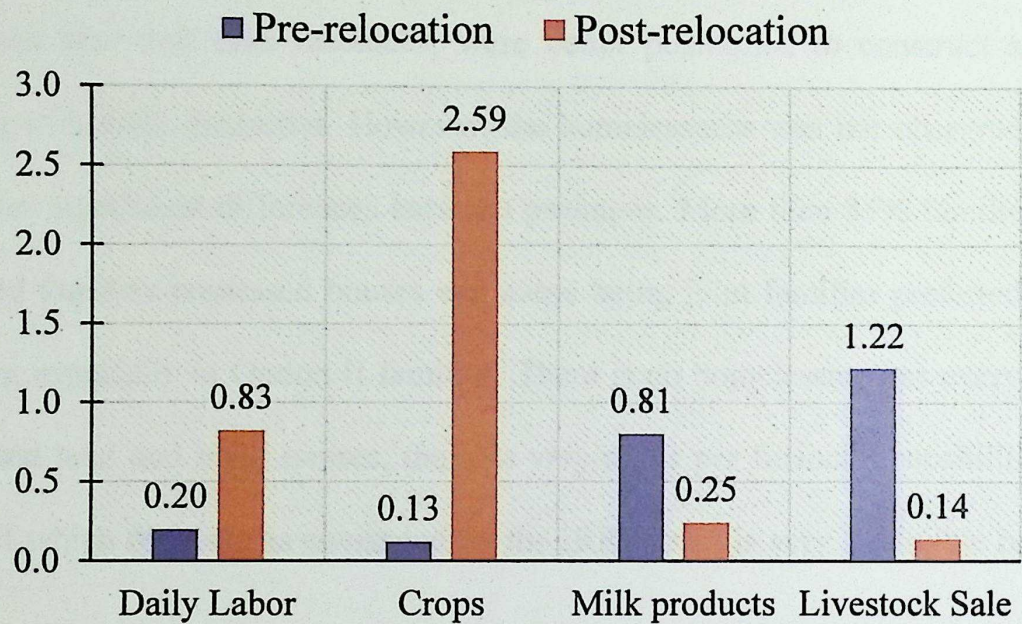


Figure 4.16: Income generated from different sectors pre & post relocation

C. Homelessness

The transition to new settlements poses critical risks of homelessness. The loss of their ancestral homes, often constructed over generations, was not merely a physical displacement but a profound emotional and psychological loss. The Rajasthan Relocation Package and the NTCA Relocation package provided 60 ft x 90 ft homestead land for Option II (Land Package) Families and 20% of the Compensation amount of 15 lakhs , has been reserved for house construction. In the case of Sariska, families were expected to purchase or build homes, in relocated areas. This led to varying levels of housing adequacy, with almost all families in Option I, ended up in

a relatively more stable housing condition compared to pre-relocation phase. The Cash families interviewed had pucca houses, but are not as big and spacious as the Option II or Hybrid package families for obvious reasons of low agricultural size plots, leading to less economic outcomes/family compared to Option II families. Hybrid families, with both land and cash resources, were better positioned to construct adequate housing with basic amenities. However, the homelessness was not observed though there was significant differences between packages. More than 85% families in the surveyed families possessed houses and some being joint families preferred to stay together, especially in Option II families. There is no homelessness as everyone had purchased land and build houses, the size varying as per financial capabilities, as a result of which the risks as envisaged by the IRR model is very negligible or almost absent.

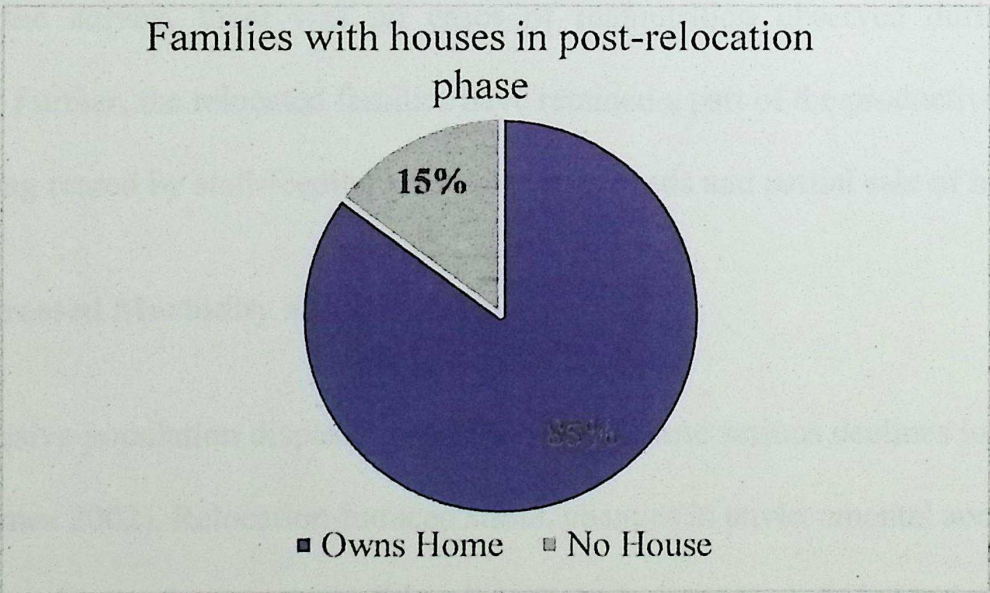


Figure 4.17: Housing availability to families-pre/post relocation

D. Marginalization:

Marginalization refers to the decline in social, economic, and political status experienced by displaced communities. In Sariska, most of the relocated villages (complete/partial) have been guadas and settled on forest lands, with no ownership of land except few revenue villages, within the tiger reserve who possess land. So the point of households becoming landless doesnot arise. Overall, the response was positive and the relocated families did not feel the marginalisation now as per the survey. Questionnaire survey of the 108 families revealed that more than 94.4% families opined about strong relationship with present community and helpful neighbourhood. There is homogenous mixing of communities and result in social bonding with same culture.

E. Food Insecurity

In the survey, there was no cases of malnutrition observed during the interviews. Further, the relocated families have retained a part of the productive cattle and are being reared by stall-feeding leading to own needs and partial sale of milk.

F. Increased Morbidity and Mortality:

Massive population displacement threatens to cause serious declines in health levels. (Cernea 2002). Relocation-induced stress, changes in environmental and living conditions, and loss of access to traditional medicinal plants leads to.led to increased health risks among displaced families.

The analysis of the survey shows that access to health facilities have improved. The average time to reach a health facility before relocation was more than 2 hrs(56.5%), which has reduced drastically <30 mins in 54.6 % of the families. The time taken for >2 hrs in Zero in the relocated sites, ensuring better health care, especially in case of emergency situations. This enhances the physical well-bwing of the relocated people compared to serious health hazards due to emergencies in the interior areas of the core area of the Sariska Tiger Reserve.

Time taken to reach Health Center	Pre-Relocation (No. of families/ Percentage)	Pre-Relocation (No. of families/ Percentage)
More than 2 hours	61(56.5)	0 (0)
1 hr – 2 hr	36 (33.3)	0(0)
30 mins – 60 mins	5 (5.6)	33 (30.6)
15-30 mins	3 (2.7)	59 (54.6)
<15 mins	2 (1.9)	16 (14.8)

Figure 4.18: Comparison of time taken to reach PHC- Pre/Post-relocation (fam.)

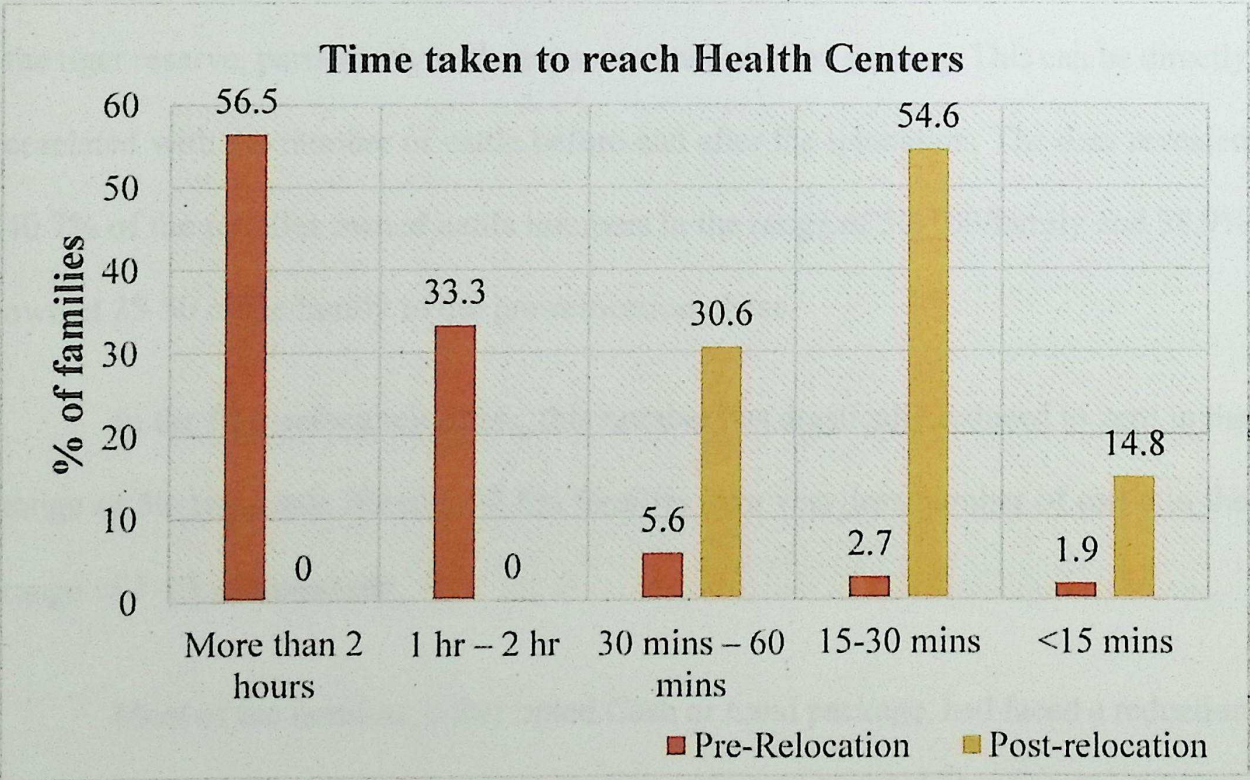


Figure 4.19: Comparison of time taken to reach PHC- Pre/Post-relocation (%)

Families who received the *Cash Package* faced greater health security, compared to other two packages as they often settled into areas with healthcare facilities, good road network and access to other commodities compared to land package or hybrid package. The distance of health-care facilities (PHC, etc.) has decreased with better and easy access to healthcare thereby diminishing morbidity and mortality.

G. Loss of access to common property resources:

Cernea envisaged that for poor people, particularly for the landless and assetless, loss of access to the common property assets that belonged to relocated communities (pastures, forested lands, water bodies, burial grounds, etc.) results in significant deterioration in income and livelihood levels. During the survey, the analysis revealed that there has been a loss of the CPR, due to free resource sharing in the tiger reserve, particularly with respect to uncontrolled grazing. This can be directly correlated with the number of cattle before and after the relocation. The data revealed 40.7% of the families owned cattle numbers in the range of 50-100/family and 38.9% owned 25-50 cattle/family in the pre-relocation phase.

In the Post-relocation phase, this number has drastically reduced to zero in the range of 50-100 cattle /family. 92.6% families own very less number of cattle in the range of 1-25 cattle/family.

Most of the families, either opted Cash or Land package, had faced a reduction in the number of cattle, except few families who have settled close to forest areas,

where they are still resorting to grazing of their livestock, like Mojpur Rund, LojKanpura. Regarding free fuelwood available in the core area of the Sariska Tiger Reserve, more than 95% of the families have shifted to LPG cylinder, which has added to the cost of living. It is pertinent to mention that this data is significant from the point of paradigm shift from a pastoralist economy to an Agri-economy, that will in the long run, help the families and also boost the economy of the State, with increased contribution to the sector.

H. Social Disarticulation:

Relocation from the original abode certainly puts the risk in tearing the social fabric. There is a possibility of changes in social organisation and interpersonal ties. It is certainly a tough situation to leave an abode and settle at anew place, amidst challenges to survive.

During the survey, as mentioned earlier, 94.4 % families show strong relationship with present community. 81.5 % families show help received always from neighbours. The villages have settled in a cluster to avoid new surroundings. 11 villages have been settled at 5 locations for families opted land packages or hybrid packages. The Option I (Cash Package) families have settled at more than 150 locations based on their own choice, considering factors of kinship, earlier land holdings, accessibility to basic amenities of education, health and livelihood security. In general, the social disarticulation is not prominently observed.

4.5. Conclusions

Paradigm Shift from Pastoral to Agrarian Economy:

The transition from a pastoral to an agrarian economy marks a shift from nomadic, livestock-based subsistence to settled farming. This evolution, often driven by population growth and resource scarcity, involves adopting crop cultivation, sedentary lifestyles, and individual land ownership. It increases wealth and enables complex social structures, transforming nomadic herdsman into settled farmers.

In pastoral economies, wealth is measured by livestock, often used as capital. In agrarian economies, wealth becomes tied to land and crop production. 22.2% families in 6 -12 Lakh income group compared to 0.9% families in pre-relocation phase in same income grp, is a testament to the success of the relocation initiative. Overall average income increase in all the three packages also supports this claim. The relocation of families from an isolated, interior forest area of the Sariska Tiger Reserve, to a more developed relocation area, with better education, health and basic amenities, has brought the villagers into the mainstream of development, very much required for future progress of the generations. In the present study, livelihood transition from animal husbandry to agriculture is significant, with pastoralists learning the hard way about agricultural practices. This shift has led to increased economic stability and prosperity.

At the same time, total dependence on agriculture would curtail the culture and relationships with livestock, which has been an integral part of their lifestyles. During

interviews, the relocated villagers exhibited their attachment with the cattle they possessed and are taking care of the cattle, mostly through stall-feeding.

Direct co-relation between package and satisfaction level:

Hybrid package families with highest satisfaction level (8.47) due to financial investment in agricultural activities. Land (7.63) and cash families (7.68) satisfaction level almost similar.

Land quality has a direct co-relation on satisfaction of relocated families (eg. Comparison of 5 relocated sites). The voluntarily opted families for relocation under package II(land package) are shown the land before taking consent. In case of comparison of the 5 relocated sites, the relocation site at Bardod Rund, Tijara Rund and Malyarjat show promising satisfaction levels with Mojpur and Loj Kanpura lagging behind. During interactions and focused interviews with people of both the later villages, it was ascertained that the water table in Loj Kanpura is very low, reaching to more than 500 feet, resulting in water problems for irrigation and corresponding escalated cost for installation of water boring pumps for farming. This is also substantiated by the fact, there are less than 20 families, residing in Loj Kanpura. Drinking water was also an issue in Mojpur Rund.

In future relocation attempts, it is recommended to get soil and water tests done for the sites (forest land/revenue land) selected for relocation and reports shared with the villagers opting to be relocated for Option II, in a transparent manner to win trust and confidence of the families opting to be relocated.

It is pertinent to mention that the Option II (land Package) and the Hybrid package families would outcompete the Option I families over a period of time, due to high agricultural productivity coupled with improved practices on a larger land-holding, resulting in higher yields and increased income compared to the Option I families, who could purchase one-third or half the land holding per family.

Satisfaction levels across all the 11 villages were quite high and most of them opined above 70% except the villagers of LojKanpura, probably due to the water issues. 93 % of the families surveyed, agreed that relocation should be carried on, which indicates that the voluntary relocation is accepted by most of them and this process should be continued for other villages by exposure visits of the yet to be relocated villagers, to these families.

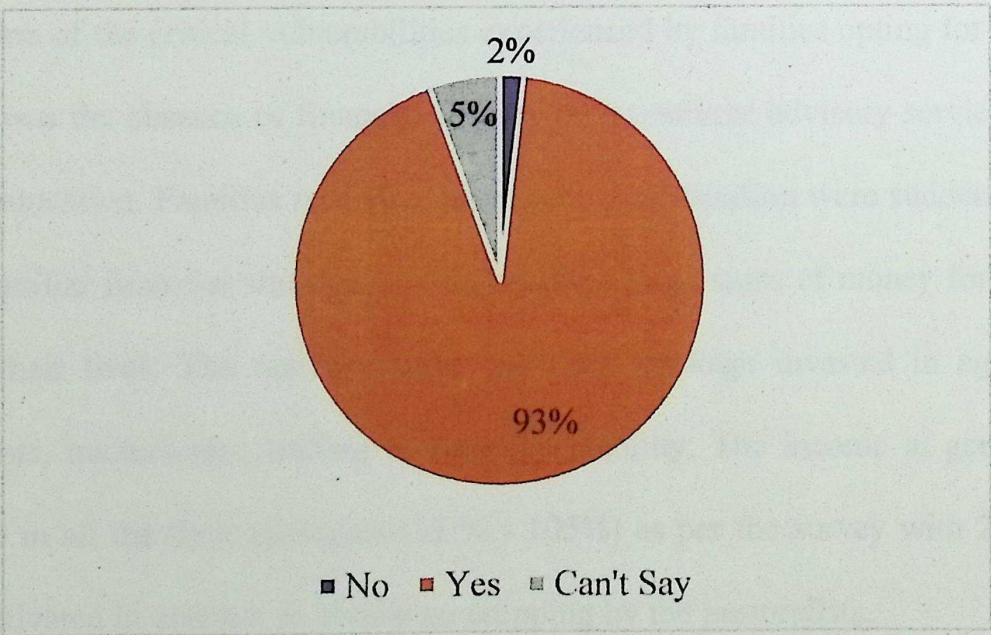


Figure 4.20 : Opinion about Relocation from Sariska

Usefulness of Hybrid Package

The findings from the relocation of villages from Sariska Tiger Reserve clearly indicate that the hybrid package recipients are the most resilient and economically stable in the post-relocation phase. This is largely because as the hybrid model offers dual safety— families receive land, which provides a stable livelihood base through agriculture, and cash, which allows for immediate expenditure on essentials such as agricultural equipment including mechanised farming, livestock, housing, or even health and education expenses. This combination reduces the risk of landlessness, joblessness, and food insecurity — all critical impoverishment risks identified in Cernea's IRR model. Future relocation programs should therefore prioritize hybrid compensation, with a minimum guaranteed landholding for sustainable livelihoods along with cash components to support initial resettlement expenses.

Financial well being

One of the critical vulnerabilities experienced by families opting for the cash package was the absence of financial literacy or investment advisory services at the time of relocation. Families receiving lump sum compensation were suddenly thrust into unfamiliar financial situations, often handling large sums of money for the first time in their lives. The families under the Land package invested in agriculture implements, tractors etc., leading to financial stability. The income in general has increased in all the three packages (33 % - 105%) as per the survey with 2-3 crops being cultivated in contrast to almost no cropping by the pastoralists.

However, relocation programs should mandate comprehensive financial literacy training at multiple stages — pre-relocation, immediately post-relocation, and follow-up sessions after one year. These trainings should cover basic budgeting, saving strategies, inflation awareness, productive investment options, and small-scale entrepreneurship training. Partnering with local banks, cooperatives, and self-help groups could further institutionalize financial advisory support, ensuring better long-term economic planning for relocated families. This would particularly empower vulnerable households, including women-headed families and landless laborers, to make informed financial decisions.

It cannot be denied that the financial burden accrued in the new relocated sites is very high, initially, due to costs of electricity for irrigating agriculture fields, transition from free fuelwood in forest areas to LPG cooking, reduction in number of livestock leading to loss of income with minimum investments owing to free grazing grounds. But in the long run, with increased income, there would be economic stability and then growth.

Community-based Resettlements

Relocation from ancestral villages in Sariska did not merely disrupt economic livelihoods — it shattered deeply embedded social networks and cultural institutions that were vital to community cohesion and individual well-being. Cernea's concept of social disarticulation could have been a risk initially, among families opting for the cash package, many of whom dispersed into familiar urban fringes or fragmented rural areas far from their original community but has been addressed by the voluntary choice

of the Option I families to choose the land and the area based on their choice of previously settled kins and relatives and future social mingling within the community, over a period of time.

Future relocations should prioritize community-based resettlement, meaning that entire village clusters are relocated together. This preserves kinship ties, cultural continuity, and traditional governance structures like panchayats and women’s collectives. Planned relocation sites should also allow for community spaces, such as temples, common halls, grazing commons, and traditional water sources, to recreate the social infrastructure of the original village. Preserving these communal structures is not just culturally significant — it directly contributes to collective resilience, as families support each other in navigating new environments, sharing resources, labor, and knowledge in ways that individual family relocation cannot replicate. For the Option II families, the families have settled in 5 clusters at 5 relocated sites, leading to negligible social disarticulation as below:

Name of Relocated Site	Area in hectares	Villages from Sariska relocated	Number of families proposed to be relocated	Number of families relocated
Nangla Rund (Forest land)	222.67	Bhagani, Kankwar, Haripura, Rotkela	135	135
Tijara Rund (Forest land)	350	Kankwari, Sukola, Panidhal, Dabli, Haripura, Loj	178	124
Mojur Rund (Forest land)	181.97	Umri, Dewri	80	79
Kanpura Loj (Revenue Land)	127.53	Haripura, Kiraska, Loj	64	25
Phulwas,Raipur,Berla (Revenue Land)	760.26	Nathusar Rotkela,Kankwari, Sukola,Kiraska	234	140
Total			691	551

Table 4.5: List of relocated sites and no. of villages/families settled post-relocation

Post-relocation Livelihood Support

Relocation does not end once families physically move — livelihood reconstruction is a long-term process that determines whether displacement leads to sustained impoverishment or successful adaptation. In Sariska's case, families dependent on forest-based livelihoods (grazing, firewood collection, NTFP gathering) were suddenly cut off from their resource base, but gradually shifted to agriculture.

Future relocation policies must therefore integrate comprehensive livelihood reconstruction programs, including agricultural extension services, credit for farm investment, irrigation support, and training in alternative livelihoods such as dairy farming, handicrafts, or eco-tourism. Special attention should be given to youth and women, who often experience the greatest livelihood dislocation. Skill development programs should be tailored to the local economic context, with training in wage employment, micro-entrepreneurship, or non-farm sectors depending on market demand. Establishing producer cooperatives can also enhance market access and collective bargaining power for relocated farmers. This livelihood focus should be multi-sectoral, coordinated between forest departments, rural development agencies, and civil society organizations, ensuring relocated families have diverse and resilient income streams. The transition from an established livelihood pattern, within Sariska Tiger Reserve, to agrarian dynamics, in the mainstream of development, is often challenging and continuous hand-holding is required for these families, to win trust and faith on the management.

Corporate Social Responsibility (CSR) funds should be harnessed as is being done in Satpura Relocation Model for Agri-improvement practices and water conservation initiatives. This would increase the productivity of the land and proportionate happiness and satisfaction.

CHAPTER 5: Analyse the quality-of-life indicators other than the economic indicators (as mentioned in Objective 1) of the families at the relocated sites and inside the forests.

5.1 Introduction:

Relocation due to conservation initiatives plays a vital role in ensuring biodiversity protection while also influencing the quality of life of displaced communities. While economic factors such as income, employment, and financial security are often emphasized in relocation assessments, non-economic aspects are equally crucial in shaping long-term well-being. These include social relationships, cultural continuity, psychological stability, spirituality, environmental adaptability, and overall life satisfaction. The relocation of forest-dependent communities, while challenging, is often necessary to protect endangered species and ecosystems from human encroachment and resource exploitation (Cernea, 2000). For these communities, land is more than just a means of livelihood; it represents ancestral heritage, spiritual significance, and a foundation for collective existence. However, properly managed relocation can mitigate adverse impacts while offering opportunities for sustainable development and enhanced quality of life (Brockington & Igoe, 2006). Families who remain inside the forest, despite facing government-imposed restrictions on land use and resource access, often retain stronger communal ties and a sense of belonging, contributing to psychological stability and social resilience (Agrawal & Redford, 2009). Meanwhile, relocated families benefit from improved infrastructure,

healthcare, and educational opportunities, highlighting the positive aspects of conservation-driven resettlement.

