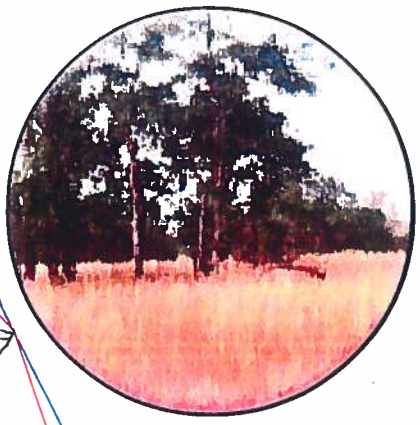
TR-99/001

Mutual Impact Zone Assessment of Panna National Park



भारतीय वन्यजीव संस्थान
Wildlife Institute of India
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Mutual Impact Zone Assessment of Panna National Park

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Chapter-I
Introduction

Around 8,600 PAs covering 5% of the earth's land surface has been established world-wide (McNeely, 1994), of which in 3% area any kind of human use is prohibited (Pimbert and Pretty, 1995). Nevertheless, most of these PAs located in developing countries of Africa and Asia (Hales, 1989), are facing threats to their existence largely due to resource dependencies of local people (Brandon and Wells, 1992; McNeely, 1994). In India, presently the network of Protected Areas (PAs) covers an area of 8.1 million ha encompassing about 14 percent of the country's forest area and 4.61 percent of its landmass. From 6 National Parks (NPs) and 59 Wildlife Sanctuaries (WLS) in 1970, the number increased to 85 NPs and 462 WLS in 1998 (WII, 1998). The NPs and WLS correspond to category I and IV of IUCN respectively which prohibit/restrict human use of these areas. According to a survey carried out in the mid 1980s, over 65 percent of the PAs are characterised by human settlements and resource use (Kothari, *et al.* 1989). In such a scenario an attempt to protect the PAs from human intervention by coercion, results in hostile attitudes of local people towards wildlife management and forestry staff, which often fuels open conflicts between communities and the forest departments. Between 1979 and 1984, 51 clashes were reported in connection with NPs and 66 with WLS (Guha and Gadgil 1992).

The move towards involving the public, particularly local communities living in and around PAs, is now gaining ground. It is now being recognised that the long-term future of parks and reserves depends on taking effective steps to redress the local imbalance of benefits and costs (Wells, 1996). This is a response to the legitimate demands of local people to be involved in activities that affect their lives and it is also a necessary precondition for the success of conservation efforts. In this direction in line with the National Forest Policy 1988, Govt. of India started a centrally sponsored scheme for ecodevelopment around Sanctuaries and National Parks including Project Tiger areas in 1991 (Project Tiger, 1991). Subsequently a number of externally aided ecodevelopment projects have been initiated in a number of Protected Areas where ecodevelopment which emphasises on the involvement of local communities in the management by reducing the negative mutual impact of the people on the parks and the parks on the people (Rathore, *et.al.*, 1998).

DEFINING ECODEVELOPMENT

- "Site specific package of measures, developed through people's participation, with the objective of promoting sustainable use of land and other resources, as well as on farm and off farm income generation activities which are not deleterious to park values" (Panwar, 1992).
- "Limited rural development designed with the participation of local people, for the purpose of reconciling genuine human needs with the specific aim of PA management" (Rodgers, 1992).
- "The basic objective of the Ecodevelopment programme is to reduce the biotic pressure on the core areas of the PAs" (Project Tiger, 1992).
- "To improve productivity of lands and resources i.e. ecologically sustainable amongst rural communities, in that they are not dependent on declining levels of natural resources".
- "To achieve PA conservation by promoting socio-economic development and providing local people with alternative income sources which do not threaten to deplete the plants and animals within the PA" (Brandon and Wells, 1992).
- "Strategy for protecting ecologically valuable areas (PAs) from sustainable or Otherwise unacceptable pressures resulting from the needs and activities of the people living in and around such areas" (Shekhar, 1994).
- "Ecodevelopment aims to conserve biodiversity by addressing both the impacts of local people on the protected areas and the protected area on the local people" (World Bank, 1996).
- "Ecodevelopment is a strategy to overcome unsustainable and incompatible resource use practices by the dependent communities for their livelihood in and around PAs through regulated (sustainable and compatible) use and alternatives through participation of various stakeholders" (as per findings of Ecodocumentation Workshop at WII, 1998).

1.1 CONSULTANCY TASK AND TERMS OF REFERENCE:

1.1.1 Background:

Panna National Park represents one of the important Tiger habitats of Central Indian Highlands (Chawdhry, P.K. 1997; Chundawat et.al., 1997; Gogate and Chundawat, 1997; Pabla, H.S. 1984). The National Park came into being in 1981, which was subsequently included under project Tiger in 1994. This area has unique biodiversity, catchments and cultural values. At the same time the area is facing a number of problems due to human activities in and around the National Park. As per the already available information, 13 villages with a population of about five thousand are located within the National Park and 62 villages with a human population of about thirty five thousand are located on the fringes of the park. The protected area is facing tremendous pressures in the form of grazing, fuel wood collection, small timber and minor forest produce from the people living inside as well as on the fringe of the Park (Chawdhry, P.K., 1996). Mining is another issue seriously affecting the management of the park.

M.P. Forest Department has undertaken a World Bank assisted forestry project, which along with the up gradation of forest management is also addressing the management of protected areas of the state. Panna National Park, because of its ecological, catchment, cultural values and various threats to its biodiversity has been selected as one of the sites under this project. The Management Plan, prepared under GOI-UNDP project of Wildlife Institute of India for Panna, is seen as an important step towards scientific management of the park. Now under the MP Forestry Project additional inputs for the ecodevelopment component are being thought of, which will provide further strength to the park management. For any sound ecodevelopment programme a prior understanding of various impacts and location of these impacts is very crucial. In that direction Wildlife Institute of India was asked by MP Forest Department to assist in mapping of the mutual impact zone of the park and suggest the possible ecodevelopment strategies under the present assignment of M.P. Forestry Project. The Terms of Reference for the present assignment is given as **Annexure-1.**

1.1.2 Objectives of the Assignment:

The main objective of this assignment is to identify impact zone around Panna National Park by

using PRA techniques and to indicate the nature and extent of ecodevelopment works required to be undertaken in the area. The specific tasks under this assignment are as follows:

- To examine the nature and extent of impact zone around Panna National Park by identifying various types of pressures on the park resources, categorize the magnitude and the extent of such pressures, identify demographic characteristics associated with such pressures and rank these pressures according to the magnitude of their negative influence on the park. This also needs the listing of ecodevelopment activities required village-wise in the impact zone, which are friendly with the reserve.
- To list possible ecodevelopment activities to address various types of pressures using PRA techniques.
- To identify possibilities of dovetailing the programmes of other agencies to meet the objectives of ecodevelopment and to suggest procedures or means to achieve such linkages with various agencies.
- To suggest strategies to eliminate or mitigate the pressures which have serious adverse impacts on PA but are not emanating from the resource dependent people.