Snodgrass, J. G., C. Upadhyay, D. Debnath and M. G. Lacy (2016) research suggests that the loss of homeland compromises mental health—and especially the highest level of positive emotional well-being related to happiness, life satisfaction, optimism for the future, and spiritual contentment—in ways not easily repaired by even well-intentioned relocation programs focused on material compensation and livelihood re-establishment. The study through questionnaire survey tried to assess the positive emotional experience related to happiness, life satisfaction in parameters of better health access, electricity and education facilities for children. The stress of food insecurity, water insecurity also compromises not just physical and material but mental well-being. Community and socio-cultural forces also contribute a lot to mental well-being. Hence, careful planning of all relocations needs to focus on the mental aspects ensuring protective resilience to alleviate mental suffering in displacement situations.

5.2 Assessment of Psychological Well-being

The psychological and emotional well-being of relocated families is influenced by their ability to adapt to new environments and integrate into broader social frameworks. While relocation can initially be distressing due to forced adaptation, long-term benefits such as land security, financial resources, and access to social services help alleviate stress. The type of resettlement package plays a critical role in determining stress levels, with hybrid package recipients enjoying both land security and financial resources, thereby reducing their vulnerability. In contrast, cash package

recipients may experience temporary financial relief but face long-term risks as their funds deplete, while land package recipients often struggle initially due to a lack of immediate financial support for agricultural inputs (Rangarajan & Shahabuddin, 2006). Happiness, however, does not solely depend on material wealth; it is also influenced by social networks, cultural practices, and overall environmental conditions (West, Igoe, & Brockington, 2006). Many relocated families report increased happiness due to improved access to healthcare, education, and employment opportunities. However, external pressures such as conservation laws and diminishing access to natural resources can gradually challenge their well-being, making it essential to consider both external threats and internal resilience factors when assessing quality of life (Dowie, 2009). Nevertheless, successful conservation programs often integrate relocated communities into wildlife conservation efforts, allowing them to contribute actively to environmental protection while gaining alternative livelihood opportunities.

5.3 Satisfaction levels across the three packages (Option I, II and Hybrid)

The results of the survey conducted across 108 families belonging to the three package types, Option I (Cash Package), Option II (Land Package) and Hybrid Package (option I + Option II) provide valuable insights into the impact of different relocation packages on the livelihoods and well-being of the displaced communities. Through extensive field data collection and analysis, this study critically introspected the usefulness of different relocation schemes. The findings emphasize that the type of

relocation package chosen has a direct correlation with household satisfaction, economic stability, and overall resilience after displacement. This section presents a comprehensive analysis of the outcomes observed, supported by both qualitative responses and quantitative data presented through graphs and tables. By closely evaluating the results, the study aims to inform future policy decisions to make relocation programs more inclusive, sustainable, and responsive to the actual needs of affected communities. ANOVA showed a significant difference in satisfaction levels among the three resettlement packages ($p = 0.001$), with the highest satisfaction reported by families who received the hybrid package.

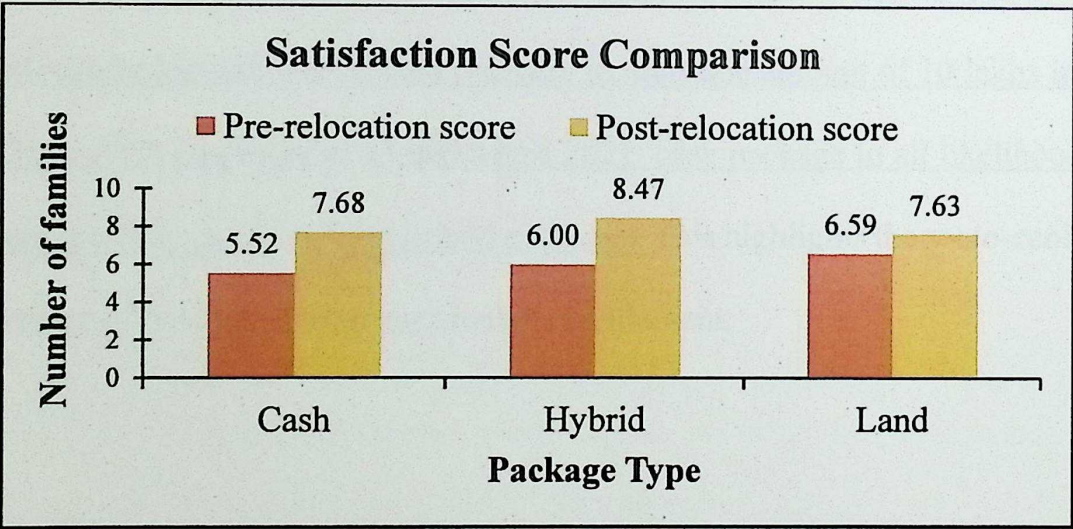


Figure 5.1: Satisfaction level of three package types

The graph illustrates the satisfaction levels of relocated families based on the type of resettlement package they received. The highest satisfaction (84.7%) is observed among those who opted for the hybrid package, as they benefited from both land ownership of 1.6-hectare agricultural land/family and 60feet x 90 feet homestead land and financial support of 10 lakhs or 15 lakhs/family for inclusion of one or two

families as Option I families in the Hybrid Package, ensuring economic stability and agricultural productivity. Interestingly, the families receiving only land (76.3%) or cash (76.8%) package, also reported high satisfaction. Whether the reason may be different for both the cases, as in case of the land package, they could cultivate their land, securing long-term livelihoods. Those who received only cash had the freedom to choose the best possible location with a surrounding of better social articulation and neighbours than land package optioners. However, the trend of the package options shows a rapid decline in the option I (Cash package) since 2012-13, testifying the fact that the District Land Rate (DLC) increase, has a direct impact on the minds of the families to be relocated in future in the National Capital Region. Inflation and proportionately less amount of land received in the same amount of 10 lakhs in 2007 till 2021 and 50% increase to 15 lakhs post 2021, cash package in all likelihood, will be outcompeted by both land and hybrid packages. This highlights the socio-ecological significance of land security in sustainable resettlement.

5.3.1 Assessment of Mental Health:

Happiness regarding present situation

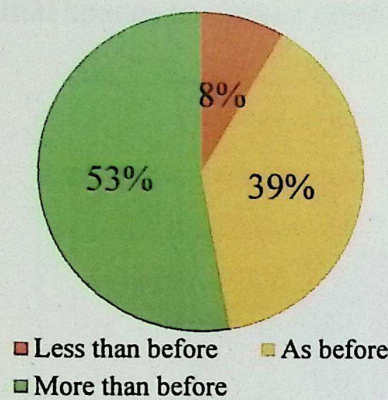


Fig:5.2: Happiness levels in families

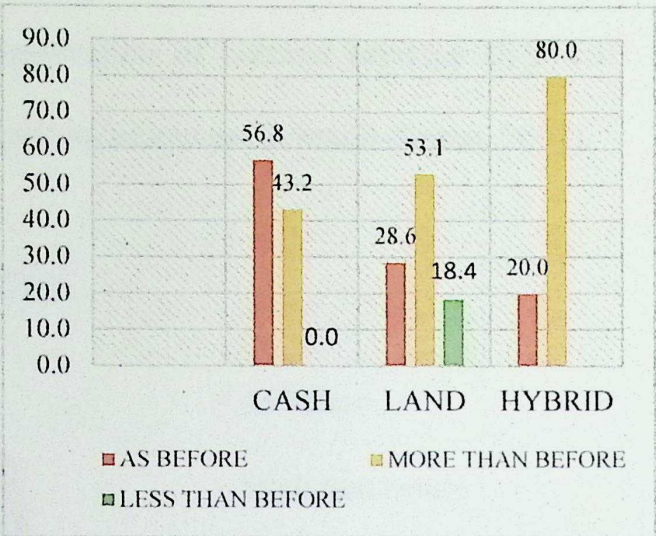


Fig 5.3: Comparison of happiness levels (packages)

The survey was also conducted to assess the happiness regarding the present situation, overall, in the post-relocated phase across the 108 families categorised under different Options.

57(53%) families expressed happiness more than the pre-relocation phase, 42(39%) families opined happiness same as the pre-relocation phase and 9(8%) families exhibited less happiness in the post-relocation phase.

Across the packages, Hybrid packages shows highest level of happiness (80%), closely followed by Cash and land packages. 18% of the land package families, show less happiness than before.

Beyond financial stability, spirituality and life satisfaction play a significant role in shaping the well-being of relocated families. Spirituality remains deeply ingrained in cultural identity and serves as a coping mechanism for navigating

hardships. Despite displacement, many families maintain their spiritual beliefs and practices, offering them emotional stability and a sense of purpose. Furthermore, relocation programs often include the preservation of cultural heritage sites and communal spaces to ensure continuity of spiritual practices (Schmidt-Soltau, 2003).

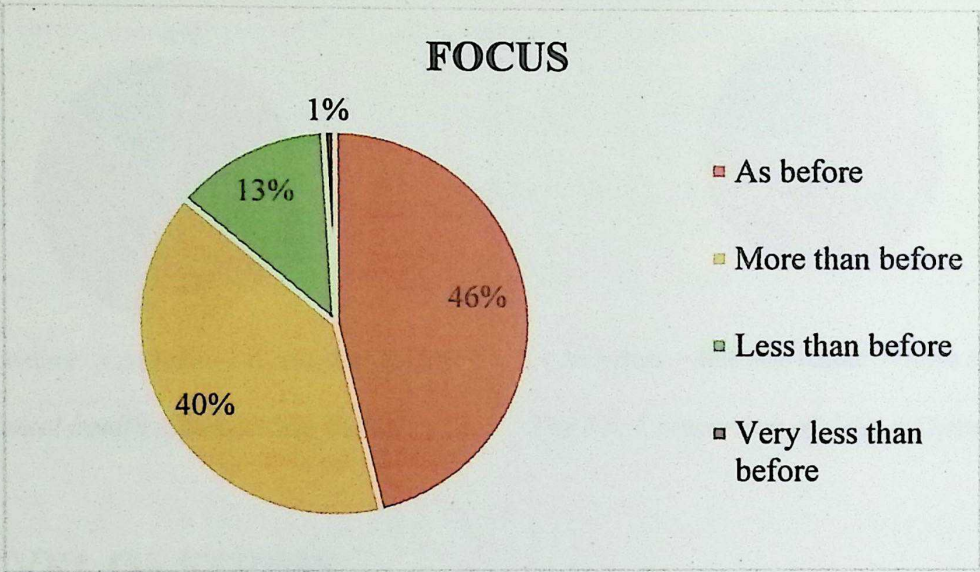


Fig 5.4.: Comparison of Mental Health (Focus) across families after relocation

The focus on daily activities is an indication of mental health. In the survey, 93(86 %) of the families could focus as earlier or more than before relocation. A small percentage of the families 14 (13%) is able to focus less than before. This may be probably due to the issues related to land rights, etc., as the Option II families had to face challenges in the shift to agriculture on a land which was earlier forest land and not cultivated.

Similarly, the interest on daily activities was perceived as before or more than before in 89% of the families, with 11% families not able to take interest as before (in the category less than before). Sleep is an important measure of mental health. During

the survey, 86% families opined that they had sleep as before or more than before in the new relocated sites with 14 % conveying less sleep than before due to worries at the relocation site.

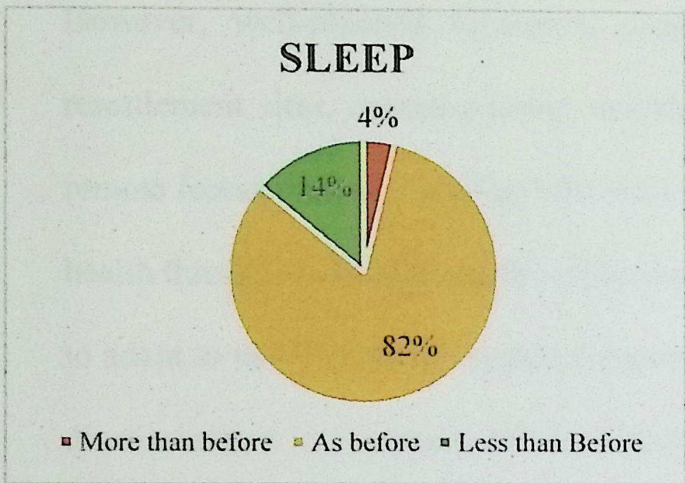


Fig 5.5: Mental health (Sleep)Comparison

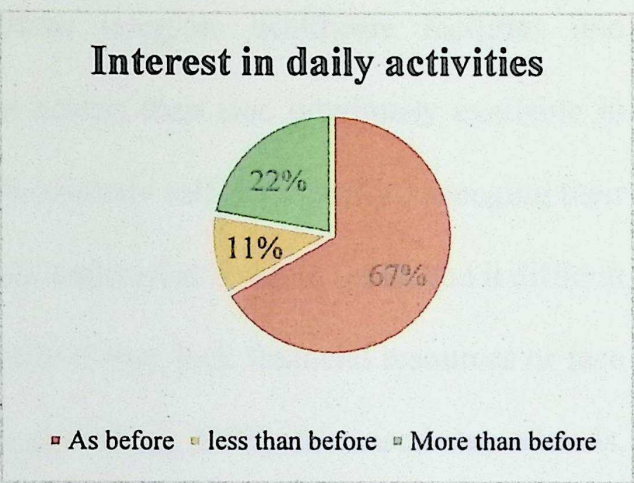


Fig 5.6: Comparison of daily activities

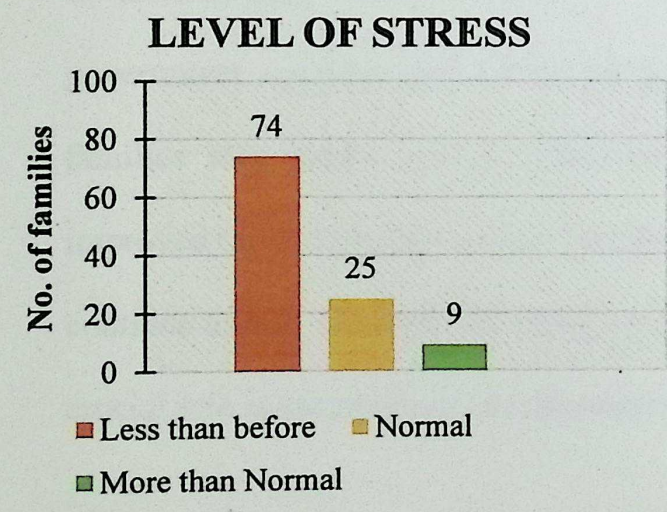


Fig 5.7: Comparison of stress level (families)

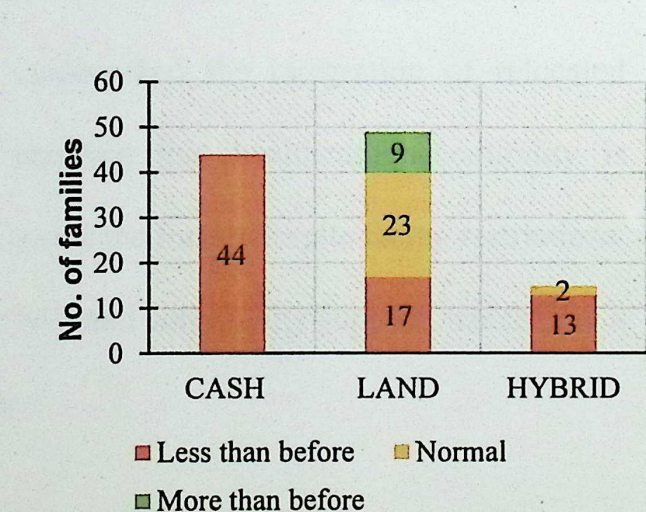
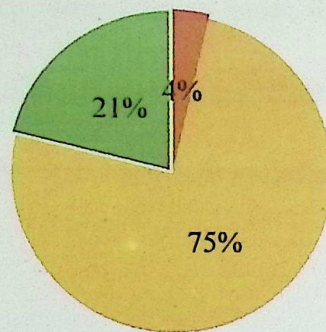


Fig 5.8:Comparison of stress level (package)

Level of stress assessed in the families through the questionnaire revealed that stress level remained the same in 25 families and reduced in 74 families, 90% of the families. In some families stress level was more than before. Similarly, across packages, all families in Cash packages expressed less stress that before but with more stress in land package opters. In Hybrid package stress was normal or less than before.

5.3.2 Assessment of Satisfaction of Health:

Health and morbidity are also significant concerns among relocated families, with access to healthcare services often disrupted during the relocation process. However, well-planned relocation programs integrate healthcare facilities into resettlement sites, ensuring better medical access than was previously available in remote forested areas. Families who were previously self-sufficient in managing their health through traditional medicinal practices and herbal remedies may find it difficult to adapt to new healthcare systems, especially if they lack financial resources or face discrimination in accessing services (Schmidt-Soltan, 2003). Increased stress levels, inadequate nutrition, and poor living conditions in relocation sites further contribute to deteriorating health outcomes. However, conservation organizations and government agencies have increasingly emphasized the integration of relocated families into public health initiatives, ensuring that healthcare accessibility is improved rather than diminished. Families inside the forest, despite facing restrictions, continue to rely on traditional healing practices and community support, which play a crucial role in maintaining health resilience.



■ Unsatisfied ■ Satisfied ■ Very Satisfied

Figure 5.9: Health Satisfaction in families (%)

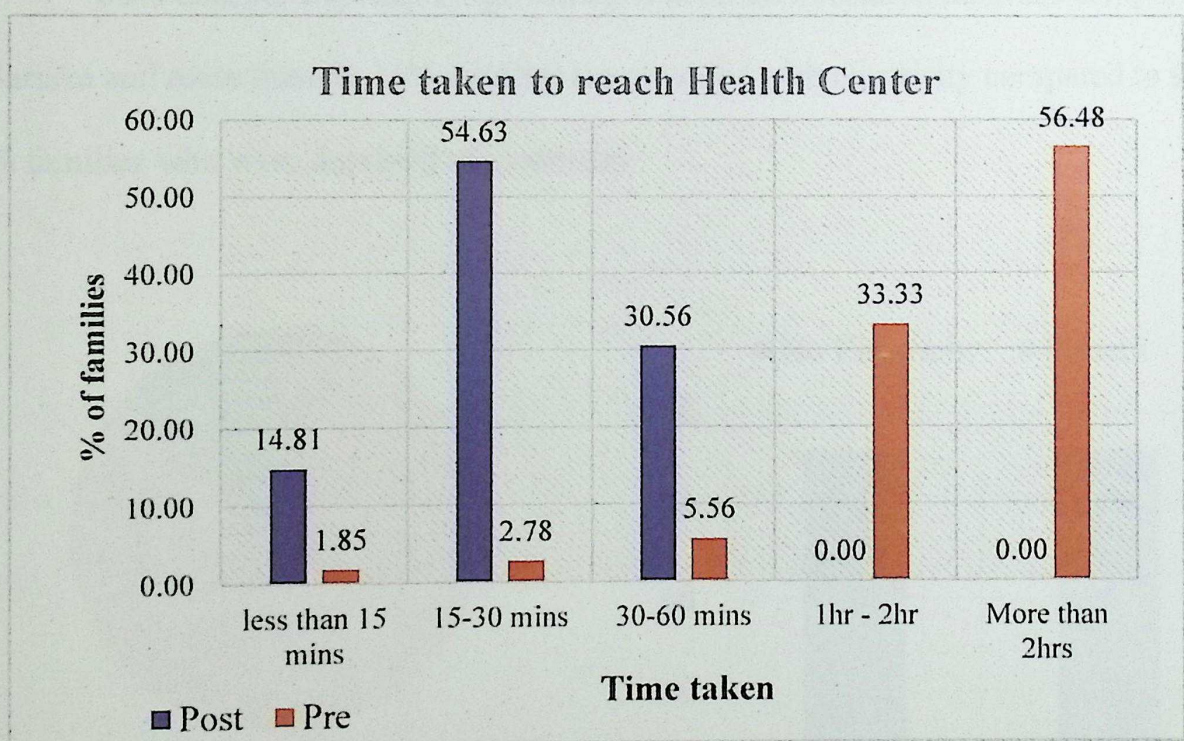


Fig 5.10: Comparison of time taken to reach PHC- Pre/Post-relocation(fam.)

The Questionnaire survey indicates that more than 96% of the families are satisfied with the health facilities, provide/available in the relocated sites. The average time taken by pre-relocated families to nearest Health centers from the interior area of the CTH of Sariska Tiger Reserve was more than 2 hours, with 61(56.5%) families

affected with this grave issue leading to increased morbidity and mortality. In post relocation phase, there is no family, which takes more than 2 hours to reach to a health facility. Conversely, 59(54.6%) of the families, take less than 30 mins.to reach a health center. Such parameters obviously, increase life satisfaction and happiness compared to pre-relocation phase.

5.3.3 Assessment of Standard of Living, Education and Electricity amenities:

95% of the families are satisfied with the present standard of living.

68% families expressed high satisfaction on the education facilities compare to Sariska and more than 86.11% families are provided with electricity compared to 91.6 % families who were deprived of electricity

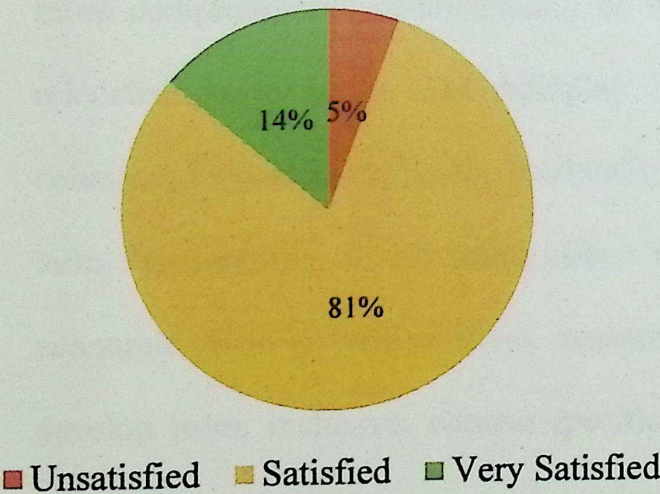


Fig 5.11: Satisfaction level for standard of living

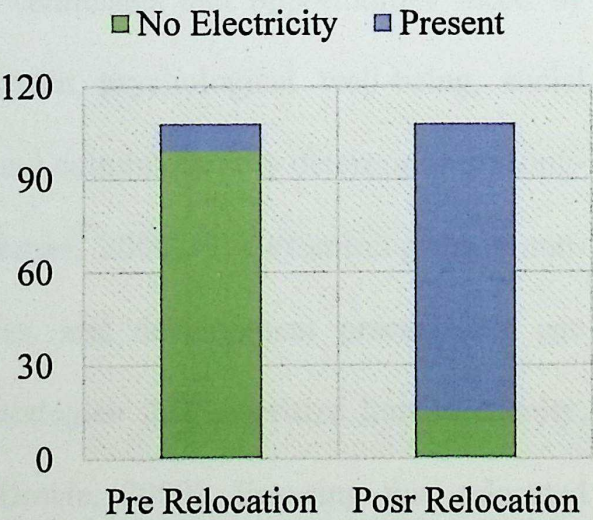


Fig 5.12: Electricity avail. Pre/Post Relocation

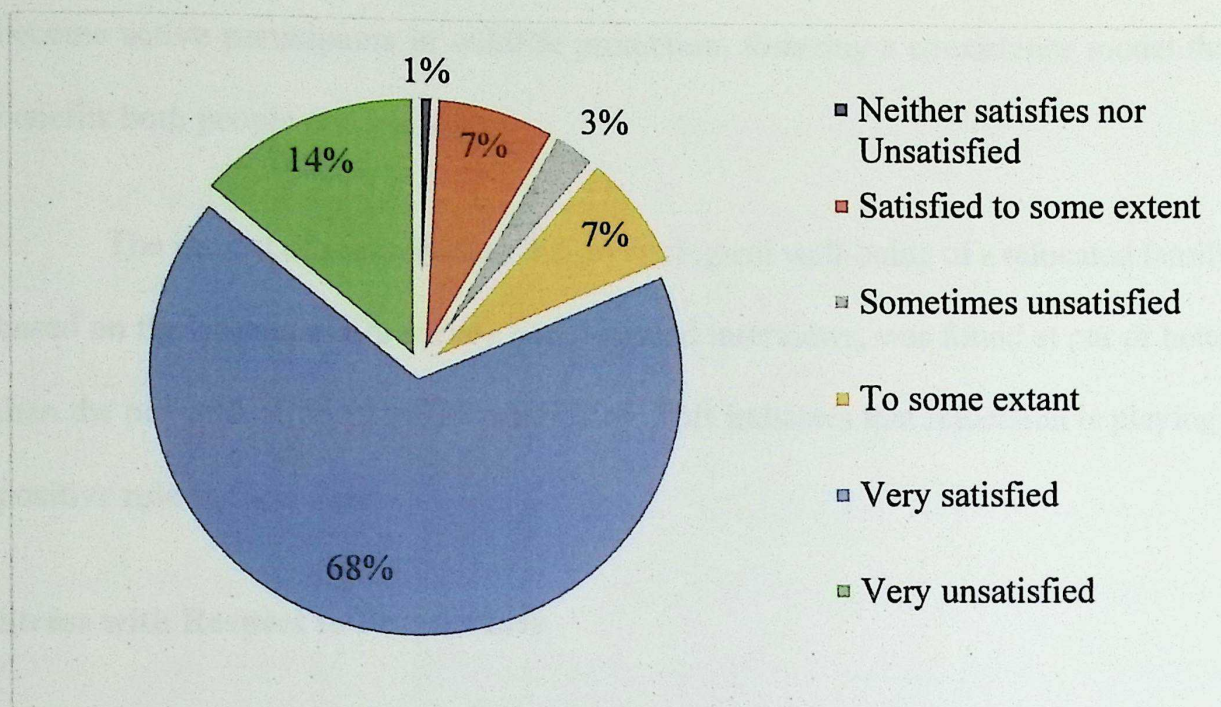


Figure 5.13: Satisfaction level of families w.r.t. education facilities pre & post relocation

5.4 Results and Discussions

Overall, assessing the quality of life beyond economic indicators provides a more comprehensive understanding of the challenges and opportunities faced by relocated communities. The interplay between psychological well-being, social cohesion, food security, health, spirituality, and cultural identity determines the long-term sustainability of relocation efforts (Cernea, 2000). By examining these non-economic factors, policymakers, researchers, and development practitioners can develop more inclusive, context-specific strategies that prioritize human dignity, cultural preservation, and social justice (Dowie, 2009). Ensuring that relocated families not only achieve economic stability but also maintain their social, cultural, and psychological well-being is essential for creating sustainable and just resettlement policies. Integrating local communities into conservation efforts ensures that they

become active participants in wildlife protection, fostering a coexistence model that benefits both people and nature.

The impact of relocation on the psychological well-being of a relocated family, based on the questionnaire survey and focussed interviews, was found at par or better than the pre-relocation phase in most cases. This indicates that relocation is playing a positive role in their lives.

Stress with Respect to Present Life

Stress levels show significant variation across different packages. The Land Package recipients report the highest stress levels, followed by the Cash Package and the Hybrid Package. Families under the Land Package face financial strain as they lack immediate liquidity to purchase agricultural tools, seeds, and other necessities. Meanwhile, Cash Package recipients initially experience reduced stress due to the immediate financial influx, allowing them to fulfil basic needs quickly. However, long-term economic uncertainty may pose future challenges. The Hybrid Package provides both land and cash, ensuring stability and reducing stress significantly.

Happiness with Respect to Present Life

Happiness levels remain relatively high across all packages, exceeding 80% for all groups. This suggests that, despite differences in financial security and stress levels, relocated families find fulfilment in their new environments based on social bonds, adaptation, and perceived improvements in living conditions. The primitive lifestyle inside the forests areas was not much conducive to promote advancement in

terms of different aspects in life, such as education, health care, etc. Many villagers experience a better quality of life with new opportunities and a sense of ownership over their new surroundings. Happiness is thus influenced more by social cohesion and overall livelihood adjustments rather than just economic factors.

Satisfaction with Lifestyle

Satisfaction levels vary, with the Hybrid Package recipients showing the highest satisfaction (85%), followed by the Cash Package and (77%) Land Package (76%). Cash Package families initially experience comfort due to monetary accessibility, but challenges arise as funds deplete over time. Land Package recipients struggle initially due to the lack of cash but later stabilize as they establish agricultural productivity. The Hybrid Package ensures the best of both worlds, offering financial liquidity and land security, leading to the highest satisfaction levels. However, these differences are not significant and are likely to vary by person to person irrespective of the package.

Chapter 6: Evaluating the efficacy of the Sariska Relocation Model vis a vis other relocation models of important Tiger Reserves in India.

6.1 Introduction

As mentioned earlier, relocation in Sariska started in 1966-67 through relocation of two guadas'- Kalighati and Slopka. In 1976, Karnakawas and Kiraska villages were relocated but due to ill-conceived displacement policy, the villagers returned to the Kiraska mala, putting a jolt to the efforts for the next 31 years, when Bhagani was relocated in 2007. Out of the 29 villages inside the CTH of the Sariska Tiger Reserve, 5 villages have already been relocated out of the 11 villages, being considered for relocation on priority basis.

The Relocation of villages in Rajasthan took a decisive step with the issuance of the Rajasthan State Relocation Package in 2002 for relocation of villages from Protected Areas -National Parks/Sanctuaries of the State. It had the provisions of the land package only, for the landless and the land-owners. But nothing much had been done in the sector of village relocation. Later the National Tiger Conservation Authority issued the revised guidelines in 2008, after the Sariska crisis, proposing two types of packages (Cash and land packages) which changed the focus towards relocation of villages for creating 'inviolable spaces. Sariska witnessed a new era of relocation after 1976, where voluntary village relocation, took a greater role alongwith the reintroduction of the tiger, as the NTCA directed that village relocation would be a pre-requisite for tiger reintroduction. Voluntary relocation took pace in all the tiger

reserves of the country, which led to some exemplary works in this area across the country, with innovations and States providing additional funds and convergence initiatives with other Rural development Schemes.

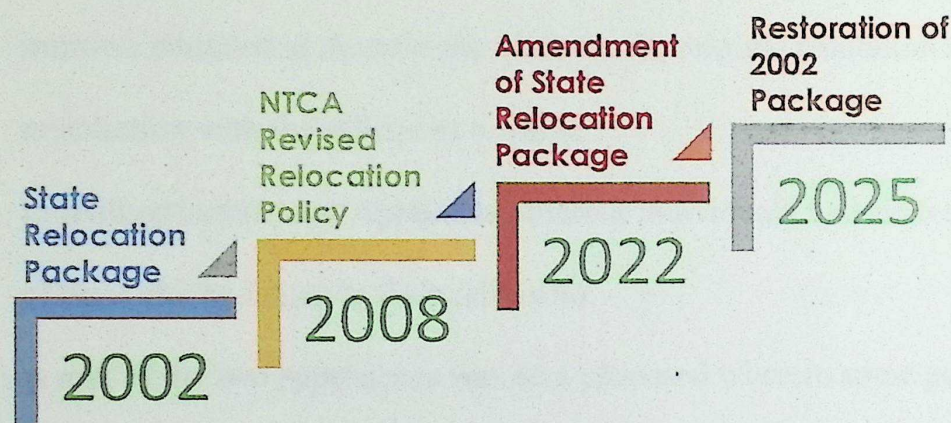


Fig. 6.1: Chronology of Relocation Policy/packages of Central and State Governments

6.2 Rajasthan State Relocation Package 2002

The Relocation Package for relocation of villages from the Protected Areas of National Parks/Sanctuaries of the State of Rajasthan was issued vide Government of Rajasthan Order No.F.11(2)Forest/99 dated 2nd November 2002. The sanction was further subject to the condition that no extra staff will be required at any stage and that there are no costs involved on the State Government.

Salient Points:

1. Prioritization of Protected Areas (National Park and Sanctuaries) and selection of villages.
2. Two different strategies were formulated:
3. Transplantation approach, wherein efforts were made to replicate and improve situation at the new site vis-à-vis the original habitation and involved negotiation with the village as a whole.
4. Individual Settlement Approach, wherein individuals will be settled in areas of their choice (close to their relatives).
5. A mix of the two approaches was also proposed wherein some people may be relocated by using Approach 2 and others under Approach 2.

The Relocation package defined 'cut-off date' as the date of socio-economic survey for identification of persons to be relocated and their right/assets. There was no provision of compulsory land acquisition, as the relocation activity was voluntary.

Land was to be provided by Forest Department, free from all encumbrances, as follows:

Point no. 5. AGRICULTURAL LAND:

Original Land holding + 1 hectare land shall be provided to each displaced family. Agricultural land will be allotted up to minimum of M.E.H. 4 acres (1.6 ha.) of unirrigated land or 2 acres (0.8 ha.) even to landless farmers.

Point no. 6. RESIDENTIAL PLOT:

Displaced family will be given a residential plot of equal area free of cost as they were having in the deserted village with the minimum area 5400 sq. ft. (60ft x90 ft.). If a person wants to have additional area for keeping their livestock, or any other purpose, this will be given @Rs.1.00 per sq. ft. subject to maximum total holding of area of 10800sq.ft.

The Implementation Committee will decide about the assistance to be provided to the relocated people, including house compensation, crop compensation, compensation for private wells, trees, disturbance allowance, transportation allowance and land development along with community works like approach road, drinking water, cattle pond, community land, dispensary, school and providing electricity to the villagers. Rs 84,000 was provided under individual compensation per family and Rs.16,000 under community works (Approach Road, drinking water, cattle pond, community hall, dispensary, school, electricity), the total amount for relocation earmarked as Rs. One lakh.

The Implementation procedure prescribed the following steps:

1. Socio-economic survey of the villages to be relocated.
2. Declaration of proposed package by holding meetings and workshops.
3. Negotiations of details for package, finalization of relocation site, drawing up of agreements including penalties for non-compliance of agreement.
4. Absentee landlords will have to be identified and land acquisition proceedings initiated.
5. Identification of motivating factors additional to relocation package and

ensuring their implementation for the benefit of relocated people at the relocation site.

6. Commitment of the State Government to allot lands as agreed during negotiations.
7. Development of Relocation Site:
8. Residences to be built by relocated people.
9. Community facilities to be built by Forest Department
10. Land Development to be done by Forest Department/NGO/people as per agreement
11. Destruction of old habitations: to be done by Department
12. Payment of Compensation for houses, land, disturbance allowance, etc: to be done by Forest Department in instalment of 20% in the beginning, 50% on leaving for new site and 30% on destruction of deserted area and completion of other formalities.

6.3 NTCA Revised Relocation Guidelines 2008

After the Sariska debacle and the recommendations of the Tiger Task Force 2005, the relocation package under the BOTD Guidelines, was revised in 2008. A new package for village relocation/rehabilitation was formulated and is being implemented, which adequately covers the “National Rehabilitation and Resettlement Policy, 2007”.

Two options:

1. **Option 1-** Payment of entire amount (Rs.10 lakhs per family now increased to 15

lakhs in 2021) to the family in case the family opts so, without involving any rehabilitation/relocation process by the Forest Department.

- Option II-** Carrying out relocation/rehabilitation of village from Protected area/ tiger reserve by the Forest Department. (Land Package- Land procurement [2 ha.]/development etc.,)

Amount to be as per following package:

Agricultural land (2 ha.) procurement & dev.	35%
Settlement of rights	30%
Homestead land and house construction	20%
Community facilities	10%
Incentive	5%

Figure 6.2: Amount earmarked (in %) for Option II families

6.4 Satpura Relocation Model

Satpura Tiger Reserve relocation model received the NTCA Award for Excellence in relocation of villages twice in 2011-12 and 2016. In the NTCA MEE 2022, Satpura ranked second in the Country. Satpura is CA I TS (Conservation Assured Tiger Standard) approved site which emphasizes to provide monitoring the relocated communities for 5 years.

Out of 5136 families in 49 villages, 3507 were relocated under Option 1 (68.3 %) and 1629 (31.7 %) under Option II. The first village relocated was Dhain from Bori

Range in 2004-05. 91 families were relocated under Option II (land Package) spending 91 lakhs (1 lakh/family). The next village relocated was Bori in 2009-10, from the same range, with 117 families but spending 10 lakhs/family, amounting to 1170 lakhs under Option II, due to the revised relocation package of NTCA of 2008. During interactions with the relocated villagers of Dhain, it was communicated that their houses were kutcha due to the less package amount for housing construction vis a vis the 2nd and subsequent villages, thereby creating a lower social status in the community, where 20 villages are settled in a cluster with pucca houses.

Some of the villages were visited and interaction with the relocated villagers under both Options to understand the success w.r.t. Sariska relocation process. Relocation of villages has been accomplished, in clusters with 10-25 villages at a single location, with well-planned roads and infrastructure.

Salient Features of the Satpura Relocation Model:

1. Option I: Payment of 15 lakhs per family in case it is opted voluntarily.

- a. In Forest village with no tenurial rights, two bank accounts are opened for each family, viz., as savings account with a deposit of 20% of the amount (joint account of husband and wife) and a joint savings account with the District Collector for 80 % of the amount. A fixed deposit account is also opened to accrue interest for at least 3 years.
- b. (i) In Revenue village, same as above with 2 bank accounts and
(ii) compensation as per asset evaluation to the individual first and remaining amount distributed equally for the development of the village.

2. Option II: Carrying out relocation and rehabilitation by the Forest Department with the following norms out of Rs. 15 lakhs per family (previously Rs. 10 lakhs):

- a. Two hectares of agricultural land is provided per family. For this purpose, clearance under the Forest (Conservation) Act, 1980, for diversion of degraded forest land is obtained.
- b. A community development plan is prepared for each relocated village in consultation with the District Collector while ensuring convergence with on-going District level schemes.
- c. 25% of the amount is given to the beneficiary as incentive and for house construction.
- d. 75% of the amount is used for the development of agricultural and community facilities as per the approved village development plan.
- e. The balance amount, if any, after the community development works should be deposited in the respective Gram Sabha to benefit the relocated villagers.
- f. Family includes Family – Husband, Wife and Children below 18 years of age, person (unmarried male or female) above 18 years of age, differently-abled person irrespective of age, Orphan irrespective of age, Widow, irrespective of age.

Pre-Relocation engagement: With pre-relocation meetings, entry-point activities are conducted by the Forest Department alongwith exposure visits, health camps, etc., Senior officers - Chief Secretary, Principal Secretary, Chief Wildlife Warden, Field

Director and District Collector conducted meetings with the villages for creating an enabling environment for winning the trust of the people.

Exposure visits to resettled villages Dhain, Bori and Sakot at new relocations were conducted to motivate the people.

Hybrid Model in Relocation package (though not included in the NTCA guidelines) was adopted wherein in a group of families, part Cash Package and part Land package is given consequently reducing land demand for each family based on their voluntarily consent. This meant that if a family consists of two or more relocation units, some could opt for Option-I i.e., cash and some would choose Option-II i.e, land. Twenty-one villages and 2,973 units, opted for Option-II, i.e., more than 50% have benefitted due to this scheme. They got 5-acre land per family and all the benefits under Option-II. This benefits the families for future sustenance.

MoU is signed between the beneficiaries and the Forest Department as a proof of voluntary resettlement. Participation of Public representatives from local leaders to Hon'ble Chief Minister, by visiting relocation sites which played a key role in the success of the relocation and satisfaction of the villagers.

Grievance redressal system in the form of

- a. Redressal at Forest guard level, then Range Officer level, ACF and finally DCF/FD level,
- b. Jan sunwai/ public hearings by District Collector every week.,

- c. *Samasya Kalyan Shivirs* at cluster level by Forest Department and all line departments in the district.

Weekly meeting of Collector and Deputy Director to resolve pending issues including beneficiary certificate, fixed deposit release, convergence, etc.,

Diversion of forest land: Under the option I, degraded forest land was diverted under the Forest (Conservation) Act 1980 and clearance obtained from MoEF&CC. The land is then developed under the guidelines issued by National Tiger Conservation Authority vide Order F. No. 15-4/2010- NTCA on Voluntary Village Relocation. 3910.57 hectares of forest land was diverted for relocation. The forest land of 3145.765 hectares area, has been denotified, to legally enable the relocated families for ownership and make them eligible for benefits of different government schemes.

As per the Hon'ble Supreme Court Order dated 28.01.2019 wherein in IA No. 3924 of 2015 W© 202/1995 legal status of diverted land may be changed to non-forest land to revenue land in case of voluntary relocation of villages from tiger reserves. 12 villages have been notified as revenue villages.

4994.31 ha. of revenue land vacated inside Tiger Reserve in the 18 revenue villages has been notified as Reserve Forest. The mutation in favor of the Forest Dept. has led to a net gain of 1038.236 hectares in forest land as forest land diverted as above was 3910.57 hectares.

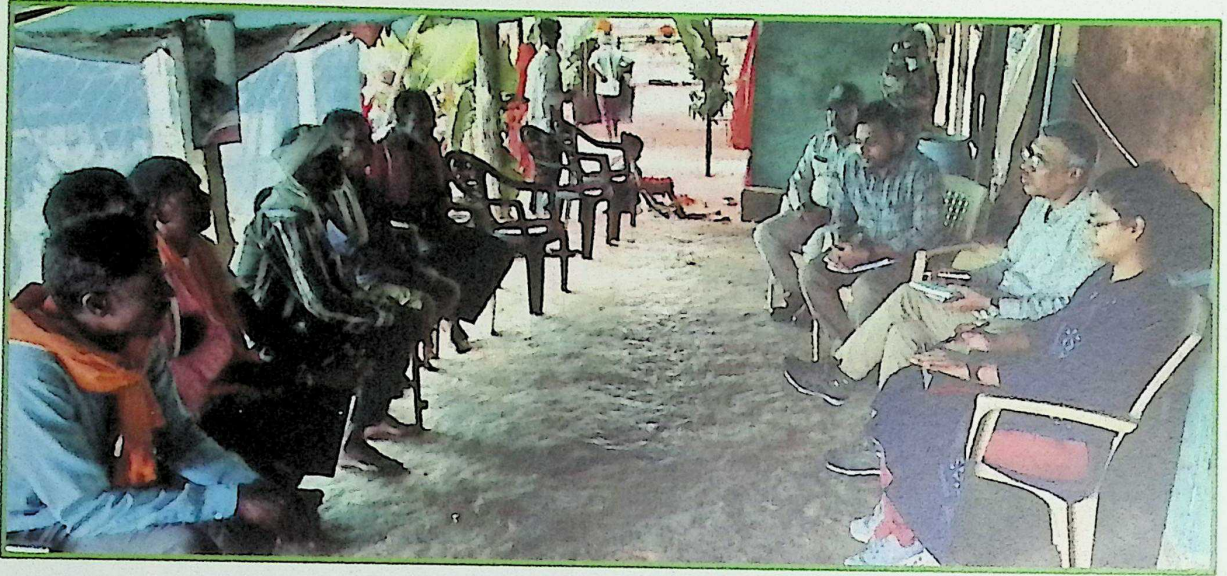


Figure 6.3: Meeting in Village Dhain (first relocated village in 2004-05) outside Satpura Tiger Reserve.



Figure 6.4: Meeting and discussions with relocated villagers from Satpura under Option II

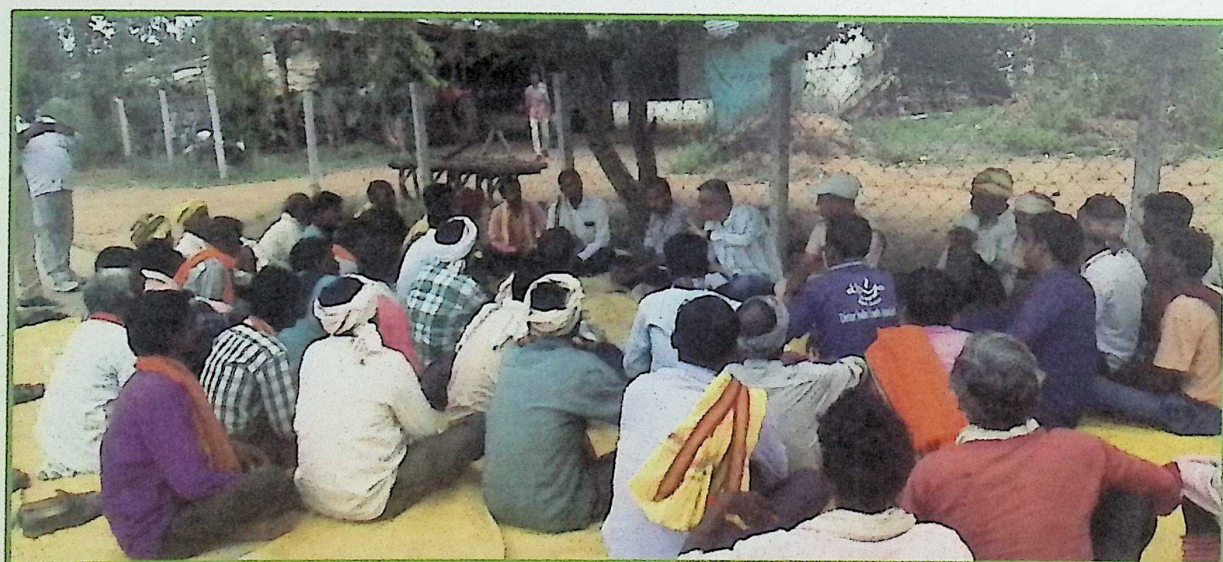
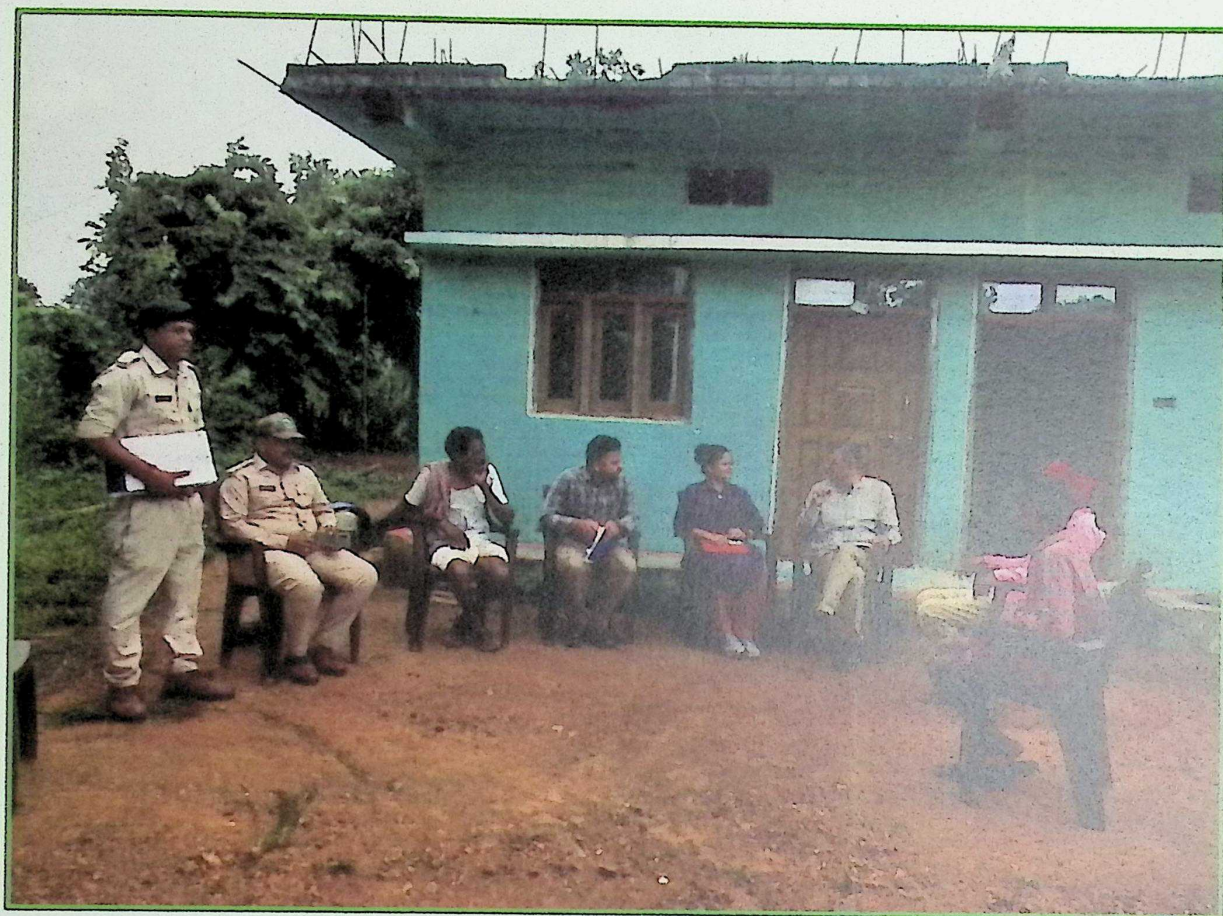