Chapter-II

Study Area

2.1 LOCATION AND EXTENT:

Located in the northern part of Madhya Pradesh, the Panna National Park encompasses an area of 543 sq.km **(Fig. 1)**. It is spread over two districts namely Panna and Chattarpur of Madhya Pradesh. Panna National park is situated 37 km Northwest of the famous Khajuraho temples, a World Heritage Site, which is also the nearest airport. Satna is the nearest rail head about 70 Km from the Park headquarters. The forests of Panna were the game reserves for the erstwhile princely states of Bijawar, Chattarpur and Panna. The boundaries of earlier Gangau wildlife sanctuary were modified in 1981 thereby creating the present Panna National Park.

2.2 TERRAIN:

The terrain of the area is characterised by extensive plateaus and gorges. The altitude varies from 210m to 534m. Ken river, one of the least polluted river and a tributary of Yamuna, passes through the National Park and is the major perennial source of water in this area.

2.3 CLIMATE:

The area enjoys a typical tropical climate with three distinct seasons. The summer season begins from March and lasts till June with temperature going as high as 48° C. May, the hottest month of the year is characterised by dusty storms. Monsoon arrives towards the end of June and continues till September. The average annual rainfall is about 1100 mm. The hot and humid month of October is followed by severe winter, which lasts till February. The temperature goes as low as about 5°C during the month of December and January. Frost is the common feature for the grassland areas during January.

2.4 FOREST TYPE AND FLORA:

According to Champion and Seth (1968), this area is classified as Northern Dry Deciduous Teak Forest. The dominating vegetation type is *Miscellaneous Dry Deciduous* forest interspersed with grassland areas. Other major forest types are *riverine, open grasslands, open woodlands with tall grasses, closed woodlands with short and tall grasses, and thorny woodlands* (Chundawat *et al,* 1997). The characteristic floral species of this area includes tree species such as *Tectona grandis, Diospyros melanoxylon, Madhuca indica, Buchnania latifolia, Anogeissus latifolia, A. pendula, Lannea coromandelica, Bosswelia serrata, etc.* Major shrub species includes *Lantana camera, Grewia sp., Nyctanthus arbortristis, Ixora sp., Zyziphus mauritiana, Z. oenoplea, etc.* The dominant grass species are *Apluda mutica, Themeda quadrivalvis, Heteropogon contortus, Aristida sp., Eragrostis sp., etc.*

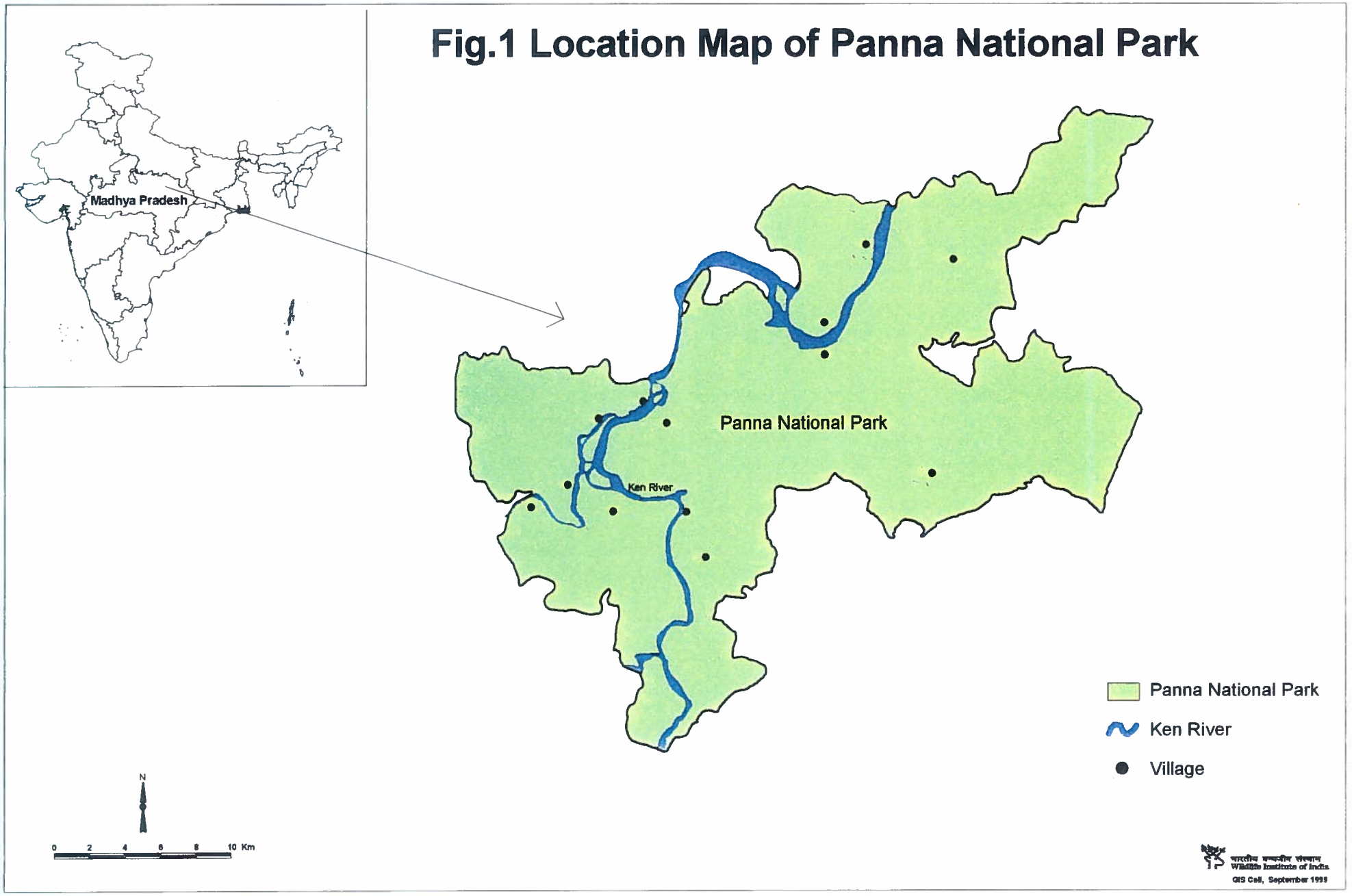
2.5 FAUNA:

The park supports a diverse fauna, among the large predators found in the area are tiger (*Panthera tigris tigris*), leopard (*Panthera pardus*), sloth bear (*Melursus ursinus),* wild dogs (*Cuon alpinus*) and wolf (*Canis lupus*). The herbivores include sambar (*Cervus unicolor*), chital (*Axis axis*), nilgai (*Boselaphus tragocamelus*), chinkara (*Gazella gazella*) and chausinga (*Tetraceros quadricornis*). Other mammalian species commonly found are hyaena (*Hyaena hyaena*), Jungle cat (*Felis chuas*), wild pig (*Sus scrofa*), Indian fox (*Vulpus bengalensis*), and Indian tree shrew (*Anathana ellioti*).