Figure 6.5: Meeting with villagers in 2nd cluster on highway (Land package) in Satpura

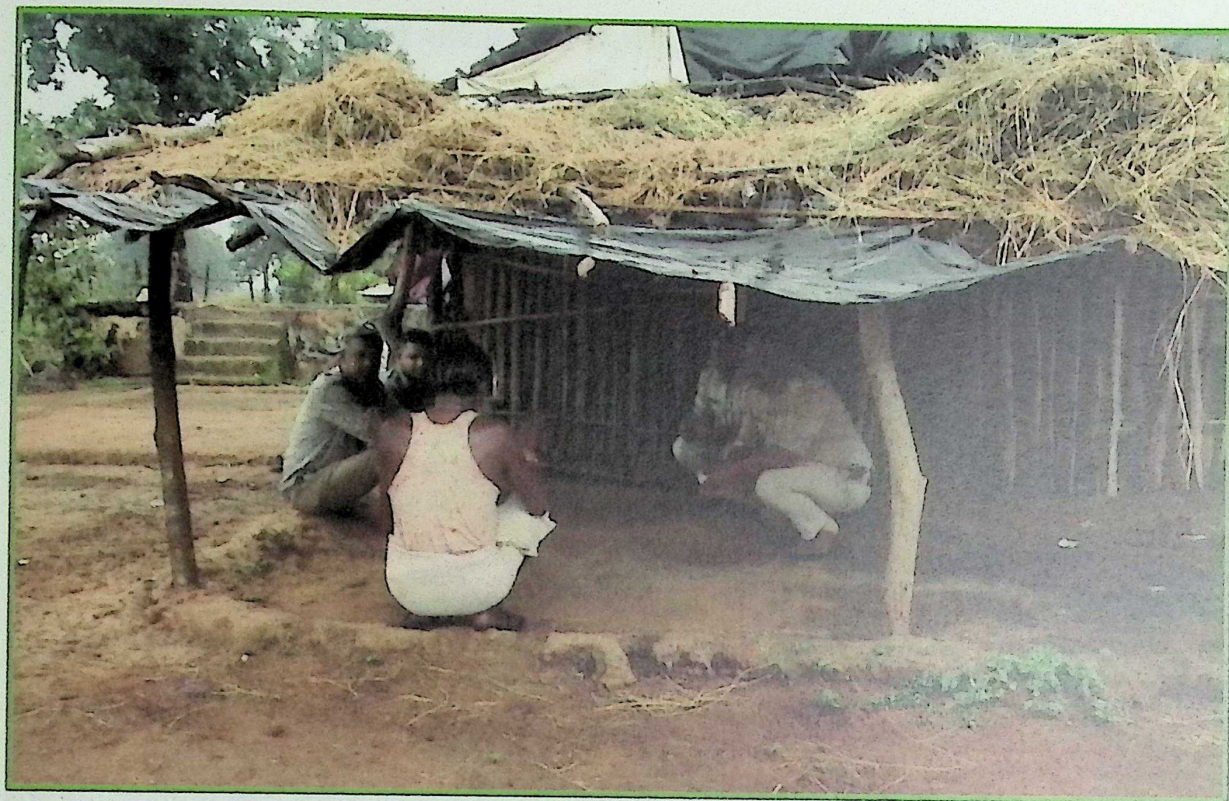


Figure 6.6: Meeting with villagers in Land package in Satpura

Handholding of relocated villages in Option I & Post-relocation support:

Satpura Tiger Reserve has initiated the handholding of the relocated villagers under the Option I, though it is not obligatory on part of the Park Management to do it. In villages relocated under Option-I, where funds were limited, all basic facilities have been provided through convergence of and engagement with civil society organisations working in the area. Under Option-I, in which the villagers are free to settle anywhere, development is not the mandate of the park management. But the park management facilitated development in Option-I villages and helped them to select and settle in one place. In these villages, the park coordinated with district administration and other NGOs to provide the basic amenities like roads, electricity,



Figure 6.7: Meeting with villagers of Pattan (Cash Package) in Satpura Tiger Reserve

drinking water facilities, etc. As the park management is also sensitive to their issues in the new locations, it used Park Development Fund to provide basic facilities and conducted various livelihood training sessions for the villagers.

While the participation of district administration for eligibility determination and payment of compensation is mandated under the law, Satpura Tiger Reserve has assiduously worked to provide post-relocation support to the villagers through coordination with different line departments and smooth delivery of government services. This coordination and convergence of funds is especially important for the villages relocated under Option-I, where post-relocation handholding is not mandatory. This helps to avoid duplication and ensures that the villagers do not have to spend the money received as compensation in anything other than buying agricultural land, building their houses, education, etc.

Schemes like Pradhan Mantri Awaas Yojana, Mukhya Mantri Awaas Yojana, Gram Sadak Yojana, PM Ujjwala Yojana, Nal Jal Yojana, Swachh Bharat, schemes of the agriculture department like Surajdhara Scheme and Annapurna Scheme, drip irrigation, and fruit trees cultivation support from Horticulture department and many others were garnered to improve the lives and livelihoods after relocation. Jan Bhagidaari or Public Participation scheme has been successfully used for provisioning various amenities and promoting ownership. Recently with the financial support of Rs.4.5 crore from MP State Minor Forest Produce Federation, electricity sub-station was established in Babai cluster to solve the power supply to 23 relocated villages.

245 guides (27 women) and 434 drivers are working in eco-tourism directly with

Satpura Tiger Reserve in core and buffer. 49 villagers work as cooks, hospitality staff, boatmen, etc. Apart from these, nearby tourist operators are also hiring hospitality staff from these villages. Many villagers continue to work in the tiger reserve for habitat management work through the National Rural Employment Guarantee Scheme. The process of rehabilitation is ongoing to this day. Support from the tiger reserve is available to all the villages in case they have any difficulties like coordinating with district administration, buying land, and adapting to their new life in the mainstream society.

6.5 Relocation Model of Maharashtra

In Maharashtra, families agreeing to relocate are given the same amount of 15 lakhs as per revised guidelines of NTCA. But landowners are given compensation from the State Government, unlike in Sariska, where there is no compensation for land given to people opting for cash package.

Option 1: All eligible families get 15 lakh Two instalments (1+14) as a package amount.

After the valuation of property, land is compensated @ 4 times the ready reckoner (given by sub registrar).

Immovable property (house, trees) is calculated at 2 times the valuation given by the concerned department. e. g. 1) House PWD 2) Fruit Trees- Agricultural dept 3) Teak and other- Forest Department.

Option II:

1. All the land-holders and landless families are provided 2 hectares of land per family. If the land is available in the command area of the irrigation project, then such land shall be allotted else the Collector can allot such land from grazing land, e- class land.
2. 180 sq. mtr. plot for house construction + Rs 3 lac for house construction + Rs 75000 for Misc expenses.
3. Even the Department can purchase private land for allotment (by following due procedure).
4. Option of de-reservation of forest land as per FCA 1980 is also applicable.

Additionally, families opting for option II, get valuation of land (as per ready reckoner) + 30% solatium. (Here land means land and other immovable property attached to it as per MLRC) other immovable property would be treated similarly. Relocation of such families is the responsibility of the Govt. 65% of the total package amount can be utilized for providing basic amenities at new places.

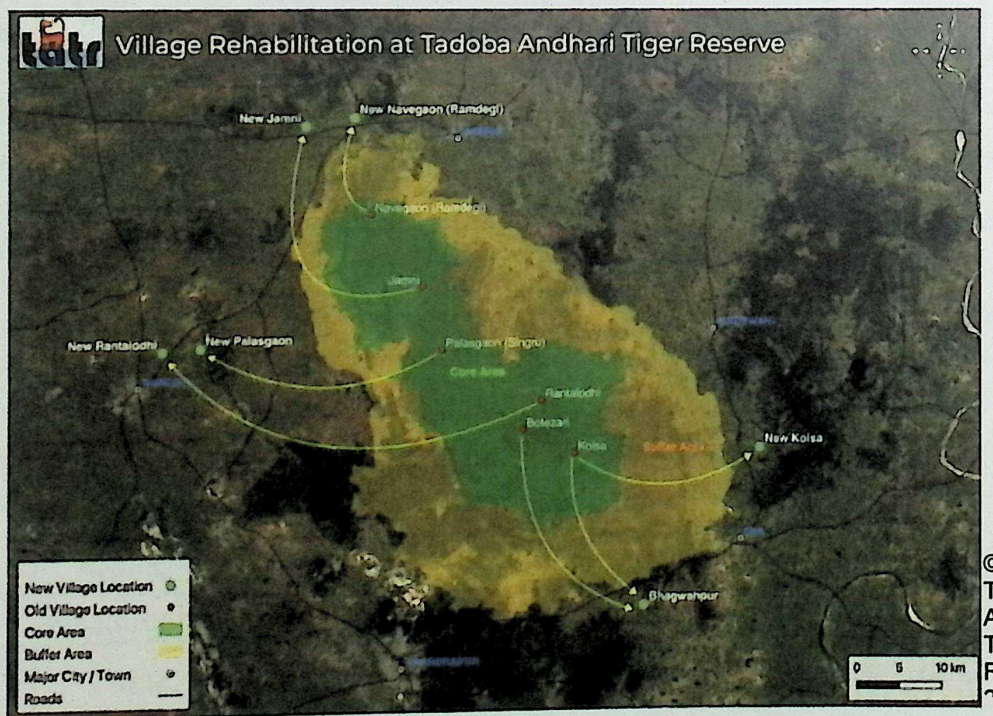


Figure 6.8: Village Relocation at Tadoba Andhari Tiger Reserve

In the Tadoba-Andhari Tiger Reserve (TATR), village relocation and rehabilitation are conducted in accordance with the Maharashtra Government's Rehabilitation Government Resolution No. WLP-012/P.No.122/F-1 Dt. November 3, 2012, and subsequent related resolutions, as well as guidelines from the Central Government. Since 2003, TATR has undertaken the systematic relocation of six villages from its core area: Boteyzari (2007), Kolsa (2007 and 2022), Navegaon (Ramdegi) (2013), Jamni (2014), and Palsagaon Singru (2019). Rantalodhi is currently undergoing the rehabilitation process. These relocations were conducted with the informed consent of the villagers and included the implementation of significant rural development initiatives at the new sites, ensuring the preservation of the communities' cultural and social integrity.

Sr. No.	Village Name	Year of Completion	Option I	Option II	Eligible Beneficiaries / Families	Total Relocated	Affected Area in Core
1	Boteyzari	2007	-	-	79	79	34.26
2	Kolsa	2007			49	49	71.93
		2012 - 2016	48	21	69	69	
		2022	64	80	144	144	
3	Navegaon (Ramdegi)	2013	129	111	240	240	181.23
4	Jamni	2014	100	100	200	200	80.62
5	Palasgaon Singru	2019	56	89	145	145	58.45
6	Rantalodhi	Ongoing	79	132	244	211	45.96
	Total		427	582	1170	1137	472.45

Table 6.1: Progress of relocation in Tadoba Tiger Reserve

Status of Relocation Program at TATR

This table details the successful relocation of six villages from the core area of the Tadoba-Andhari Tiger Reserve (TATR) in Maharashtra, India. Since 2007, a total of 1137 families have been relocated, out of 1170 eligible, freeing up 472.45 hectares of critical tiger habitat. The data highlights the number of families opting for different compensation packages (Option I and Option II) and the total area impacted.

Option I: Cash Compensation Package

Eligible beneficiaries who opt for this package receive a one-time compensation of INR 15 lakhs per family (earlier INR 10 lakhs, increased by the Govt. of India Order No.F.No.15-3/2008-NTCA (Vol. III) Pt. New Delhi, Dt. 8th April 2021) which is structured as follows:

1. Direct Cash Transfer:

- 50% of INR 15 lakh (INR 7.5 lakh) is directly transferred into the beneficiary's bank account.
- 50% of INR 15 lakh (INR 7.5 lakh) is deposited into a Monthly Income Certificate (MIC) to ensure a sustained financial inflow over time.

2. Land Valuation Compensation:

- Land assets at the old village site are valued at 400% of the ready reckoner rate.
- The amount is transferred directly to the beneficiary's bank account.

Option II: Land Allocation & Rehabilitation Package

This package provides land and infrastructure support for families opting for resettlement in a new village with planned development. The key components include:

1. Land Allocation:

- 2 hectares (5 acres) of agricultural land is provided irrespective of the previous landholding.
- A residential plot is allocated within the designated rehabilitation area.
- The land is classified as Occupancy Class II, with a conversion restriction to Occupancy Class I for 10 years.

2. Financial Assistance for House Construction:

- INR 3 lakh is provided as assistance for house construction.
- INR 75,000 is given as an incentive to encourage settlement in the new village.

3. Land Valuation Compensation:

- Land assets at the old village site are valued at 130% of the ready reckoner rate.
- The amount is transferred to the beneficiary's bank account.

4. Infrastructure and Public Facilities at the New Site:

- Basic Infrastructure: Drinking water, electricity, roads, and drainage.
- Education & Health: School, Anganwadi, and Healthcare Sub-center.
- Livelihood Support: Agricultural water supply, grazing land, and market areas.

- Community Facilities: Gram Panchayat Office, Community Hall, Cremation/burial grounds, and a Bus stand.

The TATR relocation program ensures equitable compensation and sustainable resettlement while providing flexibility to affected families. Each household head, all adult males (18+), and unmarried females (18+) are considered separate beneficiaries, allowing a single household to have multiple beneficiaries. This structure enables families to adopt a combination of Option I (cash compensation) and Option II (land allocation & rehabilitation), ensuring both immediate financial security and long-term sustainability. By adhering to government resolutions and NTCA guidelines, the program not only minimizes displacement hardships but also fosters economic resilience, access to modern infrastructure, and improved livelihood opportunities, all while contributing to wildlife conservation and habitat security.

Conclusion

The village relocation program within the Tadoba-Andhari Tiger Reserve (TATR) has delivered significant dual benefits. Firstly, the removal of human settlements from core reserve areas has resulted in a marked improvement in habitat quality. The reduction of anthropogenic pressure has led to an exponential increase in prey populations within former village sites. Notably, the newly formed meadows are consistently utilised by tigers, particularly females with cubs, demonstrating their vital role as breeding habitats. Secondly, the relocated communities have experienced a tangible enhancement in their living conditions. They have gained access to improved education, healthcare, and livelihood opportunities, enabling their integration into the mainstream development process and contributing to their overall well-being.

6.6 Relocation at Buxa Tiger Reserve

In Buxa Tiger Reserve, 2 villages were relocated after 20 years. The families were given 15 lakhs as per NTCA guidelines but the most striking feature of the relocation model is additional land for homestead to the same families by the Land Department, Government of West Bengal. It signifies that a family is actually getting double package of cash and land package together, which is perhaps, very unique and highly liberal in India. As a measure to secure the livelihoods, the State Government has funded the relocated villages for Homestay facilities, which is a welcome initiative to handhold them.

Village Relocation from Buxa Tiger Reserve

Buxa Tiger Reserve (BTR) is the 15th Tiger Reserve in the country situated in the Alipurduar district of West Bengal. Total geographical area of the tiger reserve is 760.86 sq.kms. The core/critical tiger habitat occupies 417.55sq.kms. Relocation of two villages Gangutia and Bhutiya Basti, has initiated the process.

The persistent threats have led to repeated discussions and proposals for relocating the village since 1984, with notable efforts in 2008 and 2019.

In the most recent effort, two villages from Buxa Tiger Reserve—Gangutia and Bhutibasti—were selected for relocation due to their precarious positions in the core area and the annual flooding they endure. Bhutibasti, with a population of 71, and Gangutia, with 191 families, both faced similar challenges, although Gangutia's larger population and the direct threat from the Gangutia River made its situation particularly dire.



Figure 6.9: District level Relocation meeting at Buxa Tiger Reserve

District Level Implementation Committee, chaired by the District Magistrate (DM), was notified through File No. FOR-99/200/2019 & Memo No. I/155766/2021, to oversee the process. Additionally, a monitoring committee under the Chief Secretary was notified via 183-For/FR/O/11M-02/2021 dated 17th February 2022, to ensure transparency and proper implementation.

The villagers of Gangutia were thoroughly briefed on the relocation scheme and the available options. This process culminated in a Gram Sabha meeting on October 7, 2021, in the presence of the Deputy Forest Director (DFD) Parveen Kaswan, IFS of BTR West. The meeting, which was video-recorded, resulted in a unanimous and voluntary resolution by the Gram Sabha to relocate.

All 191 eligible families chose Option I, opting for the INR 15 lakh cash compensation package. The villagers provided their written consent, thereby formalizing the relocation decision. The Land Department was tasked with identifying and allocating suitable land for the resettlement of the villagers. **Each eligible family was allocated 8 decimals (0.08 acres) of land for building a house and creating kitchen gardens, a benefit provided in addition to the 15 lakh compensation under Opt. I.**

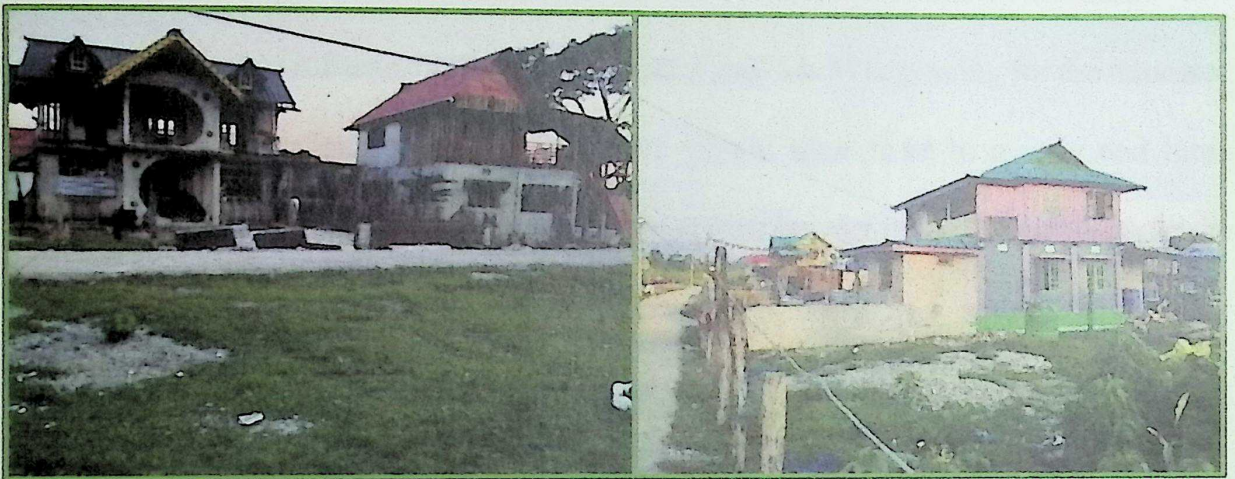


Figure 6.10: Homestays by Option I families relocated from Buxa tiger Reserve

The DLIC, in consultation with the villagers, decided on a timeline for the relocation process, contingent upon the receipt of funds in the District Magistrate's account. Once the first installment of INR 7.5 lakh was deposited into the beneficiaries' accounts in the second week of December 2023, the relocation process commenced in earnest. By April 2024, the relocation of Gangutia village was successfully completed. The villagers moved to their new homes, marking the end of a long and challenging process. With the relocation over, other departments, as per the convergence plan decided in the second DLIC meeting, began working on essential infrastructure projects. This included laying down water pipelines, installing electricity connections,

and constructing roads, ensuring that the relocated community had access to the necessary amenities and services in their new settlement.

The final phase of the Gangutia village relocation was marked by meticulous planning and execution, as overseen by the District Level Implementation Committee. From the signing of the MoU to the completion of the relocation, every step was designed to ensure that the process was smooth, transparent, and beneficial to the villagers. The successful disbursement of funds, allocation of land, and commencement of infrastructure development signal a new beginning for the relocated families, who now have the opportunity to rebuild their lives in a safer and more sustainable environment. The convergence of efforts by various departments under the guidance of the DLIC reflects a comprehensive approach to resettlement, one that prioritizes both the immediate needs and long-term welfare of the community.

6.7 Karnataka Model:

In the Bhadra Tiger Reserve, 16 villages consisting of 736 families were located within the Sanctuary. The Project for relocation was prepared in 1992 to acquire 861 acres of revenue land of these villages and to relocate it outside the Sanctuary. 431 families from 10 villages have been relocated by acquiring 708 acres land. In Bhadra, Government issued the Rehabilitation and Resettlement package benefits by Land acquisition and compensation under the Land Acquisition Act (Government of Karnataka, 2002). The relocated families are included in the list of beneficiaries, based on eligibility, for providing benefits of different central and state government schemes, especially of the tribal department, which actually elevates the package to many times, when converted to monetary terms.

PARAMETERS	SATPURA	SARISKA
Relocation commencement	2004-2005	2007
Number of villages relocated till 2023	49	5(complete) and 6 partially
Number of families relocated	5136(100%)	1041(70.7%)
Option I (Cash Package)	3507	508
Option II (Land Package)	1629	533
Existing villages in CTH	Zero	24 (6 partial+ 18 complete)
Handholding	In both packages	Only in Option II (Land package)
CSR Funds	Funds donated and utilised for Agri-improvement practices, water conservation, skill trainings, etc.	Very negligible or No involvement
Grievance Redressal System	Very structured and Institutionalised, with Forest guard level/RO level and Field Director levels. Followed by <i>Jan Sunwai</i> every week by District Collector, Forest Department and NGOs, <i>Samasya Kalyan Shivirs</i> organised at cluster level with Forest Department and line Departments	Not very structured. District Relocation Implementation Committee existing.
Memorandum of understanding with villagers	Consent for Option I and Option II taken by every villager, specifying all points of amount to be transferred	Agreement is signed with families
Livelihood Activities	324 Nature guides, 434 drivers employed in Satpura Tiger Reserve	Few volunteers (below 50) in Tiger monitoring activities, and few Bagh mitras initiated.
Conversion of Forest land to revenue land	3145.765 ha out of 3910.57 ha forest land converted to revenue land.(80.4 %)	530 ha. out of 754.34 ha. forest land diverted for relocation converted to revenue land.(70.2%)

Table 6.2: Comparison of Sariska Relocation Model with Satpura Model

Comparison between Tiger Reserves:

Based on the following data a comparison was drawn between the different models while assigning parameters based on which the success could be assessed.

PARAMETERS	SARISKA	RANTHAMBORE	TADOBA ANDHERI	MELGHAT	BUXA	SATPURA
Number of Complete villages relocated out of CTH	5/29 (17%)	8/68 (12%)	5/6 (83%)	19/33 (58%)	2/15 (13%)	36/36 (100%)
No. of families complete relocated	322/ 4115	732/9229	926//1170	4468/5140	242/1019	4006/4006
Total no. of families relocated (including partially relocated villages)	1041	1787	1137	4708	242	5136
Option I: Option II	1:1.35	1:0.58	1: 1.36	1:0.05	1:0	1:0.46
Impact on Tiger population growth (2006-2022)	0 to 24+	32 to 57	34 to 97	30 to 57	0 to 1	39 to 50

Table 6.3: Comparison of Tiger Reserves

6.8 Results and Discussion:

The Sariska relocation commenced from 2007. Similar has been the case for relocation in all tiger reserves mainly because of the recommendation of the Tiger Task Force Report in 2005 post -Sariska crisis, that finally paved way for paradigm shift in focus towards village relocation and issuance of revised relocation package by NTCA. In the same span of 17 to 18 years different areas as analysed above, have performed differently. The pace of relocation in Satpura has been particularly exemplary. Around 50 villages have been relocated in the last 17 years whereas, 5 villages in Sariska, 8 in Ranthambore, 19 in Melghat, 2 in Buxa and 5 villages in TATR, have been completely relocated. Where Satpura has been completely freed of human habitations in the CTH, TATR has also created inviolate spaces by relocation of 5 out of 6 villages. Sariska on the other hand, is still facing a challenging task of relocation and has been able to relocate 5 completely and 6 partial villages out of 29 villages.