2.6 CONSERVATION SIGNIFICANCE:

- This park along with the surrounding territorial forest area of North and South Panna divisions is the only large chunk of wildlife habitat remaining in North Madhya Pradesh in otherwise fragmented forest landscape of the area. Panna National Park represents one of the important Tiger habitats of Central Indian Highlands along with its associated species (Chawdhry, 1997; Gogate and Chundawat, 1997; Pabla, H.S., 1984).
- The location of the National Park is also important because it is situated at a point where the continuity of the forest belt, which starts from Cape Comorin in the south, is broken and

Fig.1 Location Map of Panna National Park



beyond this the great Gangetic plains begin. This area is also the northern most tip of the natural teak forests and the eastern-most tip of the natural *kardhai* (Anogeissus pendula) forests (Pabla, H.S., 1984).

- Forests of Panna National Park along with Ken Gharial Sanctuary and adjoining territorial divisions form a significant part of the catchment area of the river Ken. River Ken with a total length of 406 km. runs for about 72 km. through this catchment. Being a tributary of Yamuna this catchment plays a significant role in regulation of flow of water and thereby easing the frequent flood situation of Yamuna (Pabla, H.S., 1984). Two irrigation dams *viz.* Gangau and Bariyarpur, are located on this river, which cater to the irrigation needs of Uttar Pradesh State.
- Apart from their conservation values, the forests of Panna have cultural and religious significance in being the home to several rock paintings and temples dating back to 4000 years (Chawdhry, P.K., 1996).
- Panna being situated very close to the ancient temple town of Khajuraho, Ken Gharial Sanctuary and Panna Diamond Mine offers tremendous tourism potential.

2.7 CONSERVATION ISSUES:

2.7.1 People and their dependencies:

There are 47 villages with a total human and cattle population of 34, 534 and 37, 555 respectively, surrounding Panna National Park. In addition there are 13 enclaved villages with a human and cattle population of about five thousand and ten thousand respectively (Chawdhry, P., 1996). The major communities in most of these villages are *Yadav*, *Gond* and *Konder*. They are dependent on these forests for their daily requirements of fuel wood, fodder, timber and minor forest produce. Their economy is often based on the sale of forest products particularly wood and NTFPs. Added to these pressures from the resident people, Panna National Park also faces the onslaught of grazing from an unaccounted number of migratory cattle immediately after the rainy season (Chawdhry, P., 1996)[1]. The pressure of illicit felling as well as minor forest produces also come from far off places. Illicit

[1] The number of migratory cattle has reduced considerably in the past three years as a result of strict protection measures by the park management.

fishing for subsistence and commercial purpose is also a problem in some pockets of the Park, where people adopt even blasting and poisoning for fishing, there by resulting in major disturbance to the aquatic fauna. The problem of resource dependency is also compounded by the poverty and inadequate infrastructure development in the entire area.

2.7.2 Lack of Alternatives:

The villages in Madhya Pradesh in general and districts of Panna and Chhattarpur in particular are quite backward. Most villages are located in the remote areas and therefore do not have adequate basic amenities such as schools, hospitals, electricity, proper roads and transport facilities. Shortage of water for drinking as well as irrigation is another problem faced by the people in the area. Even no sufficient alternate employment and income generation activities exist in the area, resulting in mass out-migration of people from some villages to big cities in search of jobs.

2.7.3 Man – animal conflict:

Crop depredation by wild animals is a major problem in most of the villages in this area. On an average about one third of the agricultural produce is damaged by the wild ungulates. Incidences of mauling, mostly by sloth bear, are also reported from the area however, most of them are the outcomes of accidental encounters. Cattle depredation both inside as well as outside the park are also quite commonly reported. Compensation is paid in the cases when the cattle are killed in open area. The extent of man-animal conflicts and inadequate mechanism of compensations is often a major cause of conflict between the park management and local communities. Due to lack of awareness and a number of other factors many of the cases do not come into light and hence the number of actual recorded cases may not give a clear picture of the situation. As per the official records the details of cases of man-animal conflicts along with the compensation paid for the last three years is given as **Annexure 2a**.

2.7.4 Forest fires:

Forest fires starts from the month of January and continue till the first monsoon showers. However, in the months of April and May when the temperature goes very high and humidity is very low

incidences of fire are at their peak. Majority of the fires are man made. The entry of the people in the park for collection of NTFP, firewood and grazing as well as other requirements leads to these fires. Many times people intentionally put fire to avenge the loss of life and property due to wildlife. Pilgrimage to some of the temples inside the park and the local beliefs are also responsible for some of the fires. Fire being a major management problem, there is still strong need to identify fire sensitive areas and strategy to manage these fires after careful analysis of various causative factors.

2.7.5 Local people – forest staff conflicts:

The relations between the Park management and the local communities, which apparently look normal, are often not very smooth. Dependencies of local communities on one hand and denial of access to the park by the staff on the other often lead to open conflicts. Factors like wildlife damage add to such conflicts. **Annexure-2b** gives the details of offence cases in the park for the last three years along with conflict cases.

2.7.6. Mining:

Mining is an important economic activity in the area providing employment and income. On an average a labourer earns upto Rs. 40 and 100 per day in sandstone and diamond mining respectively. However the earnings in case of diamond mining can be considerably high in case of mines owned by the people themselves. About one thousand workers are engaged in NMDC mine alone. Another thousand odd workers are working in private shallow mines. The sandstone mines engage a few thousand more workers. However, a number of people working in these mines, particularly the sandstone mines come from other states like Orissa. Some of the stone quarries close down for a few weeks during the rainy season while others continue to function throughout the year. Most of the mining areas (within five km radius of National Park) fall in North Panna Division. Although, there are no mines inside the boundary of the National Park, the existence of mines along its boundary exerts direct pressure on the Park due to trespassing as well as fuel wood, timber and other requirements of the workers. Moreover, certain permanent mines, functioning along the boundary of the park, are a cause of increase in pressures, in adjoining areas of the park due to camping of the people in the same area throughout the year.

2.7.6.1 Diamond Mining:

The only active diamond mine in Asia is located on the eastern fringe of the National Park. Mining for diamond is done primarily in Kimberlite pipe by Diamond Mining Project (DMP) of National Mineral Development Corporation (NMDC) at Majhgawan. However, shallow mines by manual labour on yearly lease are also of major concern as this activity is often accompanied by cutting of trees and vegetation and leaving the soil loose for erosion. The mine is a source of regular disturbance to the wildlife because of blasting, round the clock vehicular traffic and a large township, which has come up in this area. So far no impact assessment studies to examine the long term effects of mining on the Panna National Park have been conducted.

2.7.6.2. Sandstone mining:

About 25 working sandstone mines are located in North Panna Division alone. Many of these sites are on forest land (RF/PF). District authorities in many of these areas have issued fresh leases. Some cases have been booked against these unauthorised mines, however, many of these cases are in the process of appeals, stay, injunctions etc., in the court.