A comparison has been made between the relocation models of Satpura and Sariska. Though the Satpura Tiger Reserve had achieved outstanding progress in the number of villages relocated with lot of convergence initiatives with related Departmental schemes (PHED, Tribal Department, Rural Development Department, Agriculture Department, etc.) with active participation of corporates in CSR and civil societies, the degree of difficulty in Sariska seems to be very high/tough in comparison to Satpura. The villagers being primarily Gujjars in Sariska are well -off compared to Satpura tribals, mostly being Gonds, Korkus and correspondingly the bargaining power of the gujjars was very high compared to the tribal villagers of Satpura. More

inclination towards cash package was primarily due to less land cost when compared to Sariska, which is in NCR region.

The initiatives taken in the Satpura model for its success, pre-relocation engagements, Hybrid Compensation package, participation of villagers and public representatives, rehabilitation support post- relocation by generating livelihoods in tiger reserve tourism activities, etc, handholding to option I families, involvement of experts, corporates and civil society organizations, very good and effective redressal systems, notification of reserve forest to revenue areas after relocation and revenue villages evacuated for relocation to forest lands, are important aspects that need to be replicated in Sariska. The Maharashtra Model of liberal policy of providing compensation @4 times DLC to Option I families, making the cash package equally attractive is also worth emulating in Sariska.

Though the adversities in NCR region, where Sariska falls, is completely different from the areas of Satpura, Tadoba or Melghat, some institutionalization improvements can be replicated to accelerate the pace of relocation in Sariska.

The relocation models being implemented in the different tiger reserves in India, presents more or less uniformity in enforcement but the difference in outcomes can be inferred mainly due to structured plan, motivated team and the dedication of the Field officers along with co-ordination with the District Administration. The Sariska relocation progress is slow compared to the other 5 tiger reserves, mainly due to some factors of high land value in National Capital region (NCR), almost negligible handholding of cash package families, less conversion of forest land into khatedari

lands, etc. (Jain, & Sajjad, 2016). The other States like Maharashtra and West Bengal have gone a step ahead by contributing additional support in the form of additional fund and extra land to the families. The slow progress in Sariska, can be attributed to reluctance of the people coupled with lot of adversities, compared to other tiger reserves. While it cannot be denied that the district land rates fixed in Alwar being in NCR, is extremely high, it remains as the major impediment on the fast pace of relocation. Together the convergence of schemes, robust and regular grievance redressal mechanisms need to be activated. The data revealed that what initially started as a positive trend has now reached a point of stalemate with gradually less interest in the cash package of 15 lakhs, for obvious reason of being in possession of a property worth crores rather than 15 lakhs of cash under Option I of the NTCA relocation package.

Chapter 7: Formulation of a Rehabilitation package for assisting the Government of Rajasthan, to meet its stated policy objectives, after comparing the existing Relocation Policies of important Tiger Reserves of India.

7.1 Introduction

After the Sariska crisis in 2005, the Relocation Policy of Government of India was revised based on the recommendation of the Tiger Task Force and as per the revised relocation policy of NTCA in 2008, the State of Rajasthan implemented a combination of both the policies (with compensation @Rs.1 lakh/family till 2008). A majority of the cases of relocation of people (especially STs) from PAs were financed @ Rs.1 lakh/family, in accordance with the provisions of a Central Government scheme called the Beneficiary Oriented Scheme for Tribal Development (BOTD), implemented by the Union Ministry of Environment, Forests (MoEF). The NTCA has issued revised guidelines for relocation of villages in Feb 2008, when the cash package amount was increased from Rs.1 lakh/family to 10 lakhs per family.

NTCA has enhanced the amount of relocation package from Rs. 10 lakhs to Rs. 15 lakhs / family vide letter dated 08/04/2021. The progress of relocation in Sariska pre-2008 and post 2008 is tabulated as follows:

Year	Number of families relocated
2007-08	21
2008-09	30
2009-10	117
2010-11	95
2011-12	89
2012-13	166
2013-14	73
2014-15	5
2015-16	36
2016-17	27
2017-18	4
2018-19	0
2019-20	12
2020-21	83
2021-22	10
2022-23	133
2023-24	55
2024-25	85
TOTAL	1041

Table 7.1: Progress of relocation of families post Sariska debacle

7.2 Amendment in State Relocation Package on 07.09.2022

Due to the paucity of land in the National Capital Region in Alwar, Government of Rajasthan decided to amend the Clause 5 of the Rajasthan relocation package 2002 as follows:

Clause 5: Land Package:

- i. The Value of land with family shall be calculated assuming possession of agriculture land on 1.6 ha. of unirrigated land /0.8 ha. Of irrigated land, as the case may be, and 5400 sq. ft. of residential land.
- ii. District Collector will fix rates for different villages to be relocated for agriculture and residential land, depending upon the rates in nearby villages.
- iii. Collectors will also declare rates for agricultural land and residential lands for villages where rehabilitation is to be done in case such rates are not declared available already.
- iv. Family to be relocated can be given land equivalent to the value arrived at using (i) and (ii) above.
- v. Family can opt for agricultural and/ or residential land depending upon availability.
- vi. Area of agricultural and/ or residential land to be allotted shall be such that land being allotted has value equal to/less than calculated value of land with family calculated as at (iv) above.
- vii. Families to be relocated be entitled to receive compensation toward structures

like house etc.

- viii. This package shall be available to all families which have not taken benefit of earlier package.
- ix. In cases, where few families of village being relocated have already taken the old package, remaining families of such villages will have option to take benefit under old package, in case they want to do so

Clause 6 deleted.

Rejection of the amendment dated 07.09.2022 in the Relocation package 2002:

The revised policy created disgruntlement in the villagers and after its issuance from the Office of the CWLW, many villages submitted their dissent and rejection to voluntarily relocate. This modification adversely affected the families holding more than 0.6 ha. of unirrigated land (0.3 ha of irrigated land) as they would be entitled to Original Land holding +1 ha. Land in 2002 package (which would be certainly more than 1.6 ha.) while in 2022 amendment, their land entitlement will be fixed at 1.6 ha. for calculation purposes.

Interaction with the villagers in the villages still residing in Sariska, revealed the following:

1. Revised package mentioned in the order number F11 (2) Forest / 99 dated 07.09.2022, under which henceforth, the relocating villagers would be compensated by only that much area of agricultural land whose DLC rate would be equivalent to the DLC rate of 1.6 hectares of land in the relocating village.

2. As a result of this amendment, the villagers who would be opting for relocation now onwards would be receiving lesser than the 1.6 hectares as received by earlier families which have relocated.
3. Very less interest by the villagers of Bera, Raika, Naya Kundalka and Purana Kundalka.
4. Demand for revival of old package of 2002.

In 2025, in a meeting of the State level Relocation Monitoring Committee, a decision was taken to supersede the Government Order of 07.09.2022 and the package guidelines of 2002, clause no.5 was reiterated., Original Land holding + 1 hectare land shall be provided to each displaced family. Agricultural land will be allotted up to minimum of M.E.H. 4 acres (1.6 ha.) of unirrigated land or 2 acres (0.8 ha.) even to landless farmers and 60ft. x 90 ft. homestead land.

7.3 Analysis of Rajasthan Relocation Package:

7.3.1 Why land package is more attractive?

During the discussions and interviews with the villagers residing in the Tiger Reserve, it was apprised that most of the villagers' desire and demand land package as it enhances their security and sustenance.

The DLC Rates of different tehsils in Alwar are appreciably high, as Alwar District is in the NCR (National Capital Region) close to New Delhi.

Villages	DLC Rate for Irrigated agri. land away from road /hectare		Non-irrigated/hectare 2024
	2017	2024	
Khertal Tijara	35,56,000	57,60,000	130,00,000
Berdod Roondh	120,76,920	222,00,000	
Mojpur Rund	Not Available	17,46,000	
Malyarjat		50,00,000	
Thanagazi Bandrol		12,76,000	
Kaniabass(Rajor)-Tehla		6,28,000	

Table 7.2: DLC Rates in the relocated villages

Source: <https://epanjiyan.rajasthan.gov.in/FindDlcRate.aspx> of Registration & Stamps Department, Ajmer, Rajasthan.

As depicted in the above table, the DLC rates of the land in present day is very high, ranging between 50 lakhs – 200 lakhs per hectare compared to DLC rate within or close to villages situated within the Tiger Reserve, i.e., 6.28- 12.76 lakhs. Consequently, the rates when compared to areas outside Sariska is 10 to 35 times more, thereby tempting people to opt for land package rather than cash package.

It is also pertinent to mention that initially when relocation re-started in 2007, the land cost would have been less and villagers relocated on the land and the cash package but in the later years the trend has been more towards the land package as it provides land of 1.6 hectares of agricultural unirrigated land with homestead land of 5400 sq.ft. even to the landless.

For the villagers opting for cash package, the land bought by them is less in area, with the amount (10 lakhs/15 lakhs) when the DLC rate is compared. The villagers residing in the Tiger Reserve compare and desire for land around the

relocated areas, but due to non-availability of forest land, the negotiations and the dialogues with the villagers lead to delay and non-decisiveness.

More preference to Option II (Land package) by families vis a vis Option I (Cash package) has been highlighted due to the following reasons:

1. Unirrigated land 1.6 hectare + 5400 sq. ft + 15 lakhs per family in land package (Option II) to be handled by Forest Department as per NTCA guidelines.
2. Compensation of own land as per DLC rates is given to Option II (Land package) families on the contrary, families opting OPTION I, are not given any land compensation except Rs. 15 lakhs, in three instalments.
3. The Maharashtra model has a provision of 4 times of DLC rate of the value of land and valuation of trees and houses apart from the cash package amount, to the Option I (Cash Package) families, which is not the case of Sariska.

7.4 Challenges in Relocation of villagers within tiger reserve and relocated villagers:

7.4.1 Inclusion of children above 21 years in surveys after 2008:

Focused interviews with the villagers of Kiraska, Kankwari, Devri, Haripura, etc., has revealed that the survey which was conducted in 2008, 2009 and 2011 had kept the age limit of families eligible for relocation at 21. But the families that have not been relocated from the priority 6 villages (as tabulated above) have children who were below 21 years (3 years or above but below 21 years) during the survey of 2008,

2011,etc. have crossed the age of 21 in 2025 and should be given packages for voluntary relocation. The villagers do not want to relocate, if the conditions of inclusion of their children in the new family and land package option are not met. Hence, the villagers demanded cut – off date of survey to be extended to include families whose children have become 21 or above but that would entail additional funds due to inclusion of new families.

As per the survey, approximately 180-200 additional family units will be added, on change of cut-off date to include the children with corresponding financial implications.

Villages	Economic Survey date	Total families	Relocated families	Families under progress	Families Not consented	Addl. families if cut-off date shifted
Kankwari	31.03.2008	173	145		28	28
Kiraska	08.12.2009	210	131	39	40	37
Sukola	30.11.2009	64	42		22	30
Haripura	30.03.2011	78	50	06	22	20
Dewri	17.01.2011	191	95	04	92	65
TOTAL		716	463	49	204	180

Table 7.3: Increase in the number of families due to change in cut-off date in 5 villages

Progress done during the Research Study Period:

The State Level Monitoring Committee, chaired by the Chief Secretary, Government of Rajasthan had decided in May 2025, to empower the District Relocation Committee headed by District Collector, to include the children, who were included in the survey upto 2011, under the definition of family, with the conditions:

1. Ensure that the families already relocated do not resettle in partially relocated villages to make further claims,

2. This relaxation shall be treated as a one-time exception.
3. The relaxation would be applicable for one year from the date of the decision (27.05.2026).

But it was found that the process has not yet been completed for all the priority villages. Further now the families whose children are still below 21 years in 2026, are not intending to relocate till their children become eligible for the package. As seen earlier, partial relocated villages do not provide the desired advantage to conservation, as the families stay back with the cattle, keep increasing if not relocated but the process being voluntary, the field management should keep trying to convince them to move out.

7.4.2 Pending Land Rights since relocations in 2008,2011,2012,2022 and 2023

In Rajasthan, khatedari rights, are governed by the Rajasthan Tenancy Act 1955, which grants cultivators heritable and transferable rights over agricultural land. These rights, of the referred as the “highest “form of tenancy, are generally awarded to cultivators, who have possessed land for over 12 years as per the relevant provision of the Act. Before this conferment, the owners are given “gair-khatedar” rights, which are heritable but not transferable. The normal conversion time from a gair-khatedar to a khatedar, is 3 years. In the relocated villages, data received as below, show significant delay in conferring the khatedari rights to the relocated families. Land with Khatedari rights can be converted (sold/transferred) to non-agricultural use through a legal process (Section 90A of the Rajasthan Land Revenue Act), allowing for urban development.

7.4.3 Status of land rights at five relocated sites

During informal discussions, the relocated villagers expressed their dissatisfaction due to delay in gair-khatedari and khatedari rights. All the relocated families have not yet received gair-khatedari rights or permanent land rights (khatedari rights) for the agricultural land and the homestead land.

53.3. % families have received gair-khatedari rights till 2026 and only 14.5 % families have received khatedari rights after relocation.

66.7% of the families in Bardod Rund, have received the khatedari rights only but in the other four relocated sites, allotment of khatedari rights are still pending.

This is creating gradual distrust and resentment towards the management. Efforts need to made for providing the rights in coordination with Revenue officials and public representatives.

Relocated Land (Forest /Revenue)	Area	Villages Relocated	Number of families	Gair Kahtedari Rights given (No. of fam.)	Khatedari Rights given (No. of fam.)
Bardod (Nangla Rund (Forest land)	222.67 ha	4	135	108	90
Mojpur Rund (Forest Land)	181.67 ha	2	80	77	0
LojKanpura (Revenue land)	127.53 ha.	3	64	17	0
Tijara Rund (Forest Land)	350 ha.	6	178	129	0
Phulawas, Raipur, Berla (Revenue land)	760.26 ha.	6	164	0	0

Table 7.4: Status of land rights of relocated families in 5 sites outside Sariska

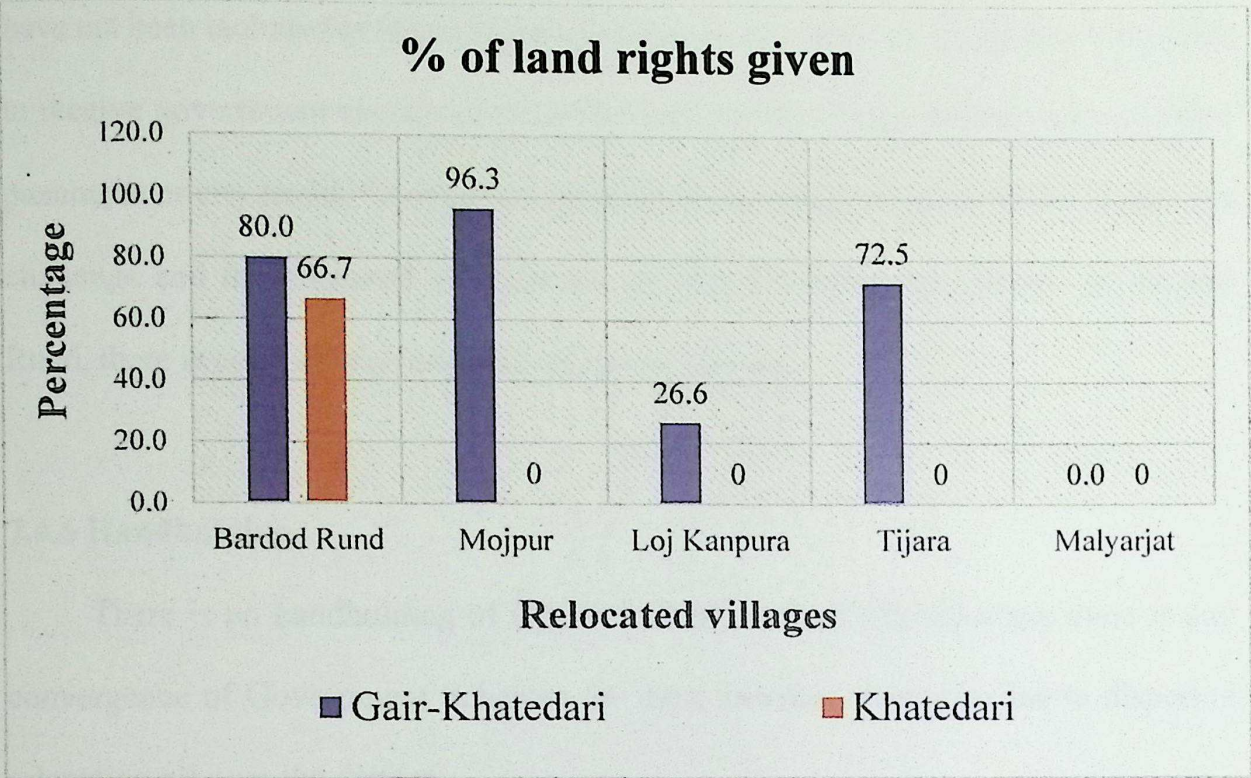


Figure 7.1: Status of land rights of relocated families (%) in 5 sites outside Sariska

7.4.4. No Loan by Banks:

Relocated villagers are aggrieved by the clause inserted by Forest Department that land provided cannot be sold and can only be transferred by inheritance. This has been probably inserted by Forest Department so that middlemen do not use fraudulent practices to grab the land of the relocated villagers. But owing to the safety clause in the interest of the villagers, as per them, no banks are allowing loan on the agricultural land, which is normally a common practice for small and marginal farmers.

7.4.5 Inclusion of relocated forest land/revenue land in Panchayat/Nagar Nigam area:

During discussions, villagers of Tijara, Mojpur Rund alleged that these areas

have not been included in Nagar Nigam/Panchayat, as a result of which they are unable to receive government assistance since the name of the village do not occur in either panchayat or city limits. Coordination with existing village adjacent to the village is a challenge and the relocated villagers are striving for their own identity. In Mojpur Rund, there is conflict with adjacent village for grazing.

7.4.6 Handholding:

There is no handholding of Option I (Cash package) families nor there is any convergence of Government Schemes for these families, primarily due to dispersed relocation all over the district.

7.4.7 Non-consent by 269 families from priority villages:

As mentioned earlier, relocation is a completely voluntary process and every family is to be relocated only after obtaining the consent, after apprising the packages. 269 families in the 11 priority villages have not consented for various reasons. It is an impediment if any family prefers to stay back in the village, as the number of families and their cattle in these partially relocated villages will increase with passage of time. If these families don't relocate, the biotic pressure and the disturbance to the "inviolable space" may return to the same situation and the gain achieved so far would be diluted.

The various factors that motivate relocation shall have to be considered with special reference to IRR model of Cernea (2002). Any attempt of displacement should mandatorily ensure secured livelihood, healthy living especially the psychological well-being of the displaced families and future sustenance while shifting from a pastoralist economy to agricultural economy. Consequently, the policies should also

be commensurate to such parameters taking into consideration the local factors like DLC rates, soil health, water availability for agriculture and drinking water, community fraternity and acceptance for the newly relocated families, etc.

The policies of Madhya Pradesh, West Bengal, Maharashtra and other states were studied and after comparison of the best practices, the State Relocation Package of Rajasthan needs modification to expedite the relocation efforts in order to increase the ‘inviolate spaces’ for the growing population of tigers, which have now crossed the number of 50, after its first tiger reintroduction in June 2008.