2.7.7 Pilgrimage:

Three major and several smaller temples and shrines of immense religious significance to the surrounding villagers are located within the Panna National Park. On specified occasions there is heavy pressure of pilgrimage to these sites. Approximately 20,000-30,000 pilgrims visit the Swargeshwar Mahadev temple located in Chandranagar range, on the festival of Basant Panchami. During these heavy visitations illicit activities like felling, poaching and forest fires are difficult to control.

Chapter-III

Methodology

The purpose of this study is basically to set a ground for implementation of ecodevelopment programme, which will depend upon the capacity of the local staff and communities to understand and analyse the issues for proper planning and implementation. Keeping this fact in mind, the methodology is focused on the capacity building of the local staff and using this capacity for the collection of information required for the study. The study was conducted in four stages.

3.1 TRAINING OF STAFF AT PANNA NATIONAL PARK:

After a thorough literature search at the institute, the team members from WII undertook preliminary field visits of the area and conducted a number of meetings with the staff and officials of the park. This helped in understanding the park-people issues in Panna National Park. With the objective of assessing the staff's perceptions, problems and doubts regarding the implementation of the ecodevelopment programme in the area, a need assessment was carried out through semi-structured interviews with the staff and the officials **(Box 1)**.

BOX 1

Need Assessment of staff for implementation of Ecodevelopment in Panna National Park

Ecodevelopment and Related Issues:

- Clarity of concept of ecodevelopment
- How to generate trust among the local people?
- How to communicate and motivate the villagers?
- How to deal with the actual and traditional dependencies in absence of alternatives?
- How to address community diversity particularly in case of rich and poor?
- How to generate interest of villagers in forest department schemes when better schemes of other departments are available?
- How to deal with problems of crop damage?

Staff Motivation:

- How to balance the dual role of protection and eliciting people's participation?
- Difference in training received and the work required to be done.
- How to balance the orders from above and ground realities?
- How to balance routine protection work with the extra work resulting from the ecodevelopment project? Ways to compensate for this extra work?
- Inadequate working facilities in wildlife postings.

Village Level Committees:

- Clarity regarding mutual roles, rights and responsibilities.
- Constitution of the committees is not clear.
- Financial accountability of ecodevelopment inputs.
- How to decide the activities to be undertaken for ecodevelopment?

Mechanism of monitoring and evaluation of ecodevelopment works.

- Simultaneously, in consultation with the park authorities, a team of staff members was also identified which could act as a spearhead team **(Annexure-3)** for not only this assignment but even for the future ecodevelopment programme in the area. On the basis of need

assessment, a competency based training programme was designed. Training for the spearhead team members was conducted at Hinota from 10-16 October 1998.

3.2 IDENTIFICATION OF MUTUAL IMPACT ZONE:

3.2.1 Impact zone outside the park

The spearhead team already trained under the programme was involved in conjunction with the team members from WII to carry out a rapid survey of villages around Panna National Park. After reconnaissance of the study area, twenty-two points were selected along the park boundary from where vertical transacts radiating outside were laid at a horizontal interval of about 5 km (**Figure 2**). All the villages falling on these transacts were examined to gather information about the livelihood patterns and the dependency of these villages on the Panna National Park. The transacts were run upto a distance till the dependency of the village on National Park became negligible. Structured formats used during rapid survey of the villages are given in **Annexure-4.** Based on the results of the rapid survey, the villages were categorised according to their resource use patterns and their dependence on Panna National Park. Thirteen such categories were identified and one representative village from each category was then examined in detail, to get information about their socio-economic status and quality and quantity of resources used from the park, by using Participatory Rural Appraisal (PRA). Information regarding demography, landholding and use, income generation patterns, economic status of the people, access to essential services and man-animal conflict was also collected. The information was later used for the quantification of various impacts and for suggesting general strategies of ecodevelopment for each category of villages in the impact zone. The villages inside Panna National Park were not taken into consideration as the process for their relocation outside the park is already in progress.

3.2.2 Assessment of human impact inside the park:

In the third stage, pressure on the forest was assessed, and areas impacted by human use were identified. This was carried out in the following two stages.

3.2.2.1 Assessment of human pressure based on forest staff statements:

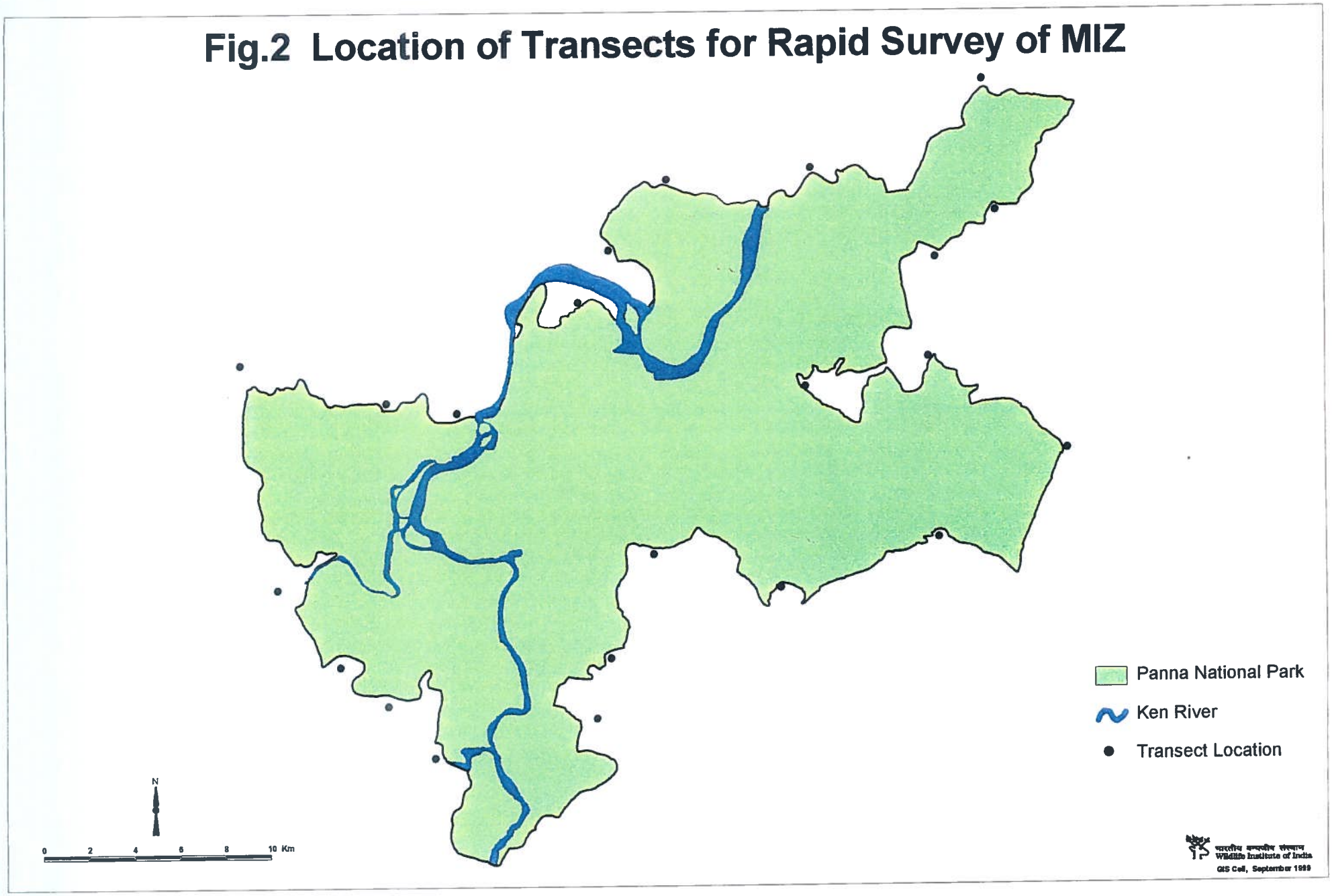
Forest personnel from all categories in the field were interviewed and information in terms of cutting, lopping and grazing and percentage of degradation for each forest compartment were recorded. The method used by Sale & Berkmuller, (1988), and Badola (1997) has been used for rapid assessment of the status of forested habitat in the field. To bring in an objectivity in gathering of information and to ensure the uniformity of information flowing from different staff, a full session on impact assessment techniques was conducted. A close ended questionnaire used to gather various information regarding impacts, is given as **Annexure-5**. The status of all compartments within the study area was examined by showing maps to the field staff responsible for each compartment. They were asked to rank each compartment on the basis of its degradation due to various human pressures. Four types of human impacts (grazing, fuel wood, Non-timber forest produce and Weeds) were identified and every compartment was placed for each of these impacts into one of four categories *viz.* High, Medium, Low and Nil. On the basis of statements given by the staff a matrix for each compartment was prepared. Data from this matrix was later transferred into maps using GIS.

3.2.2.2 Assessment of human pressure based on field sampling:

Twenty-two points identified along the park boundary earlier for the rapid survey were used for the sampling of the area inside the park. From each point, a three km long transect was laid inside the park to estimate the type and magnitude of human pressure. Three different methodologies were used to collect information on each transact, *i.e.* Two Step method technique (Sale and Berkmuller, 1988) sample plots and direct observations.

Two – step method was used on each transact for first fifty steps on each segment to collect information on the ground cover and the signs of degradation. This was followed by recording of general observations on direct evidences of human pressures along the transact. At every 400m interval a plot of 10m x 10m was laid to collect information about the vegetation (including regeneration status) and the human use and impacts. In each plot information on parameters such as tree density, shrub density, grass cover, evidences of lopping, cutting and felling, grazing, *etc.* was collected. The format used for this survey is given as **Annexure-6**.

Fig.2 Location of Transects for Rapid Survey of MIZ



However, this information could be only used to generate baseline data for different areas in and around the park.

3.3 STRENGTHENING THE ECODEVELOPMENT PROCESS:

3.3.1 Support to the microplanning process:

Support was provided to the microplanning process in two villages as a part of the project. This was done basically to strengthen the ongoing process of planning in National Park by equipping the staff with the skills required to prepare microplans. Microplans were prepared for two villages, Brijpura and Bador located in the south-western and eastern part respectively of Panna National Park. Brijpura village is located in a pocket where so far no micro-planning work had been initiated while in Bador this process had already begun.

3.3.2 Stakeholders Workshop:

Workshop for various stakeholders including the district administration was conducted at Panna. This was basically to identify the perceptions of different stakeholders regarding the problems in the impact zone and possible strategies to mitigate the same. The workshop helped in suggesting possible mechanism of dovetailing various district programs in the ecodevelopment initiatives for the park.

Chapter-IV
Training

Capacity building through training has been one of the critical components of the project, as it contributes to the overall process of ecodevelopment programme in the Park in addition to its immediate application for the assignment. Training for spearhead team was conducted through a workshop in Hinouta from 10-16 October, 1998.

4.1 TRAINING OBJECTIVES

The objectives of the training programme have been separately listed in the competency guide (**Annexure – 7**) prepared for the project, which could be summarised as under:

- To understand the concept and issues related to ecodevelopment.
- To understand the role of community in ecodevelopment, their diversity and traditional knowledge which can be used for ecodevelopment planning.
- To understand the concept of stakeholders and ways to get their participation in ecodevelopment.
- To equip the participants with hands on knowledge about participatory tools required for gathering information, microplanning and assessment of impact zone.
- To understand the process of microplanning under ecodevelopment.

4.2 TARGET GROUP

The target group for this training programme was the spearhead team decided in consultation with the park management. This team was to work for this assignment and serve the training needs of Panna National Park in future, targeting both the local communities as well as the forest staff. There were 18 participants of this team in the training workshop right from the level of Deputy Director of the Park to the Forest Guards. The composition of the spearhead team is given as **Annexure-3**.

4.3 TRAINING DESIGN

The overall training strategy guiding this training programme emerged from a training need assessment and subsequent analysis, held at different times as a part of various capacity building programmes of the Wildlife Institute of India. This overall strategy was later modified in the light of the need assessment carried out during the preliminary visit of the area **(See Box 1)**. Various components of training programme were re-modified as per the issues brought out by the participants during the introductory session of the workshop. Basically various sessions of this training programme (**Box 2**) covered the questions of what, where, why, by whom, and how of Ecodevelopment.

Box 2

Issues addressed during the training workshop

- **Concept of Ecodevelopment and related issues**
- **Change and its importance in ecodevelopment**
- **Importance of community participation in conservation**
- **Levels of participation in conservation**
- **Local communities and their dependency on natural resources**
- **Local traditional beliefs and value systems in ecodevelopment**
- **Traditional institutions and their role in ecodevelopment**
- **Village level institutions in ecodevelopment**
- **Linkages between conservation and development**
- **Stakeholders and their importance**
- **Selection of villages for microplanning**
- **Planning for Ecodevelopment**
- **Components of microplan**
- **Participatory tools to be used in ecodevelopment field work**
- **Further steps after the training workshop**

The training design draws on the competency based training framework (**Box 3**). The performance expected of the participants after the training programme was reduced in the form of standards which are detailed out in the form of criteria and range statements in competency guide (**Annexure-7**). The training workshop was so designed, as to help participants in achieving the listed standards.

Box 3

Clarifying the Terms

- **Competence**

  Ability to perform as per the agreed standards.

- **Competency**

  Mix of skill, knowledge and attitudes required for the performance.

- **Element**

  What trainees will be able to do?

- **Performance Criteria**

  Level and quality of performance.

- **Range Statement**

  Scope of performance.