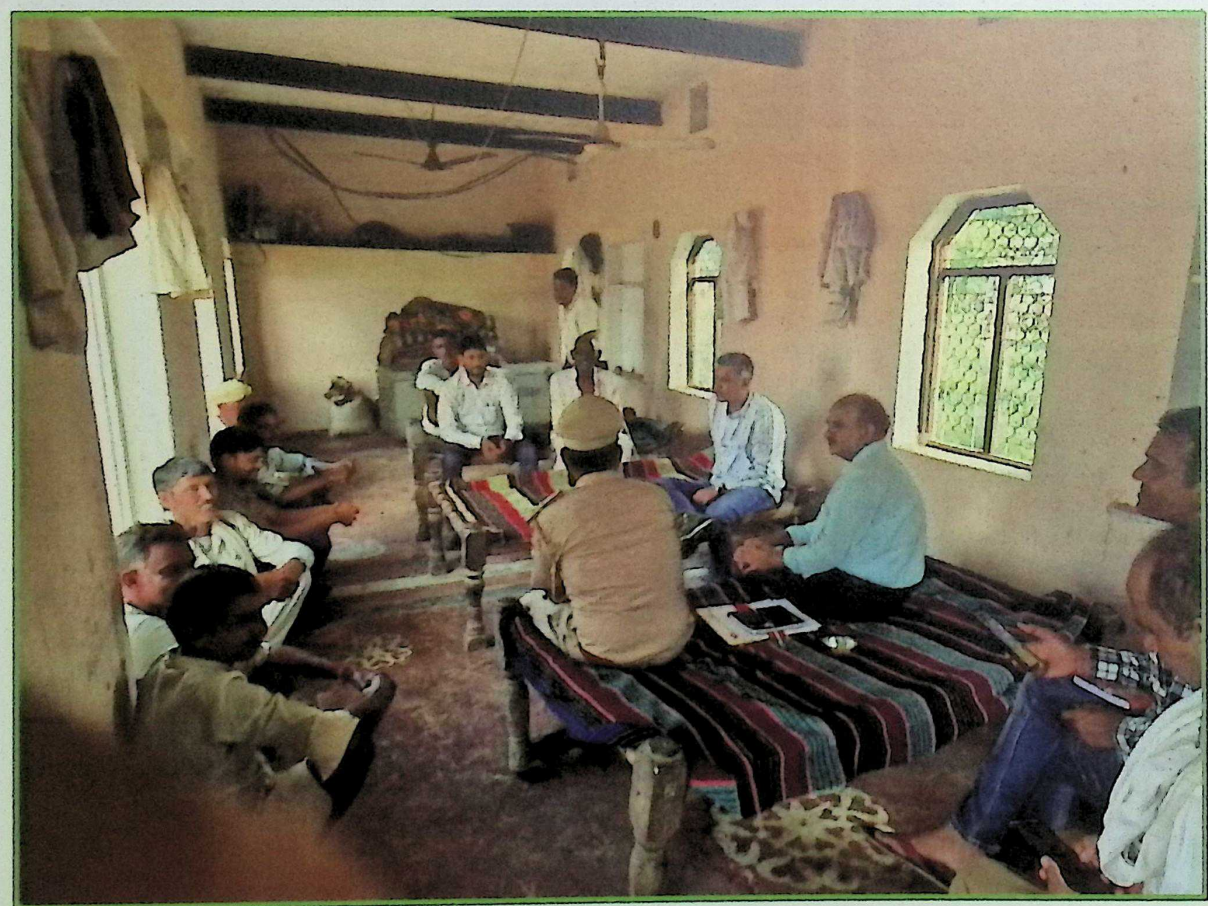


Fig. 7.2: Meeting with villagers in Nangli Rund (Bardod) relocated in 2007-08



Fig. 7.3: Coaching centre of Lalluram at Bardod & Houses constructed at Bardod

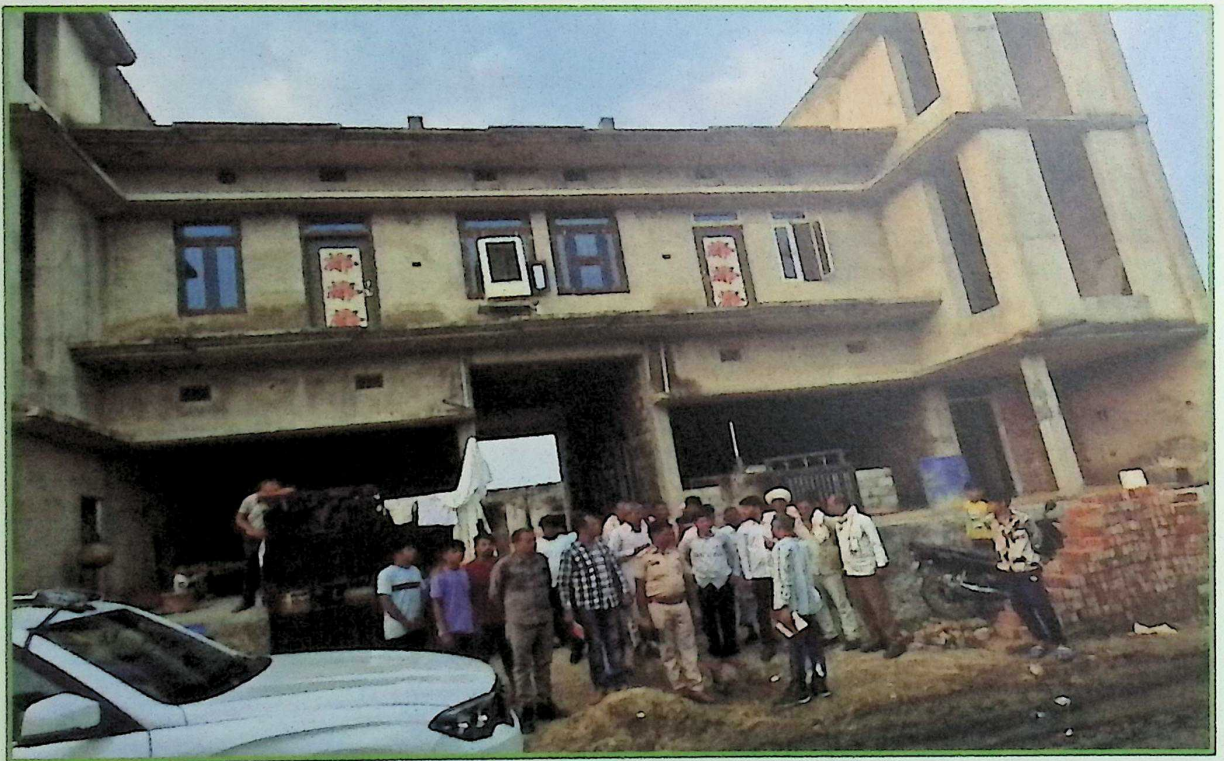


Fig. 7.4: A House in Nangli Rundh relocated in 2008 signifying prosperity

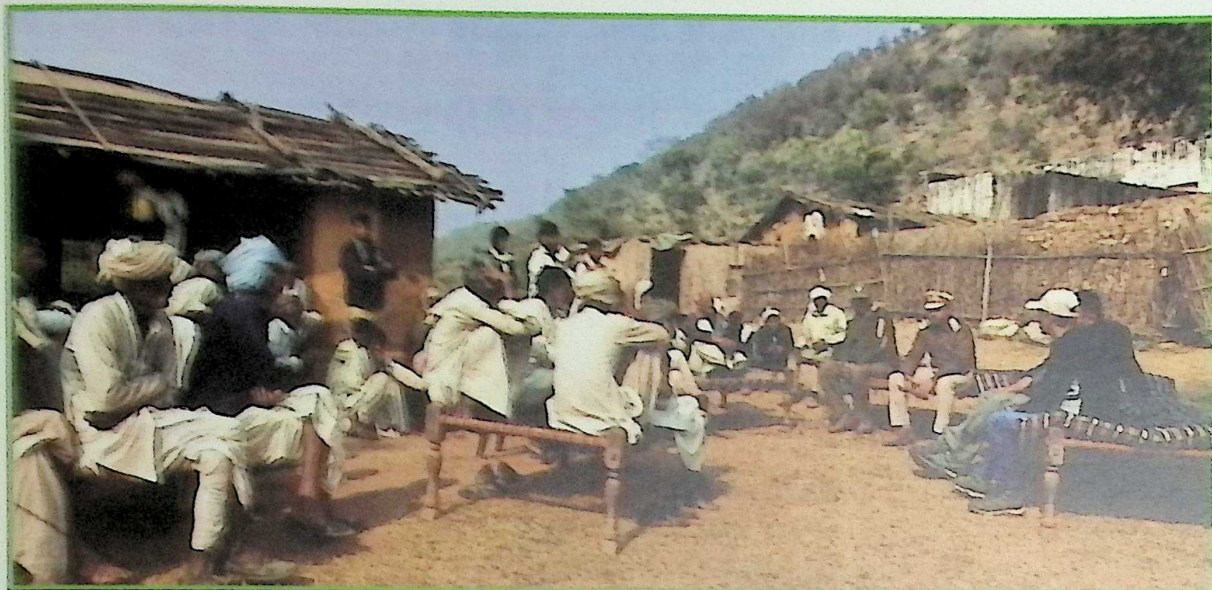


Fig. 7.5: Discussion with villagers of Dewri in Sariska Tiger Reserve

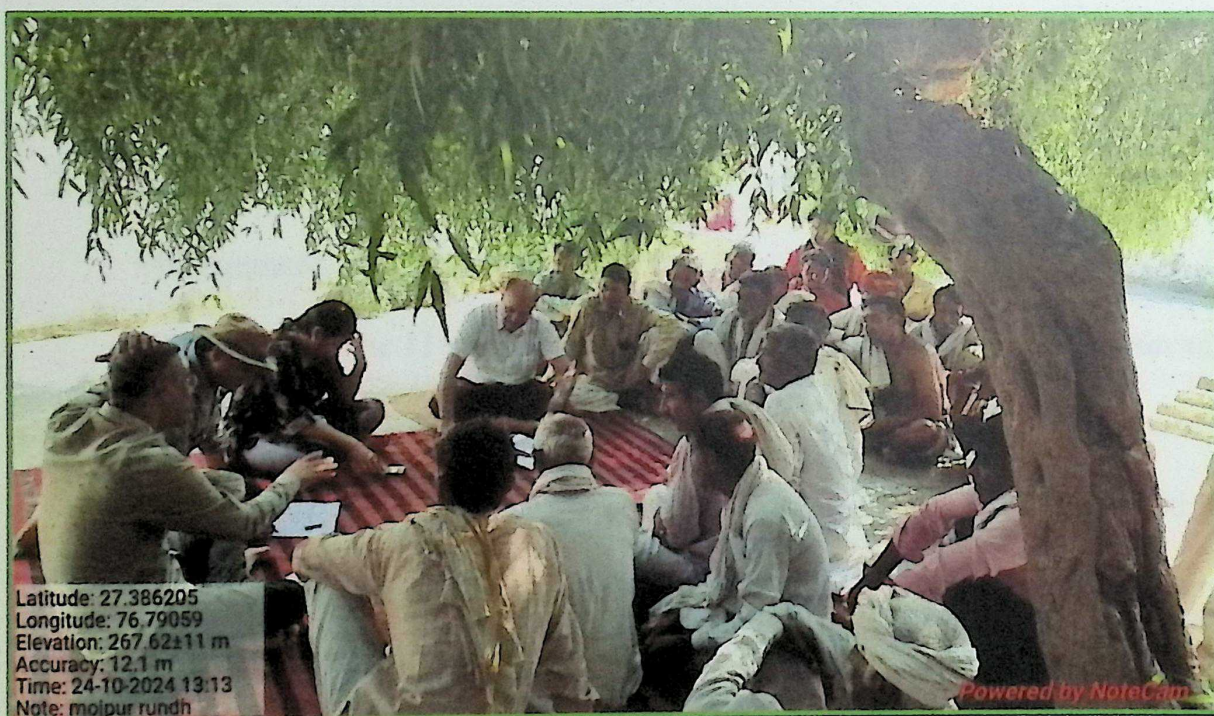


Fig. 7.6: Meeting with Relocated villagers at Mojpur Rund

7.5 Recommendations for revising the Rajasthan State Policy:

After discussions with the villagers in the Sariska Tiger Reserve, it has become amply clear that most of the families demand land package and are not opting for cash

package due to high difference of land value in NCR. “One size does not fit all”. There is a need for liberal policies w.r.t degree of difficulty for Sariska tiger Reserve.

In order to make the relocation initiative more outcome oriented, the following suggestions are recommended:

1. The State Relocation Package was formulated before the amendment to the Wildlife (Protection) Act 1972, was incorporated in 2006, especially by adding the chapter on Tiger Reserves, alongwith the requirement of compliance of Forest Rights Act,2006. State Relocation Package of 2002 should be revised and a **new State Relocation Policy** should be drafted, including the Cash package option, which is not yet included. (The State is following the NTCA Revised Guidelines 2008).
2. **Limited land availability for Relocation:** As per the data of Sariska Management, approximately 4315 families are to be relocated from the 29 villages. From the 11 priority villages, 1041 families out of 1471, have already been relocated. Currently 760.26 ha. of land in Phulawas, Berla, Raipur, and Malyarjat of Tijara District has been reserved for relocation. This would be sufficient only for 300 families (244 from Nathusar, who have consented and additional 50 from any other village). To relocate 269 families who have not consented in the partially relocated 6 villages and additional 300 families from Bera and Raika, who has expressed willingness for land package only, there is an urgent need for additional 1000 ha. of land. Approximately, 6500 hectares of land would be needed for complete relocation of the all the identified villages/guwadas from Sariska Tiger Reserve.

Isolated forest blocks with no corridor connection with Sariska Tiger Reserve, should be identified in the territorial Alwar Forest Division or nearby forest divisions of Dausa and Jaipur, and diversion proposals under the Forest (Conservation) Act, 1980 (amended 2023) should be sent. Coordinated efforts with Revenue Department should also be accelerated for creating land bank (revenue land- Girdawada-700 ha.) with the active help of District Collector-Alwar. This would help the families to be land owners, ensuring sustenance for agricultural economy. The funding support from Government of India through CAMPA and the agricultural land (1.6 hectares) and homestead land (5400 sq. ft.), would provide a lucrative deal to the villagers for a secured life outside the tiger reserve.

3. As per the notification of the Department of Rural Development and Panchayati Raj, Government of Rajasthan of 16th June 2022, the Rajasthan Panchayati Raj (Third Amendment) Rules, 2022, states that the land allotted by any Department/Institution/Authority to the outsees of any Project, can be issued a **patta by the Panchayat**. This issuance of the patta needs to be expedited for the 5400 sq.ft homestead land and included in the Policy.

4. **Khatedari rights to relocated families:**

Revenue Department should be requested to waive-off the requirement of three years wait for grant of khatedari rights by amendment in the Act, to encourage relocation as the land being provided to villagers for relocation, is exclusively reserved for the purpose specified and it will also lead to motivation among the villagers to be relocated in Sariska Tiger Reserve.

5. Considering the paucity of land in Rajasthan, especially NCR region, **'Hybrid model'** to be promoted wherein a group of families shall be pursued to opt for a combination of both land and cash packages.
6. **Option I**, (Cash package), **should be made attractive** by including additional amount specific to a Tiger Reserve, by the State Government, apart from 15 lakhs as per NTCA guidelines. For Sariska Tiger Reserve, the area around being in NCR and with very high DLC rates, the amount of Cash package may be increased suitably (30 to 50 lakhs).
7. **Handholding** support to **Option I families** to be enhanced through convergence of schemes and engagement with civil society organisations working in the area. Park Management to facilitate the option I families in proper selection of land, in coordination with District Administration to provide basic amenities. Foundation Fund should also be utilized for such activities.
8. **Compensation of land** for Option I (Cash Package) families, should be 3- 4 times of DLC rate, as in Maharashtra Relocation Model. (This compensation was never available to cash package option by some families opting for the Option I, though situated on revenue land, surrendered their land but did not receive any compensation for it).
9. The survey indicated that that in some cases, every family member get packages, due to the age being 21 years and above, whereas, a family member with children less than 21 years are at a disadvantageous position. An **incentivized system of providing cash compensation to the children below**

- 21 years, in age-class and amount as a percentage of the total cash package, should be thought of. The financial implication of the initiative, shall have to be borne by the State Government or through CSR funds or fund from Rajasthan Protected Area Conservation Society (RPACS). The distribution of the age class and financial incentive may be decided by the State level Monitoring Committee (SLMC) headed by the Chief Secretary of Rajasthan.
10. Families residing outside Tiger Reserve but possessing land-holding in Tiger Reserve (**absentee landlords**), is to be compensated as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (3 times DLC). But if families deny to accept the compensation, District Collector, should proceed for acquiring land as per the LRR Act 2013.
 11. An **institutionalised proactive grievance redressal system**, to be put in place, so that handholding mechanism is strengthened and trust building is enhanced for ensuring successful relocation. A 3- tier, redressal system, as practiced in Satpura Model, should be developed, for regular monitoring.
 12. **Corporate Social Responsibility (CSR) Funds** should be pooled in, by organizing sensitization workshops for corporates and exposure visits to the relocated villages, especially in sectors of water conservation measures, improved agriculture practices, adopting relocated villages for development, livelihood enhancement activities and skill development trainings through Raajevika under the Rural Development Department, trainings on financial literacy to the villagers relocated or consented to relocate.

The following model may be adopted:

- i. Option II (Land Package): Land identified for diversion under FCA, may be planned with proper layout with areas demarcated for facilities for settling a community like roads, water supply, solar facility, electricity connections, community hall, prayer hall, water ponds, pasture land development, etc., involving a town planner/architect.
- ii. Based on agreement with the corporates under CSR contribution, there can be two options:
 - a. The whole village may be adopted by a Company under CSR:
 - b. Each activity can be adopted by a specific Company under CSR, so that the relocated site has many stakeholders in contributing to the relocation process., Or alternatively if the amount to be donated is large, the specific corporate may undertake one or more activities best suited to its consent.
- iii. The relocation site can be developed into a colony with all facilities and then families can be shifted like a modern housing colony but before moving on this initiative, villagers should be engaged to evaluate its feasibility of success, so that the whole process doesn't go in vain.

13. Earmarking Revenue for Relocated villages from Tourism revenue:

- a. The State Government should also take the initiative of **earmarking a portion of revenue earned through tourism** (entry fees, filming fees, safari fees etc.,) in terms of percentage for relocated families, who have sacrificed their land and abode for conservation, to be utilized for development of the families, including creating livelihoods.
- b. The hotels/resorts in a radius of 5-10 kms, from the boundary of the tiger reserve, should be mandated to pay a **green cess/ local conservation fee, (as done in Maharashtra in 2012)** based on the number of beds in a facility/ resort, a part of which can be earmarked for relocated families. The NTCA had already mandated the clause of local conservation fees in the “Comprehensive Guidelines for Tiger Conservation and Tourism” under section 38O(1)(c) of the Wildlife (Protection) Act, 1972 Tourism Guidelines of 2012 but is yet to be executed. The rate of the green cess / local conservation fee and tourist facility strata shall be determined by the State Government. Rules may be formed for its execution by the State Government under the Rajasthan Wildlife (Protection) Rules 1977.

14. Incentive to the relocated families to be increased:

- a. Relocated families settled outside the Tiger Reserve need to be provided **livelihood opportunities** as volunteers in tiger monitoring, civil defense volunteers by the District Administration, drivers.etc.

- b. The State Government already has a policy in place to provide opportunities as Nature guides from relocated families which need to be followed in all Tiger Reserves.
- c. Funding support from RPACS, Rajasthan Tiger Conservation Foundation need to be provided to the relocated sites, mostly to cash package families, who have already received less compared to the land package.
- d. Convergence of Schemes to be increased through coordination with District Collectors.

7.6 Results and Discussions

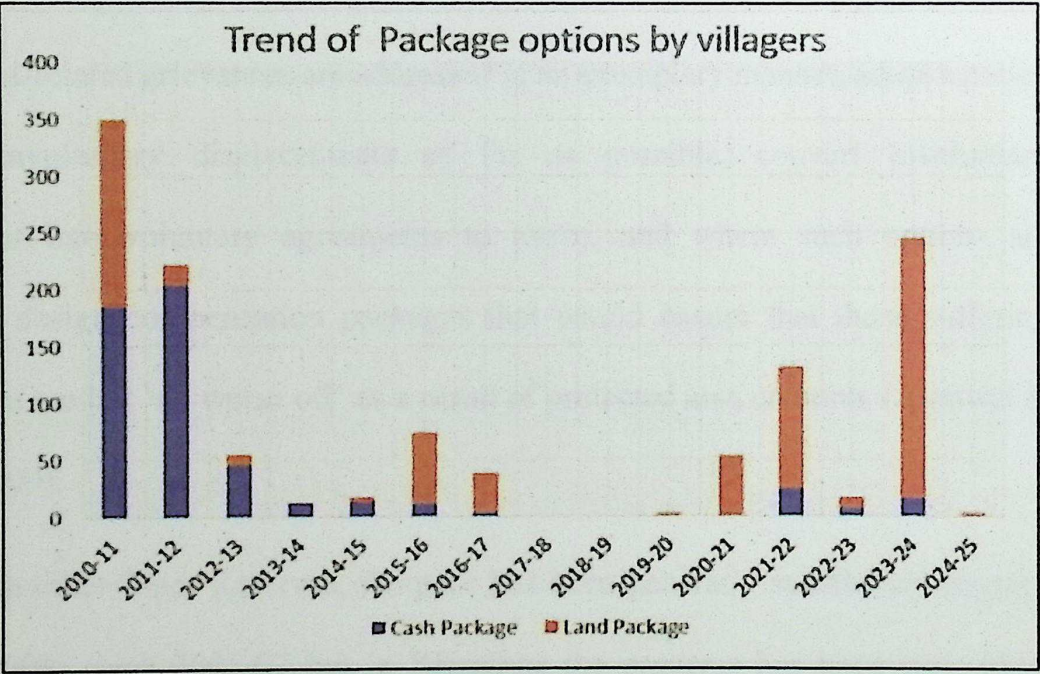


Figure 7.7: Trend of the cash package vis a vis land package in the last 15 years

Biologists and social scientists often have different ways of asserting an argument on relocation. Whereas biologists tend to assess the issue of relocation in terms of viability of habitats, ecosystems and endangered species, social scientists in

sharp contrast, tend to visualize the issues of equity and justice as central to sociological and historical analysis of conservation processes. Dowie (2011) argued whether conservationists are sacrificing human-welfare and well-being for the sake of what can be termed as imperil conservation. Karanth (2007) had analyzed a relocation and resettlement project in India's Bhadra Wildlife Sanctuary and draws out insights for improving conservation practices related to resettlement efforts

A negative program of action signifies a more aggressive pursuit of conservation through protected areas and efforts to increase the size of PAs and the rigor with which they are protected, would likely result in even in higher rates of displacement. A positive program of action would address the core criticisms of conservation-induced displacements. It would focus on specific examples in which displacement-related grievances are addressed in an exemplary manner, adopt a policy to avoid involuntary displacements as far as possible, convert involuntary displacement into voluntary agreements to move, and where such options are impossible, design compensation packages that would ensure that those suffering displacement are left 'no worse off' as a result of protected area creation. (Agrawal & Redford, 2009).

As in other Tiger Reserves, the pace has been generally satisfactory ranging from 50 -100% since 2006-07 but in Rajasthan the progress has been very slow, ranging from 15-20%. The trust and confidence of the villagers on the Department seems to be low due to factors of pending permanent land rights, high land value and consequently less inclination towards option I (Jain, & Sajjad, 2015). Some of the other Tiger Reserves have succeeded in establishing good coordination with the district

authorities for convergence of schemes, pooling of funds from other Schemes. The special effort of Satpura in pooling CSR funds for improving the quality of life of the relocated villagers and of Melghat/Tadoba, wherein the State Government had issued liberal compensation in terms of 4 times of the DLC rate for compensation of land to Option I families, additional homestead land to Option I families in Buxa, exhibit positive steps for relocation that needs to be replicated in Sariska.

Questionnaire survey and secondary data of relocation in Sariska Tiger Reserve revealed that the land purchased by the villagers under Cash Package of 10 lakhs till 2021 and 15 lakhs after 2021, was on average 0.5 hectares (0.13 – 1.2) which was actually 1/3rd of the amount of land offered in the land package (1.6 hectares). In other States, though the land bought by the Option I families, would be less than 2 hectares that is being offered in the Option II, but the area of land is higher than in Sariska because of the high land value in National Capital region, thereby minimizing the eight risks as envisaged in the IRR model of Cernea.

Since its inception Project Tiger has expanded from nine tiger reserves covering 18,278 sq. kms to 58 tiger reserves encompassing 84,587 sq. kms, the number of villages in these tiger reserves pose a significant conservation challenge in creating “inviolable spaces” for the expanding population of tigers. Most of the habitats are surrounded and interspersed with unsustainable land use patterns and developmental projects and an impediment to animal movement. Out of the estimated tiger population of 3682 (SE 243), the most significant increase in the tiger population was observed in Central India landscape and the Shivalik Hills and Gangetic Plains, mostly occupied by Madhya Pradesh, Maharashtra, and Uttarakhand. The prioritization of village

relocation in these landscapes and other ones, need to be taken up with liberal policies of the State Governments, doing the extra bit, for self-reliance and self-sustenance of the families relocated outside the tiger reserve (Meena, 2015). The study indicates that while in some states, the motivation and the effort is commendable while in some tiger reserves, more needs to be done, especially Sariska, for presenting a better bargain to the villagers. It is also emphasized that ‘one size does not fit all’ and looking into the land prices outside the tiger reserve, the productivity of the land with the water availability for agricultural practices, the degree of difficulty varies within tiger reserves. Moreover, the trend of Option I vis a vis Option II, is gradually changing in tiger reserves, especially Sariska, indicative of the challenge of ascertaining more isolated forest lands/revenue lands for resettlement. Proactive intervention by outcome-oriented grievance redressal systems, better co-ordination with Administration, Revenue and related Departments for resolving the land rights issues, devising new models under Corporate Social Responsibility (CSR), creating new avenues for diverting revenue for relocated families and other related problems is required to activate the process and also to win trust and confidence of the villagers still inside the tiger reserve to move out, voluntarily, for a better standard of living.

The tiger population increase in the tiger reserves also suggest that though relocation of villages is an important contributing attribute but even with 20% relocation results in Sariska and Ranthambore, the population has grown showing co-existence with preservation of core natal areas in some pockets. It is also a fact that all the villages in the Core Areas of the Tiger Reserves may not get relocated and hence

a prioritization of the villages to free the areas in tiger reserves to act as source areas, may be the immediate requirement.

In a most recent study (Mandal et. al., 2013) it was shown that there cannot be a simple straight procedure for relocation; there needs to be priorities with reference to multiple factors, both anthropogenic and ecological. Voluntary village relocation cannot be weighed on a fixed scale; the process involves human beings and their wills. Thereby many requirements vary from one place to another, in this case from one Tiger Reserves to another. A completely successful relocation is a conservational dream yet to achieve. In this study the same issue has been highlighted while comparing between the different models adopted. Through the study understanding of the most crucial effort and the requisite area of interference was tried to achieve. Conservation is a global goal, more such in areas ruled by the top predators like Tiger. However, the proper sustainable management and achieving a balance between human habitation and undisturbed wilderness is the aim of voluntary village relocation. With due understanding of the area specific requirement more effective result thus can surely be obtained in terms of a promising posterity through sustainable conservation practices.

Chapter 8: Habitat usage by tigers and prey base after relocation of villages in Sariska Tiger Reserve

8.1 Introduction

India has a network of more than 1000 protected areas, with the primary aim of conserving biodiversity. Human habitation and use of natural resources are restricted or regulated within these protected areas. However, biomass extraction including grazing and fuelwood collection is common from communities residing inside or situated in periphery of the protected areas (Kothari et al., 1989; Pande, 2005). Biomass extraction is observed as the most serious warning to biodiversity by forest authorities, therefore relocation has become a primary objective to create inviolate spaces for biodiversity conservation. Role of these inviolate spaces is considered significant in large forest habitats for nourishment of biodiversity and reduction of human-wildlife conflicts (Soule & Terborgh, 1995; Karanth, 2005). Relocation of villages have implications on socioeconomic status of forest dependent people, however studies have often ignored the well-being of people after relocation. Sariska Tiger Reserve has undertaken relocation as one of its key programmes for biodiversity conservation. Sariska has a lengthy history of relocation; Karnakawas and Kiraska were the reserve's first relocation programs in 1976-77(Johari 2003) which failed. Following the disappearance of tigers in 2005, the government recognized the necessity for relocation, and people were identified as the primary cause of tiger loss due to hunting and poaching pressures. Relocation restarted after 31 years, as a pre-requisite for tiger re-introduction in 2008 by NTCA.

8.2 Vegetation growth and habitat restoration

Over the years following the relocation, the pressures of logging and grazing have significantly diminished. As the primary livelihood of the displaced villagers revolved around cattle rearing and dairy production, they heavily depended on forest resources for fodder and shelter construction. Consequently, excessive grazing emerged as a major challenge, leading to the proliferation of invasive weed species.