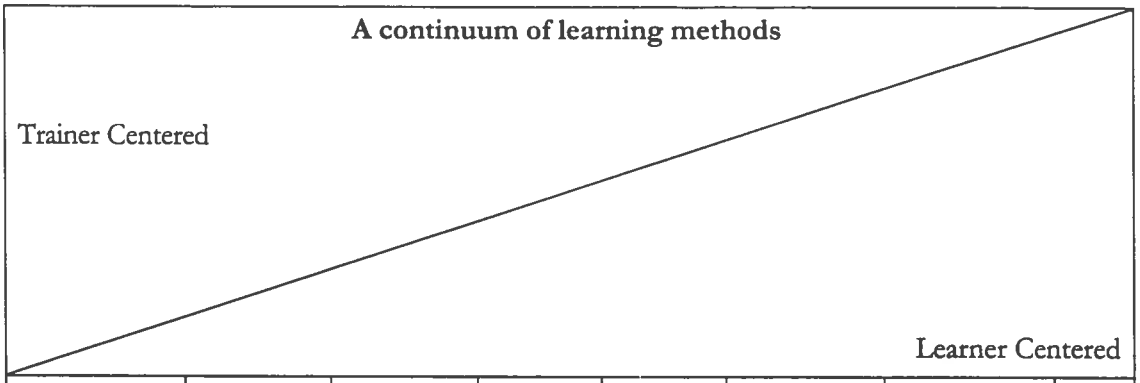
Source: WII, 1999

4.4 TRAINING METHOD AND OUTPUT

Training of Spearhead team members covered agreed performance criteria. The training programme was based on the principles of Androgogy i.e. Adult learning and provided the learners a total experience of having been through the training programme. The trainers used a range of methods to enable the learners to achieve the standards. However, the focus was more on the later. The methods ranged from trainer centered to trainees' centered approaches. This training programme aimed at re-

orienting the spearhead team from the top down approaches, combining behavioral psychology with role playing, case studies and field exercised wherein the role of the trainers was more of facilitators (**Box 4**). These aimed to expose the team to the personal rewards of participatory planning and management. The entire training programme was conducted in the local language.

Box 4



Lec.	G.Dis.	Dem.Pra	St.Ex.	R.Play	C.Sty	S.G. Dis	Sim.

Activities Continuum

Lec.	=	Lecture
G.Dis	=	Group Discussion
Dem.Pra	=	Demo Practice
St. Ex.	=	Structured Exercises
R.Play	=	Role Play
C.Sty.	=	Case Study
S.G.Dis	=	Small Group Discussion
Sim.	=	Simulation

Source: Knowles, 1984

The report of the training workshop is being put up separately as volume 2.

4.5 STAKEHOLDERS WORKSHOP:

Workshop for various stakeholders including the district administration was conducted at Panna.

This was basically to identify perceptions of different stakeholders regarding the problems in the impact zone and possible strategies to mitigate the same. The workshop helped in suggesting the possible mechanism of dovetailing various district programmes in the existing ecodevelopment initiatives of the park.

Chapter-V

Protected Area Mutual Impact Assessment (PAMIA)

Protected areas are often justified on the basis of their importance in conserving resources for humankind as a whole. However, the importance of Protected Areas to local communities is of a different nature. Conserving Protected Area values for human kind as a whole often interferes with the realization of these local values. Consequently local people tend to resist the imposition of Protected Areas. Often the lifestyles of local communities have impacts on Protected Areas while the declaration of Protected Areas has number of adverse impacts on the local communities **(Box-5).** If unaddressed, such mutual negative impacts can generate hostility between the PA management and the local people, which is disfunctional to the Protected Area itself. Not only that in the shadow of the negative mutual impacts a good number of positive impacts between the park and the local communities get totally ignored. This is the case with almost all the Protected Areas in the country and Panna National Park is no exception to this. Under the increasing population pressures local support will be essential for the maintenance of Protected Areas. Local support will also be needed in order to stabilize sympathetic land uses around Protected Areas, which are vital if viable populations of large mammals are to be maintained. Hence, understanding, avoiding and mitigating adverse mutual impacts and highlighting the positive impacts are clearly in the interest of both the affected people and Protected Area managers. Protected Area Mutual Impact Assessment can play a major role in offering a solution to traditional conflicts between local people and Protected Areas and assisting in the implementation of more cooperative forms of management.

BOX 5

Declaration of a NP has number of outcomes on resident populations.

1. Relocation: either voluntary or forced.
2. Restricted access to resources.
3. Alienation: where people continue to reside within the Protected Area but are strictly controlled.
4. Cooptation

Probable adverse impacts of Protected Areas on local people:

- Economic: All or a significant proportion of peoples economic base is removed. In addition, their crops and livestock are subject to depredations from wild animals.
- Cultural: Traditional ways of life and relationship with the land are lost.
- Social: Traditional patterns of authority, reciprocity and social bonds break down.
- Ecological: People are removed into an environment in which they are not well adapted ecologically.
- Technological: Traditional tools and techniques are not suited to the new environment to which people are located.
- Hostility of local people, which is disfunctional to the PA itself.

Probable adverse impacts of local communities on Protected Areas

- Resource use: Since the people are not legally permitted to use resources from PAs they continue to do so in the absence of alternatives or out of habit.
- Non-judicious resource use: Having lost their security of tenure towards these areas people tends to become indiscriminate in their resource extraction.
- Hostility towards Protected Areas: Local resentment can be manifested in poaching and acts of vandalism, such the deliberate setting of fires.

Adapted from: West and Brechin, 1991

PAMIA is an interactive planning system that focuses on and accommodates needed processes of complex information gathering, multi-group communication and joint decision making. It involves broad based values, political considerations as well as specialized scientific and technical information. Synergistic, multi-cultural interactions are used as a means of communication and interaction for mutual problem solving. Conflict management is done through mediation, negotiation and joint problem solving, designed for a particular potential park. The positive inclusion of the modes and methods of all parties supports the creation of a temporary multi-cultural interaction system that can empower all participants. In Synergistic Multicultural Interactions all the parties:

- Value the perspectives and knowledge of one another.
- Are able to create innovatively something that satisfies their multiple interests and solves their joint problems.
- Use decision making process, communication patterns and dispute settlement approaches that are acceptable to all parties.

An interactive planning system is based on the following principles:

- The planning is a deliberate problem solving and educational processes for all involved and is understood to involve the values, ideas and expertise of local people.
- The developmental perspectives would involve considerations of the geographical regions need for various resources and identities.
- Must include the participation of local residents.
- The planning and dispute settlement processes must be multi-culturally designed so that they are compatible with the local decision making and planning systems as well as those of natural resource professionals.
- The resulting management must support and enhance conservation values, the local human cultures and broader societal needs.

The first step in PAMIA is of course the identification of the Protected Area mutual impact zone. In the present assignment, the coming two sections would deal with the identification of the Protected Area mutual impact zone for Panna National Park. An attempt has also been made

during this assignment to set in motion the process of developing synergistic multi lateral interactive systems that would be in the long term interests of the Protected Area values as well as the livelihood security of the local communities living around Panna National Park. The stakeholders workshop at Panna as well as the support provided to the micro planning process are a part of this process. Chapter 8 gives a detailed account of these processes undertaken through this study. PAMIA is, infact, a dynamic process and this will have to be a part and parcel of the whole of planning and implementation process of ecodevelopment likely to flow after this assignment.

Chapter-VI

Resource utilization from the National Park by villagers in the impact zone

Tropical forests, surrounded by world's largest populations are being rapidly diminished for the immediate livelihood requirements of these people. The human societies that surround these forests can not survive without them. Their lives are inextricably bound with the forests in practice and in meaning (Anderson and Huber, 1988). In the past it was believed that Protected Areas were the places where the boundaries of protection were established and people were either kept out or removed. Today as population pressures increase and the rights of local communities gain recognition, an expanded approach to Protected Areas is emerging (Martin, 1993). Recognition of the fact that it is not possible to conserve these areas without the support and participation of the communities living in and around them is gaining ground. The first step in the process of securing participation of local communities is to address their dependencies and basic livelihood requirements and at the same time ensure that further degradation of PAs does not take place.

To the extent that material alternatives are not available or people are unable to buy substitutes to forest resources, they are dependant. Degree of dependency varies, and in many instances it increases or decreases on a seasonal basis. Dependency on forests can be of two types; primary and secondary. Villages situated close to the forest having primary subsistence or economic forest dependence are recognised as primarily dependent. Some villages or village residents situated at greater distances from the forest may claim no formal or informal rights, but nonetheless use the forest periodically for the collection of subsistence goods such as firewood or fodder - these are secondary dependent villages. Identifying people or communities which are most dependant on forest resources and finding suitable mitigatory measures to relieve pressure on the forests for the sustainable use of forest resources, is a challenging task for the states as well as institutions.

Evaluating pressures on forest resources alone would yield an incomplete reflection of priorities when trying to eliminate or reduce impact of human use on Protected Areas. Thus it is imperative to identify which group or community is putting pressure and why? What is their level of dependence

on the forests? This may be due to lack of alternatives, lack of education and awareness or just due to habit (Badola, 1997). Keeping in mind the above basic facts, attempt was made to identify the impact zone outside Panna National Park, *i.e.* the area outside the tiger reserve from which the people are using the resources of Panna National Park. Subsequently the types and levels of dependency of these villages were examined. This section tries to explain the details about the impact zone and the types of impacts.

6.1 GENERAL PROFILE OF THE VILLAGES AROUND PANNA NATIONAL PARK:

The villages located outside Panna National Park fall in the districts of Panna and Chattarpur. The economy of these two districts, for a very long period in the past, has been dependent on cattle. Agriculture is mostly rain fed and even this has suffered due to the problem of damage from wild animals. The landless people earn their livelihood working as laborers in the mines or migrate out to the cities. Some people do get labor opportunities in the forestry operations, which have also come down in recent years. Certain pockets of comparative prosperity have come up due to mining activities or irrigated agriculture. These also form the nucleus for the economic activities of the surrounding villages. In general the area is under-developed with basic facilities such as health, education, communication etc. not being available to a vast majority of the villagers. The inhabitants are a mix of tribal and other backward communities, heavily dependent on forests not only for their daily requirements but also for their livelihoods. The pressure on the forests emanates mainly from grazing, fuel wood, timber and NTFP collection. The cattle of this area, which is of local breed and hardly yield any milk, is maintained mainly on the forest resources. Apart from them a large number of migratory cattle also enter in the park area during monsoon season. Though, the number of migratory cattle has come down considerably since the declaration of the area as a National Park, the practice still continues in some pockets

List of surveyed villages along with the details of the demography, landuse, livestock population, literacy levels, employment and income levels, access to facilities and level of dependence on forest of the villages impacting Panna National Park are given in **Annexure 8, 9, 10 and 11.**

6.2 IDENTIFICATION OF IMPACT ZONE:

Based on the above information, demarcation and the extent of the impact zone and also the types of impact from various villages has been carried out. **Figure 3** shows the impact zone around Panna National Park. Owing to difference in their location, economy, social structure, resource availability and resultant resource use patterns, villages differ in their impacts on the park.

6.2.1 Types and area of impacts:

The impacts on Panna National Park results mainly from the demands of the people for grazing, fodder, fuel wood, NTFP, and small timber. Illicit felling and trespassing also occurs in some areas. In particular season pilgrimage is one of the reasons for trespassing. Although there is no evidence of mining inside the park lot of impact of mining can be seen in the impact zone outside the park. Total area of the impact zone is about 1346 sq km., which has 144 villages in this area. The width of the impact zone varies from about 2.5 km in the west to about 26 km in the south and southeast of the park. The average width of the impact zone is about 12 km. Of the total impact zone, about 465 sq km area having 39 villages, is the area from where the maximum pressure come to the National Park. This is the area from where all types of resources are being extracted by the people from the park **(Figure 3).** Out of 210.7 km. long boundary of the park, about 53 km. length is devoid of any forest around it and this is the area where from the impacts are directly coming to the park. More than half of the impact zone is constituted by forest under the control of Panna north, Panna south and Chattarpur Forest Divisions. This area is spread along the north-eastern, northern and western boundary of the National Park. Some of the compartments of territorial forests in the impact zone are under varying degree of impact due to mining.

Direction: Although the impacts of biotic pressure come from all directions, there are some pockets of heavy resource use and resultant impacts. These pockets are located in the following directions: Northwest (e.g. villages such as Lalar, Tapariyan, Baharpura, Patan, etc.), east (*e.g.* villages such as, Hinouta, Bador, Umrawan, Bakchur), south (*e.g.* villages such as, Khamari, Koni, Bilhata, Katahari) and southeast (*e.g.* villages such as, Rampura, Jharkuwa, Jaswantpura, Shivrajnagar, etc.).

6.2.2 Categorization of the villages in the Impact Zone:

Based on the initial survey of villages for identification of impact zone, all villages falling in the impact zone were put under different categories. This was done in order:

- To clearly point out the types of impacts from different areas.
- To identify exactly the factors that drives these impacts (This would facilitate the recommendation of area specific ecodevelopment initiatives)
- To prioritize the areas for ecodevelopment
- To identify the type of linkages that need to be forged with other stakeholders, particularly district development agencies

The following parameters evolved jointly with the spearhead team members, were taken into consideration while categorizing the villages:

- Availability of forest other than the park
- Economic status of the villagers
- Main occupation of the people
- The quantum of impacts
- Type and quantity of resources extracted from the park

Figure 4 shows the various categories of villages in the impact zone.

6.2.3 Socio-economic status and resources dependency of different category of villages

Twelve representative villages from above categories were selected for intensive sampling. The details of the 12 representative villages surveyed are given as **Annexure 12**. The results of the intensive sampling were used to calculate per unit resource dependence. These values were then extrapolated for arriving at resource extraction for the other villages falling in the same category. Summarized account of the socio-economic status and resource dependence of the intensively sampled villages are given as **Annexure 12a** and **Annexure 12b** respectively.