However, after the relocation, the regeneration of grasslands has been actively facilitated, fostering a healthier ecosystem. This restoration has, in turn, contributed to a notable increase in prey populations, (especially the sambar population) and the establishment of inviolate spaces, further enhancing the habitat's ecological integrity.

8.3 Increase the wildlife movement and occupancy

After the relocation of villages Bhagani, Rotkyala, Dabli, Umri, and Panidhal, the habitat has been naturally regenerating, particularly as grazing pressure from nearby villages along the boundary has been reduced, consequently leading to complete reduction in biotic disturbance and gradual increase in '**core natal areas**'. A striking example of this recovery is in Panidhal, where sambar deer are now frequently observed during the daytime, a clear indication of reduced human disturbance.

Similarly, the areas around Bhagani and Rotkyala have undergone significant ecological revival. Notably, tigress ST 17 successfully gave birth to three litters near Rotkyala in 2018, 2022 (litter size 3) and 2026 (litter size 4), highlighting the improved

habitat conditions. Furthermore, the Talvriksh Range has emerged as a crucial breeding ground for tigers, benefiting from its geographical protection. The relocation of Panidhal and a portion of Loj Nathusar has further strengthened this conservation success. In an unprecedented milestone for Sariska, tigers ST 22 and ST 12 each gave birth to four cubs in 2024, the first such occurrence in the reserve’s history. Later in 2025 and 2026, ST 19 and ST 17 also produced litters of 4 cubs each. After relocation, tiger and other tigers extended their territory. (Figure 8.2) .

Tiger relocation and village resettlement efforts in Sariska began simultaneously in 2008, marking a significant step toward ecosystem restoration. Since then, the tiger population has shown a positive growth trend (from zero to 50+), indicating the success of these conservation initiative (Figure: 8.1)

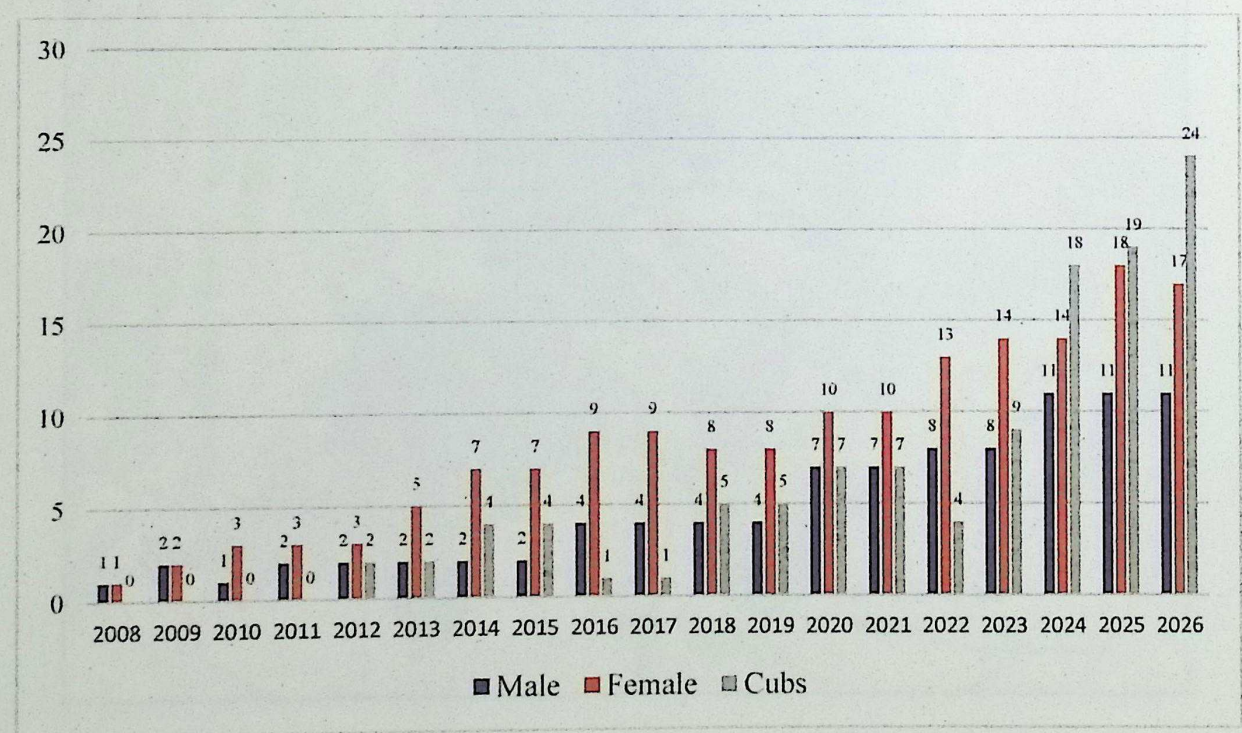


Figure 8.1: Trend of tiger population after reintroduction in 2008

Map of Relocated Villages and Tigress with Litter in Sariska Tiger Reserve

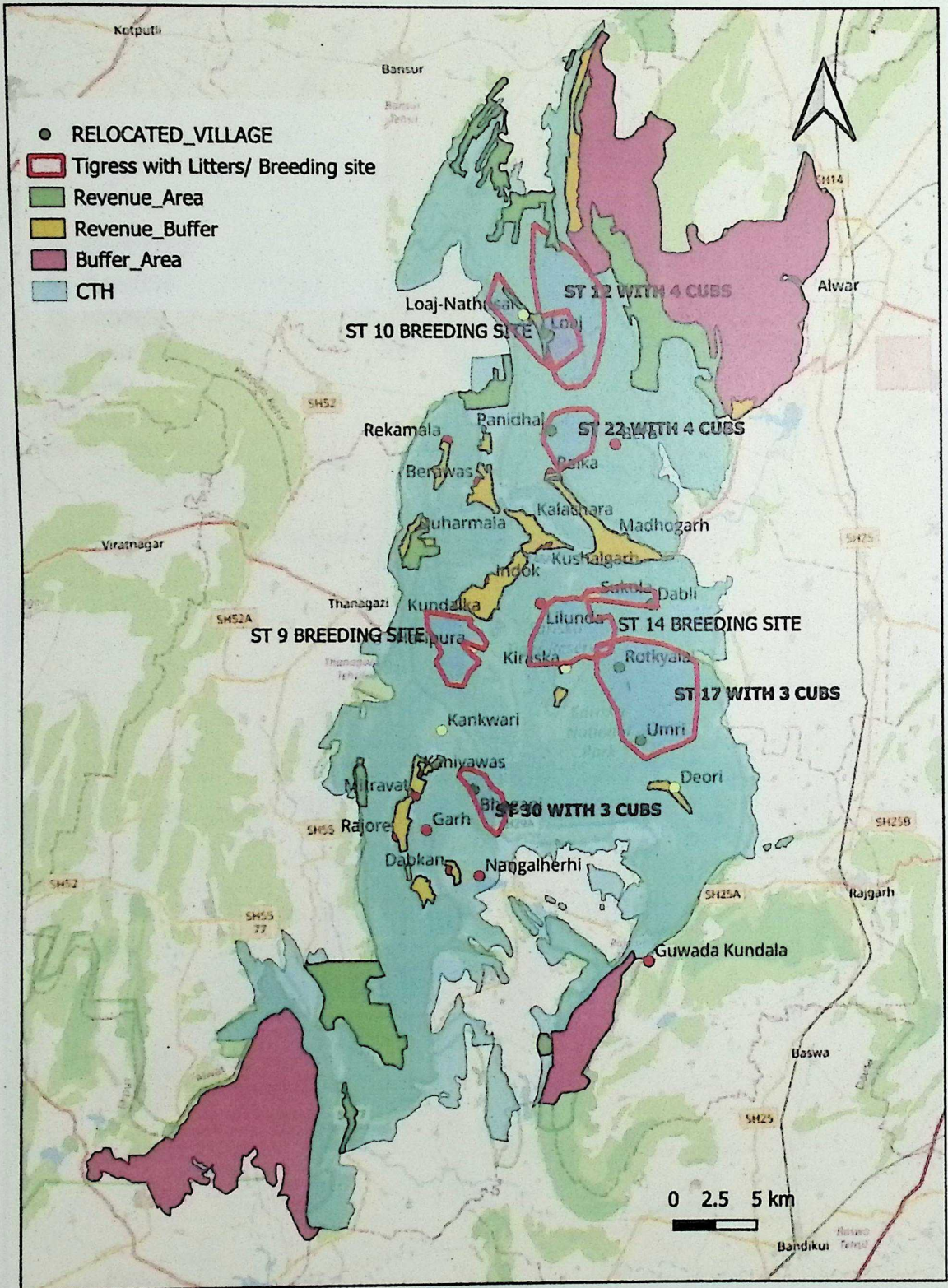


Figure 8.2: Tiger breeding in relocated sites in CTH of Sariska Tiger Reserve

Village Relocation Map of Sariska Tiger Reserve

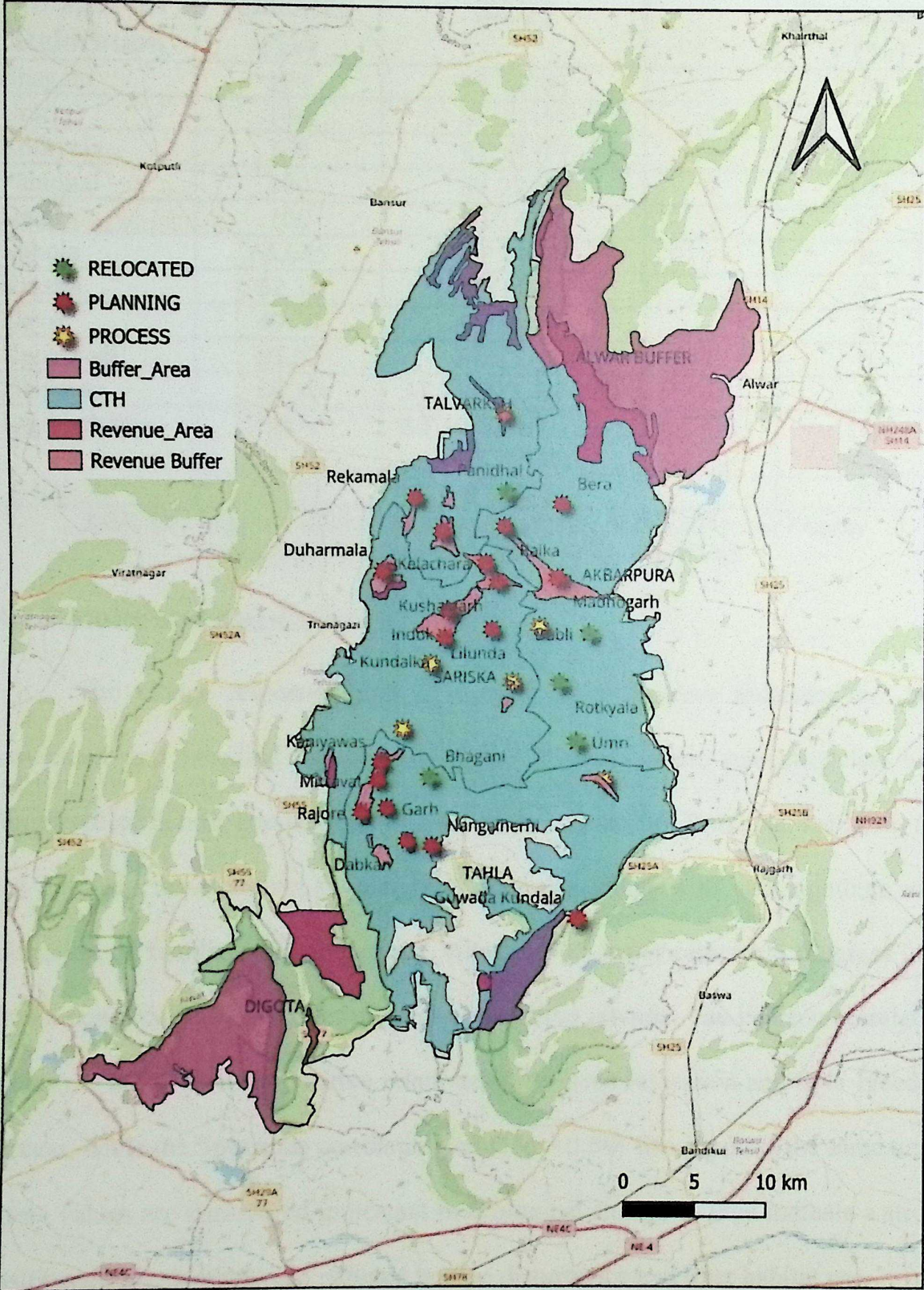


Figure 8.3: Village relocation map of Sariska Tiger Reserve

Priority Villages for Relocation	Families relocated (%)	No of tigers (M/F)	Cubs	Tigers Occupancy (%)
Bhagani	100	ST 30 (F)	3	100
Umri	100	ST 17 (F)	3	80
Rotkyala	100	ST 17 (F)	3+4	100
Panidhal	100	ST 22 (F)	4	100
Dabli	100	ST 14 (F)	-	50
Sukola	65.625	ST 14 (F)	-	70
Kraska	62.38	ST 14 (F)	-	45
Devri	49.74	ST 25 (M)	-	20
Kankwadi	83.82	ST 23 (M)	-	10
Haripura	64.10	ST 21 (M), ST 9 (F)	-	50
Loj Nathusar	98.37	ST 10(F), ST 12(F), ST 29(M)	4 (ST 12)	100
	43.55	ST 10(F)	-	20

Table 8.1: Tiger Occupancy and Breeding Status in Relocated and Priority Relocation Villages of Sariska Tiger Reserve (STR)

8.4 Results and discussion:

The village relocation data of Sariska Tiger Reserve indicates that tiger movement and breeding activity are higher in areas where relocation has been completed or is near completion. Villages such as Bhagani, Rotkyala, Panidhal, and Loj Nathusar have shown regular tiger presence along with cub sightings after relocation of families. In comparison, villages with lower relocation progress have shown comparatively less tiger use and no breeding records. The Pearson correlation value ($r = 0.67$) shows a positive relationship between relocation and tiger breeding success, while the Spearman correlation value ($\rho = 0.69$) also supports the same trend. These values are considered important in ecological studies as they indicate a strong positive association between reduced human disturbance and tiger habitat use.

The findings suggest that village relocation has improved habitat conditions and provided safer areas for breeding tigresses in Sariska Tiger Reserve. However, in

areas such as Kankwadi and Haripura, (from the Sariska Gate to Pandupole and Kankwari areas) tiger occupancy remains comparatively low due to continuous disturbance from nearby villages and religious tourism activities towards Pandupole on Tuesdays and Saturdays, when there is free entry for Alwar registered vehicles and all other vehicles with fees for visiting Pandupole temple.

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Annexures

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Research Paper / Article /

How much is enough: Analyzing the Relocation Model of Sariska Tiger Reserve with other important Tiger Reserves in India

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Abstract: Voluntary relocation of villages located within the Critical Tiger Habitat (core) of Tiger Reserves, remains one of the most significant conservation interventions for creating 'involute spaces' for tigers. The basic relocation framework in India follows the revised guidelines issued by National Tiger Conservation Authority in 2008 consisting of Option I (Cash Package) and Option II (Land Package); State Governments, however, retain the discretion to expand these models with additional measures such as livelihood support, infrastructure development, and financial assistance. The outcome of village relocation process itself and its further impact on the tiger habitat thus vary from State to State, depending on the operational procedures followed in that particular area. Hence, the level of success is relative and varies among States. Till 2024, out of the 848 villages and 89808 families in 54 tiger reserves, 257 villages and 25007 families have been relocated. Around 591 villages comprising of 64801 families are still residing within the tiger reserves. Therefore, the process of relocation cannot be assigned a tag of complete success or complete failure. The shifting of villages is a challenging task dependent on multiple factors of trust-building among the Department and the villagers, inter-agency cooperation and post relocation support provided to the community. This study, while focusing on Sariska (Rajasthan), compares its relocation model with those implemented in prominent Tiger Reserves in Madhya Pradesh, Maharashtra, Karnataka and West Bengal. The purpose of the study is to critically evaluate these models and explore the question: what constitutes "enough" for a relocation to be deemed successful? The study further examines whether fixed parameters can be established to assess the level and limits of success in voluntary village relocation within Tiger Reserves. Understanding the parameters of 'successful relocation' is essential not only for India's tiger conservation strategy but also for global debates on balancing human rights with large carnivore recovery.

Key Words: Voluntary Village Relocation, Critical Tiger Habitat, Involute Spaces, National Tiger Conservation Authority (NTCA), Cash package, Land package.

1. INTRODUCTION:

Relocation of people from the Protected areas is based on the hypothesis that human use of natural resources depletes their availability (Alexander, Prasad & Jahagirdar, 1989). NTCA has established that tiger occupancy of forest was dependent on availability of wild prey and low impact on the habitat.



Good source populations of tigers were found in areas devoid of human impacts and NTCA established that it is essential to have minimum inviolate area of 800-1200sq.kms to support a population of 20 breeding tigresses.

Global estimates range from 8.5-14.4 million persons that have become--either voluntarily or not-displaced for conservation purposes (Feldman, Geisler & Silberling, 2003) though the major gaps in the basic information in the WCMC database, it is difficult to estimate the number of displaced as a result of establishment of protected areas. In India, roughly 1500 villages consisting of 3,25,00 people resided in the Core/buffer zones of the Tiger Reserves (Tiger Task Force Report 2005). Out of 848 villages consisting of 89808 families in the Core Areas of 54 Tiger Reserves in India, 257 villages with 25007 families have been relocated since the initiation of Project Tiger on April 1, 1973. 591 villages with 64801 families are in the process or still to be relocated (NTCA Report 2024).

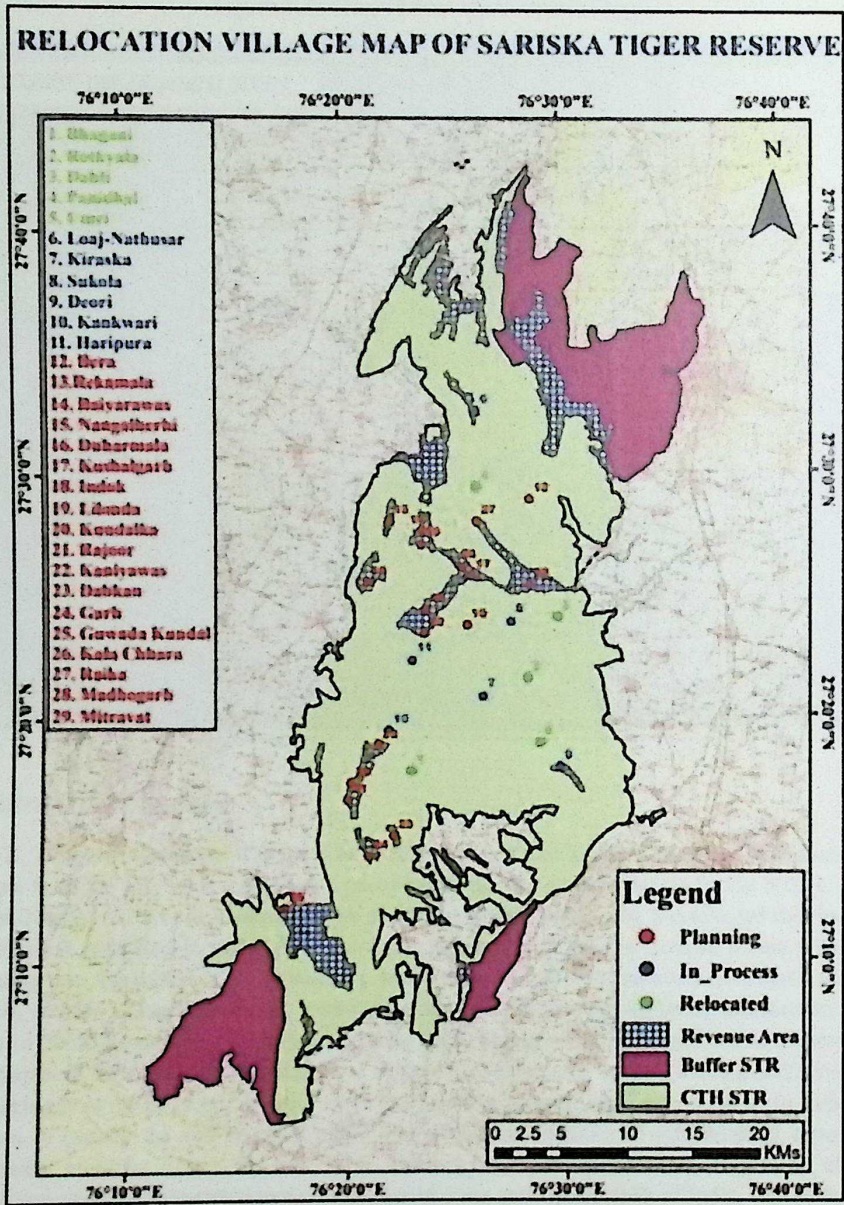
The extermination of all its tigers till 2004 in Sariska Tiger Reserve by poaching gangs, highlighted the issue of relocation of villages from Tiger Reserves in the country, which has over 75%% of the wild tiger population in the world among tiger range countries. In fact, the State Empowered Committee formed by the Government of Rajasthan in 2005, highlighted in its report, that villagers residing in the core area of the tiger reserve, informed the poachers about the movement of the tigers in the specific area of the forest, as they were aggrieved of their cattle killed by the tigers. They cooperated with the poachers for eliminating the tiger.(page 17-18, SEC Report 2005).Consequently the Committee emphatically proposed for rehabilitation of the villages with utmost priority. Simultaneously, the Tiger Task Force, commissioned by the Government of India, after the Sariska imbroglio in 2005, called for priority to be given to resettlement of villages from core areas of tiger reserves for the long-term survival of the species (Ministry of Environment and Forest, Tiger Task Force Report 2005).

Consequently, relocation was taken on priority and the revised guidelines for relocation of villages were issued in 2008 by National Tiger Conservation Authority (NTCA).

In the First Management Plan of Sariska Tiger Reserve (STR) approved by the Chief Wildlife Warden, Padam Shri Kailash Sankhala (1978-1982), mention has been made about the relocation of two guadas, Kalighati and Slopka in 1966-67, to the existing villages. The use of relocation as a PA management tool, took a more organized form in 1976, when relocation of villages, Kamakawas and Kiraska took place. The land was identified at Bandipul, Dulawa and Sirawas but several relocated families returned to resettle close to an existing village Kundalaka, where they established a new village- Naya Kundalka. Sariska Tiger Reserve witnessed relocation of village Kiraska in 1976 to Sirawas but due to ill-conceived displacement policy, the villagers returned to the Kiraska mala, putting a jolt to the efforts for the next 31 years, when Bhagani was relocated in 2007. Out of the 29 villages inside the CTH of the Sariska Tiger Reserve, 11 villages are being considered for relocation on priority basis. 5 villages (Bhagani, Umri, Rotkela, Panidhal and Dabli) have already been completely relocated, Bhagani being relocated in 2008. Later Umri in 2011, Rotkela in 2012-13, Panidhal and Dabli in 2020-21, were shifted (Fig. 1)



Figure 1: Relocation map of Sariska TR

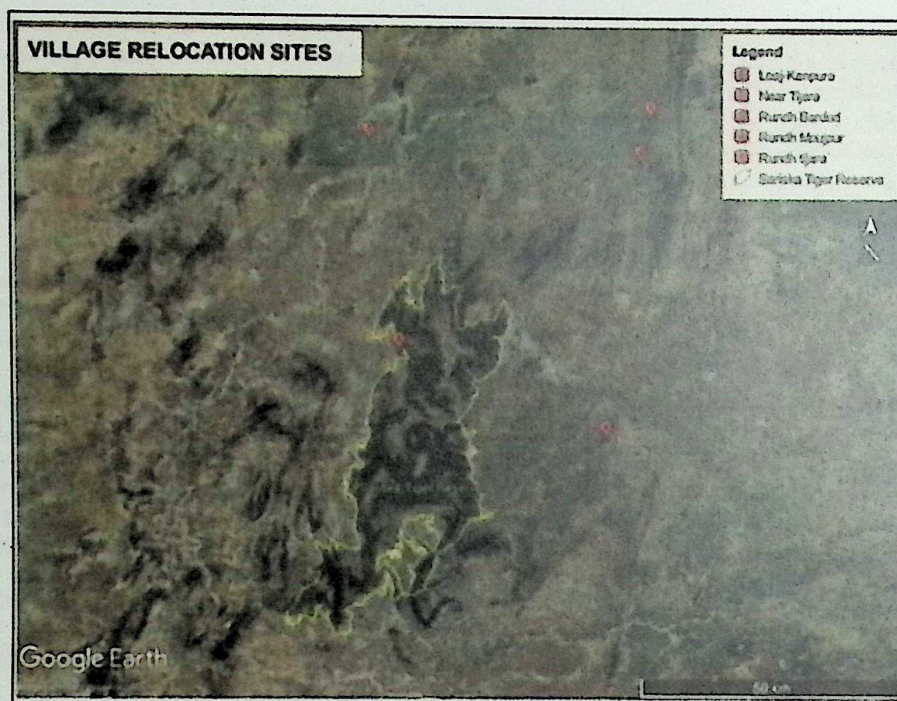


Very good work has also been done in the sector of village relocation in Satpura Tiger Reserve in Madhya Pradesh, where 49 villages (including 13 in buffer areas) consisting of 5136 families have been relocated since 2005, creating more inviolate space for the tigers of Satpura and offering a better resettlement package, improving the health and livelihood status of the people after relocation There



community disarticulation was also studied and analysed w.r.t. the families relocated in these five locations. Samples have been selected broadly under two categories to cover families relocated in option 1 (cash Package) and option 2 (land package).

Figure 2: Settlement sites of relocated villages



The Sariska relocation model:

In STR, after the unsuccessful attempt in 1976, post tiger poaching era of 2004, relocation of four villages from the core area, was set as a pre-requisite of tiger re-introduction by the NTCA. A small village Bhagani (21 families), though in the periphery of the tiger reserve, was selected and the process of relocation re-started in 2006. After several meetings and voluntary consent of the villagers for relocating on a forest land, Nangli roondh in Behror tehsil, almost 100 kms away from Sariska in Alwar District, and the village was finally settled on 1 lakh per family package under the State Relocation Policy of 2002. As per the State Policy, original land holding + 1 hectare land was to be provided to each displaced family. Agricultural land was allotted to a minimum economic holding (MEH) of 4 acres (1.6 hectares) of un-irrigated land or 2 acres (0.8) hectare irrigated land, even to landless farmers and 5400 sq. ft (60x90 ft.) and free residential plot with basic facilities of safe drinking water, roads, community building, electricity and pucca housing was provisioned. Due to paucity of funds, dovetailing under different government schemes of State and Government of India, was done. By the time this was being executed a revised package for village relocation/ rehabilitation was issued by the NTCA in 2008, which provided two options of Cash package and land packages follows:



- Option 1- Payment of entire amount (Rs.10 lakhs per family now increased to 15 lakhs in 2021) to the family in case the family opts so, without involving any rehabilitation/relocation process by the Forest Department.
- Option II- Carrying out relocation/rehabilitation of village from protected area/ tiger reserve by the Forest Department. (Land Package- Land procurement [2 hec.]/development etc.,)

Consequently, with the revision of the package, the village relocation took pace and as per data of the Forest Department, out of the 11 villages prioritised for relocation from the core area, 5 have been completely relocated since 2007 and 6 villages have been partially relocated. Out of 1471 families in the 11 villages, 1041 families have been relocated (511 in Option 1 and 691 under option II). 269 families have not given their voluntary consent, due to insistence of inclusion of their children who have crossed the age of 21 now, but were minors at the time of the socio-economic survey in 2008-2011.

A modification in the Sate Relocation Policy of 2002 was issued in September 2022, where the land value was assumed to be calculated based on the assumption that every family possessed 1.6 hectares of un-irrigated (or 0.8 hectares of irrigated land) and 5400 sq. ft of residential land. Consequently, the DLC rate was calculated for the village within the tiger reserve and based on the amount arrived, proportionate land was proposed to be given outside the tiger reserve (as per the DLC rate of the land outside the tiger reserve). Families to be relocated, were to be given land equivalent to the value arrived at, using the above formula. This led to very less area of land compared to 1.6 hectares given to villagers and led to halt in the relocation process in the new villages. The villages which were already under progress continued to use the 2002 policy. The State Government is in the process of revisiting the modification based on the feedback of the District Relocation Committee. The present status of relocation in STR is shown at Table 1.

Table 1. Status of village relocation in STR

S.N o.	Village Name	Total Families	Consent given Option 1	Option 2	Total	Consent not given	Family relocated till Nov 2024	Year of relocation
Completely Relocated Villages								
1	Bhagani	21	0	21	21	-	21	2007-08
2	Umri	93	39	54	93	-	93	2020-21
3	Rotkyala	52	49	3	52	-	52	2012-13
4	Panidhal	24	0	24	24	-	24	2020-21
5	Dabli	132	118	14	132	-	132	2020-21
	Total	322	206	116	322	0	322	
Partially Relocated Villages								
6	Sukola	64	17	25	42	22	42	2009
7	Kraska	210	132	38	170	40	131	2011
8	Devri	191	73	26	99	92	95	2011
9	Kankwadi	173	41	104	145	28	145	2008
10	Haripura	78	10	46	56	22	50	2011
11	Loj	123	16	107	123	0	121	2022
	Nathusar	310	16	229	245	65	135	2023
	Total	1149	305	575	880	269	719	
	Grand Total	1471	511	691	1202	269	1041	

The relocation models adopted in States of Madhya Pradesh, Maharashtra, West Bengal, and Karnataka was studied and compared with the Sariska relocation model.



Satpura Tiger Reserve:

Satpura Tiger Reserve relocation model received the NTCA Award for Excellence in relocation of villages twice in 2011-12 and 2016. 49 villages have been relocated till 2024 from Satpura Tiger Reserve.

Out of 5136 families in 49 villages, 3507 were relocated under Option I (68.3 %) and 1629 (31.7 %) under Option II. The first village relocated was Dhain from Bori Range in 2004-05. 91 families were relocated under Option II (land Package) spending 91 lakhs (1 lakh/family). The next village relocated was Bori in 2009-10, from the same range, with 117 families but spending 10 lakhs/family, amounting to 1170 lakhs under Option II, due to the revised relocation package of NTCA of 2008.

The same package of NTCA is being implemented by the Satpura authorities and the whole process is very transparent, structured and organised. Apart from pre-relocation engagement including undertaking entry point activities for the villagers, the grievance redressal mechanism at three levels, i.e., Redressal at Forest guard level, then Range Officer level, ACF and finally DCF/FD level, Jan sunwai/ public hearings by District Collector every week and Samasya Kalyan Shivirs at cluster level by Forest Department and all line departments in the district, is very effective in hand holding and trust building efforts of the relocated villagers.

In accordance to the Hon'ble Supreme Court order of 28th January 2019 in IA No.3924 of 2015 in WP© 202/1995, 3910.57 hectares of forest land has been diverted for relocation and 3145 hectares has been denotified to legally enable the relocated families for ownership and make them eligible for benefits of different government schemes.

Satpura Tiger Reserve has initiated the handholding of the relocated villagers under the Option I, though it is not obligatory on part of the Park Management to do it. In villages relocated under Option-I, where funds were limited, all basic facilities have been provided through convergence of and engagement with civil society organisations working in the area. Under Option-I, in which the villagers are free to settle anywhere, development is not the mandate of the park management. But the park management facilitated development in Option-I villages and helped them to select and settle in one place. In these villages, the park coordinated with district administration and other NGOs to provide the basic amenities like roads, electricity, drinking water facilities, etc. As the park management is also sensitive to their issues in the new locations, it used Park Development Fund to provide basic facilities and conducted various livelihood training sessions for the villagers. An electricity sub-station (4.5 crores) was also installed and operationalised through the MP Minor Forest Produce Federation fund, which has ensured electricity in 23 villages and infused trust and confidence in the people relocated and to be relocated. Another very important initiative by the Park Management, was the support taken under Corporate Social Responsibility, (CSR) in relocation of the villages, on financial literacy, health and nutrition, livelihood improvement, water conservation (Punjab National Bank Foundation, NatWest Foundation, Reliance Foundation, CII, donations by local companies, etc.).

The funds have been mobilised from different sources other than NTCA and included funding from Madhya Pradesh Minor Forest Produce Federation, Tribal Welfare Department apart from CAMPA and State Government contribution.



Maharashtra Model

In the Tadoba-Andhari Tiger Reserve (TATR), village relocation and rehabilitation are conducted in accordance with the Maharashtra Government's Rehabilitation Government Resolution in November, 2012, and subsequent related resolutions, as well as guidelines from the Central Government. Since 2003, TATR has undertaken the systematic relocation of six villages from its core area: Boteyzari (2007), Kolsa (2007 and 2022), Navegaon (Ramdegi) (2013), Jamni (2014), and Palsagaon Singru (2019). Rantalodhi is currently undergoing the rehabilitation process. Out of 1137 families, 1170 families have been relocated since 2007. (Option I: 427 families. Option II: 582 families).

In Maharashtra, families agreeing to relocate are given the same amount of 15 lakhs as per revised guidelines of NTCA. But landowners are given additional compensation from the State Government (Ghate, 2005), unlike in Sariska, where there is no compensation for land owned by people opting for relocation under Option I.

Option 1:

- All eligible families get 15 lakhs in two instalments (1+14) as a package amount.
- After the valuation of property, land is compensated @ 4 times the ready reckoner (given by sub registrar).
- Immovable property (house, trees, etc) is calculated at 2 times the valuation given by the concerned department. e. g. 1) House PWD 2) Fruit Trees-Agricultural dept 3) Teak and other- Forest Department.

Option 2:

- All the land-holders and landless families are provided 2 hectares of land per family. If the land is available in the command area of the irrigation project, then such land shall be allotted else the Collector can allot such land from grazing land, e- class land.
- 180 sq. mtr. plot for house construction + Rs 3 lac for house construction + Rs 75000 for Misc expenses.
- Forest Department can purchase private land for allotment (by following due procedure).

Additionally, families opting for option 2, will get valuation of land (as per ready reckoner) + 30% solatium. (Here land means land and other immovable property attached to it as per MLRC) other immovable property would be treated similarly.

In Melghat Tiger Reserve out of the 33 villages in the Critical Tiger Habitat, 19 villages have been completely relocated from 2001 to 2020 and 6 villages are in progress. Out of a total of 5140 families, 4708 families have been relocated. 95% (4468) of the total families were relocated under Option I (Cash package families) and only 5% (240) under Option II. It is pertinent to mention that in Melghat Tiger Reserve, out of 10 lakhs given under option I to the villagers, 1 lakh was retained by the Forest Department in some villages in a society formed by relocated villagers, for purchase of land, preferably government land at concessional rates, and then distributed to the cash package families. This relieved the relocated villagers of searching land and helped the department to relocate the families as a cluster,



which paved way for dovetailing other government schemes at a convenient location (Sekar, 2015). The State Government has also provided relief to the Option I families, by a government resolution to return the 1 lakh/family in lieu of land purchased by the Forest Department, sending a very positive message to the yet to be relocated families and also testifies the sensitivity of the Government towards the process of relocation.

Karnataka Model:

In the Bhadra Tiger Reserve, 16 villages consisting of 736 families were located within the Sanctuary. The Project for relocation was prepared in 1992 to acquire 861 acres of revenue land of these villages and to relocate it outside the Sanctuary. 431 families from 10 villages have been relocated by acquiring 708 acres land. In Bhadra, Government issued the Rehabilitation and Resettlement package benefits by Land acquisition and compensation under the Land Acquisition Act (Government of Karnataka, 2002). The relocated families are included in the list of beneficiaries, based on eligibility, for providing benefits of different central and state government schemes, especially of the tribal department, which actually elevates the package to many times, when converted to monetary terms.

West Bengal Model

Buxa Tiger Reserve (BTR) is the 15th Tiger Reserve in the country situated in the Alipurduar district of West Bengal. Total geographical area of the tiger reserve is 760.86 sq.kms. The core/critical tiger habitat occupies 417.55sq.kms. Though evidences suggest only one tiger in the reserve, the recent relocation of two villages Gangutia and Bhutiya Basti, has highlighted the commitment of the State Government, which can be an inspiration in the relocation models of other States. All 191 families of Gangutia and 51 families of Bhutiya Basti, chose Option I (Cash package of 15 lakhs). Due to the coordination of other departments, the land department identified and allocated 0.08 acres of land to each family, for building a house and creating kitchen gardens, a benefit provided in addition to the 15-lakh compensation under Option I by the State Government. Till now, 151 families of Gangutia and 51 families of Bhutiya have been given 0.08-acre land. Homestay loan was also provided to ensure livelihood sustainability by the Government.

Comparison between Tiger Reserves:

Based on the following data a comparison was drawn between the different models while assigning parameters based on which the success could be assessed.

PARAMETERS	SARISKA	RANTHAMBORE	TADOBA ANDHERI	MELGHAT	BUXA	SATPURA
Number of Complete villages relocated out of CTH	5/29 (17%)	8/68 (12%)	5/6 (83%)	19/33 (58%)	2/15 (13%)	36/36 (100%)
No. of families complete relocated	322/4115	732/9229	926/1170	4468/5140	242/1019	4006/4006



Total no. of families relocated (including partially relocated villages)	1041	1787	1137	4708	242	5136
Option I: Option II	1:1.35	1:0.58	1: 1.36	1:0.05	1:0	1:0.46
Impact on Tiger population growth (2006-2022)	0 to 24+	32 to 57	34 to 97	30 to 57	0 to 1	39 to 50

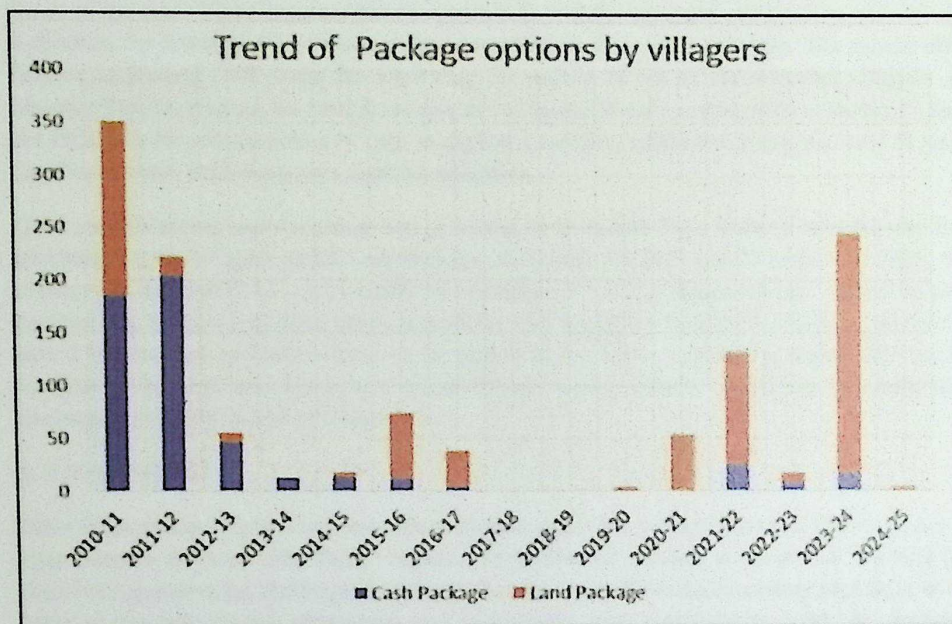
3. DISCUSSION :

The Sariska relocation commenced from 2007. Similar has been the case for relocation in all tiger reserves mainly because of the recommendation of the Tiger Task Force Report in 2005 post -Sariska crisis, that finally paved way for paradigm shift in focus towards village relocation and issuance of revised relocation package by NTCA. In the same span of 17 to 18 years different areas as analysed above, have performed differently. The pace of relocation in Satpura has been particularly exemplary. Around 50 villages have been relocated in the last 17 years whereas, 5 villages in Sariska, 8 in Ranthambore, 19 in Melghat, 2 in Buxa and 5 villages in TATR, have been completely relocated. Where Satpura has been completely freed of human habitations in the CTH, TATR has also created inviolate spaces by relocation of 5 out of 6 villages. Sariska on the other hand, is still facing a challenging task of relocation and has been able to relocate 5 completely and 6 partial villages out of 29 villages.

The relocation models being implemented in the different tiger reserves in India, presents more or less uniformity in enforcement but the difference in outcomes can be inferred mainly due to structured plan, motivated team and the dedication of the Field officers along with co-ordination with the District Administration. The Sariska relocation progress is slow compared to the other 5 tiger reserves, mainly due to some factors of high land value in National Capital region (NCR), almost negligible handholding of cash package families, less conversion of forest land into khatedari lands, etc (Jain, & Sajjad, 2016). The other States like Maharashtra and West Bengal have gone a step ahead by contributing additional support in the form of fund and extra land to the families. The slow progress in Sariska, can be attributed to reluctance of the people coupled with lot of adversities, compared to other tiger reserves. While it cannot be denied that the convergence of schemes, poor grievance redressal mechanisms and dissatisfaction of the villagers, still in the tiger reserve, for non-inclusion of their children who have now crossed the eligible age for including as a separate family, after the survey of 2008-2011, remains to be major impediments, it is also a fact that the District land rates fixed in Alwar being in NCR, is extremely high. The data revealed that what initially started as a positive trend has now reached a point of stalemate with gradually less interest in the cash package of 15 lakhs (Fig 3).



Figure 3: Trend of the cash package vis a vis land package in the last 15 years



Biologists and social scientists often have different ways of asserting an argument on relocation. Whereas biologists tend to assess the issue of relocation in terms of viability of habitats, ecosystems and endangered species, social scientists in sharp contrast, tend to visualise the issues of equity and justice as central to sociological and historical analysis of conservation processes. Dowie (2011) argued whether conservationists are sacrificing human-welfare and well-being for the sake of what can be termed as *imperial conservation*. Karanth (2007) had analyzed a relocation and resettlement project in India's Bhadra Wildlife Sanctuary and draws out insights for improving conservation practices related to resettlement efforts

A negative program of action signifies a more aggressive pursuit of conservation through protected areas and efforts to increase the size of PAs and the rigor with which they are protected, would likely result in even in higher rates of displacement. A positive program of action would address the core criticisms of conservation-induced displacements. It would focus on specific examples in which displacement-related grievances are addressed in an exemplary manner, adopt a policy to avoid involuntary displacements as far as possible, convert involuntary displacement into voluntary agreements to move, and where such options are impossible, design compensation packages that would ensure that those suffering displacement are left 'no worse off' as a result of protected area creation. (Agrawal & Redford, 2009).

As in other Tiger Reserves, the pace has been generally satisfactory ranging from 50 -100% since 2006-07 but in Rajasthan the progress has been very slow, ranging from 15-20%. The trust and confidence of the villagers on the Department seems to be low due to factors of pending land rights, State Relocation policy changes of 2022 not agreeable to the villagers thereby causing an impediment in the



progress, high land value and consequently less inclination towards option I (Jain, & Sajjad, 2015). Some of the other Tiger Reserves have succeeded in establishing good coordination with the district authorities for convergence of schemes, pooling of funds from other Schemes. The special effort of Satpura in pooling CSR funds for improving the quality of life of the relocated villagers and of Melghat/Tadoba, wherein the State Government had issued liberal compensation in terms of 4 times of the DLC rate for compensation of land to Option I families, additional homestead land to Option I families in Buxa, exhibit positive steps for relocation.

Questionnaire survey and secondary data of relocation in Sariska Tiger Reserve revealed that the land purchased by the villagers under Cash Package of 10 lakhs till 2021 and 15 lakhs after 2021, was on average 0.5 hectares (0.13 – 1.2) which was actually $1/3^{\text{rd}}$ of the amount of land offered in the land package (1.6 hectares). In other States, though the land bought by the Option I families, would be less than 2 hectares that is being offered in the Option II, but the area of land is higher than in Sariska because of the high land value in National Capital region, thereby minimising the eight risks as envisaged in the IRR model of Cernea.

4. CONCLUSION :

Since its inception Project Tiger has expanded from nine tiger reserves covering 18,278 sq.kms to 58 tiger reserves encompassing 84,587 sq.kms, the number of villages in these tiger reserves pose a significant conservation challenge in creating “involute spaces” for the expanding population of tigers. Most of the habitats are surrounded and interspersed with unsustainable land use patterns and developmental projects and an impediment to animal movement. Out of the estimated tiger population of 3682 (SE 243), the most significant increase in the tiger population was observed in Central India landscape and the Shivalik Hills and Gangetic Plains, mostly occupied by Madhya Pradesh, Maharashtra, and Uttarakhand. The prioritisation of village relocation in these landscapes and other ones, need to be taken up with liberal policies of the State Governments, doing the extra bit, for self-reliance and self-sustenance of the families relocated outside the tiger reserve (Meena, 2015). The study indicates that while in some states, the motivation and the effort is commendable while in some tiger reserves, more needs to be done, especially Sariska, for presenting a better bargain to the villagers. It is also emphasised that “one size does not fit all” and looking into the land prices outside the tiger reserve, the productivity of the land with the water availability for agricultural practices, the degree of difficulty varies within tiger reserves. Moreover, the trend of Option I vis a vis Option II, is gradually changing in tiger reserves, especially Sariska, indicative of the challenge of ascertaining more isolated forest lands/revenue lands for resettlement. The tiger population increase in the tiger reserves also suggest that though relocation of villages is an important contributing attribute but even with 20% relocation results in Sariska and Ranthambore, the population has grown showing co-existence with preservation of core natal areas in some pockets. It is also a fact that all the villages in the Core Areas of the Tiger Reserves may not get relocated and hence a prioritisation of the villages to free the areas in tiger reserves to act as source areas, may be the immediate requirement.

In a most recent study (Mandal et. al., 2013) it was shown that there cannot be a simple straight procedure for relocation; there needs to be priorities with reference to multiple factors, both anthropogenic and ecological. Voluntary village relocation cannot be weighed on a fixed scale; the process involves human beings and their wills. Thereby many requirements vary from one place to another, in this case from one Tiger Reserves to another. A completely successful relocation is a conservational dream yet to achieve. In this study the same issue has been highlighted while comparing



between the different models adopted. Through the study understanding of the most crucial effort and the requisite area of interference was tried to achieve. Conservation is a global goal, more such in areas ruled by the top predators like Tiger and Lion. However, the proper sustainable management and achieving a balance between human habitation and undisturbed wilderness is the aim of voluntary village relocation. With due understanding of the area specific requirement more effective result thus can surely be obtained it terms of a promising posterity through sustainable conservation practices.

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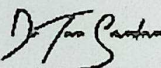
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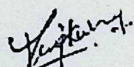
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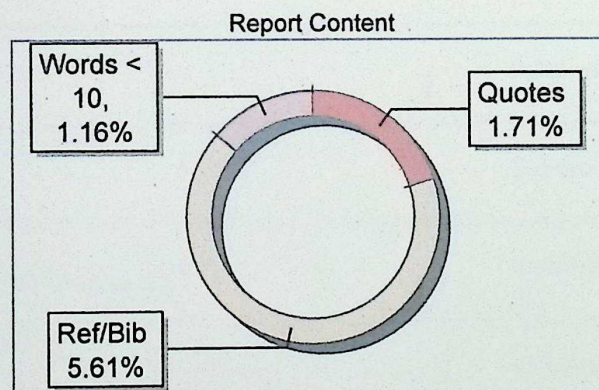
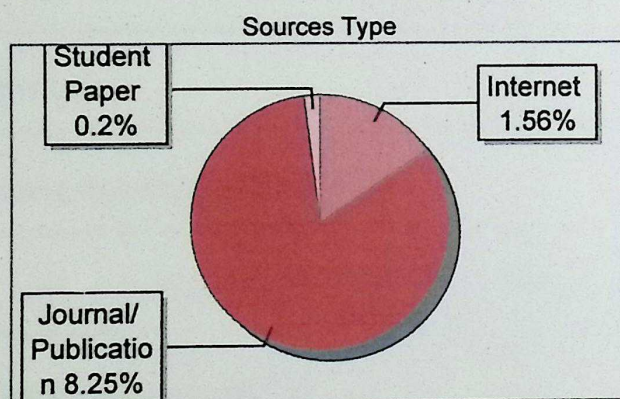
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