Fig.3 Impact Zone Around Panna National Park

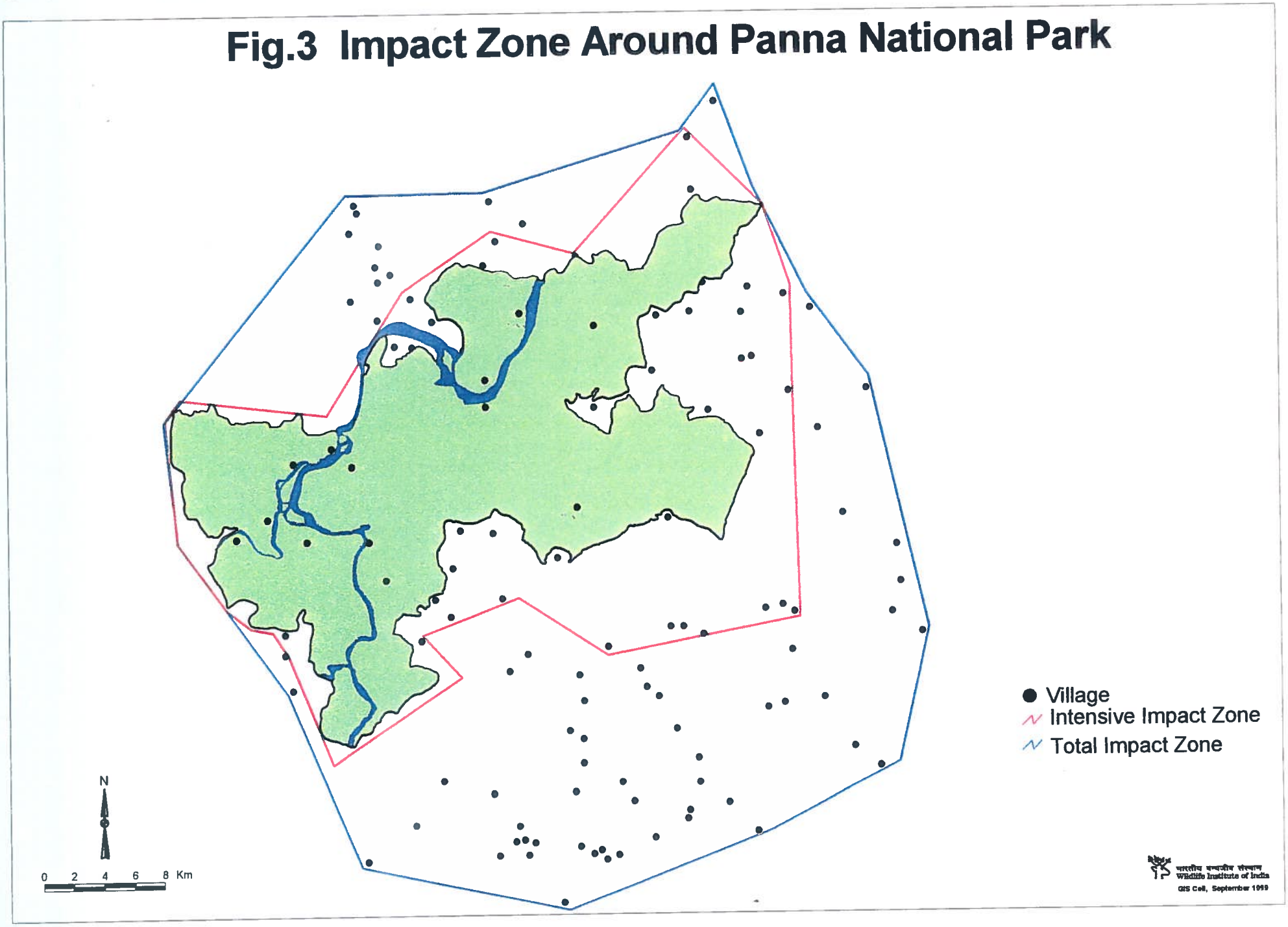


FIG. 4 DEPENDENCY OF VILLAGES ON PANNA NATIONAL PARK

Totally dependent villages (Having no forests other than PTR)

POOR VILLAGES

Category - I
1. Main Profession - Cattle grazing
2. Only Yadav community with a permanent Koda (cattle camp)

Villages :
Bakchur
Hinauti
Siperwaha

Category - II
1. Dependent for all resources
2. Mostly tribals

Villages

Koni	Mahra
Barach	Khamri
Dodba	Sree
Darera	Hardwahee
Madaian	Pagra
Lakhnpur	Chanaura
Pali	Nachnaura
Majholi	

COMPARATIVELY WELL OFF VILLAGES

Category - I
1. Sufficient employment available
2. Mostly labour community
3. Preference for cattle rearing villages

Villages :
Hinauta

Category - II
1. Inadequate employment but irrigated agriculture available
2. Sale of firewood by women in addition to pressure of small timber

Villages

Lalar	Jardhoba	Taprian
Churaran	Barbaspura	Katari
Bilhata	Koodan	Akola

Category - III
1. Predominance of Businessmen
2. Irrigation and other agriculture facility available
3. People are comparatively educated

Villages
Chandrangar

Partially dependent villages (Having no forests other than PTR)

EXERTING LESS PRESSURE USING ALL RESOURCES

Category - I
1. Villages using all resources
2. Sufficient agriculture
3. Inadequate employment

Villages :

Gahadra	Simriya	Bondhikala
Ramnagar	Bamari	Makrandganj
Nayapura	Kunwarpura	Vikramgur
Narayanpura	Maharajpur	Bhagepur
Murach	Jhumtee	Mahewa Purva

Category - II
1. Using all resources but labour opportunities are available
2. Preference to cattle rearing village and agriculture
3. People are educated

Villages

Shivrajpur	Dhamna Basta
Toriya	Majhgawati

Category - III
1. Area is comparatively prosperous due to irrigated agriculture
2. Pressure of illicit felling, grazing and other forest resources

Villages

Jarkunwa	Tara	Udla
Kamtana	Devri	Tidhra
Jaitupura		

ONLY FUELWOOD & TIMBER

Category - IV
1. Pressure due to illicit activities of fuelwood and small timber villages

Purana panna

EXERTING MORE PRESSURE

Using all resources

Category - I
1. Lack of employment opportunity
2. Problem of encroachment & poaching
3. Inadequate agriculture

Villages

Harsa	Bagoha	Khagwan
Majhauta	Silone	Kabar
Karondiya	Gora	Kantee
Seero		

Category - II
1. Adequate employment opportunity
2. Agriculture facilities

Village

Bador	Shivrajnagar
Marha	Itwa

ONLY FUELWOOD & TIMBER

Category - I
1. Mostly Tribal
2. Lack of employment
3. Inadequate agriculture facility

Village
Salaiya
Ganwaha

ONLY NTFP

Category - I
Village
Bhapatpur

Chapter-VII

Identification of Area Impacted by Human Activities Inside Panna National Park

Use of biomass resources by humans, from forests may create an adverse impact on wildlife habitat. Such impacts could be reflected through an increased rate of erosion, weed infestation and competition among wildlife and domestic stock for fodder and water (Berkmuller, 1986). Large-scale commercial and industrial exploitation has immediate visual impact on forests, while pressure exerted by such uses as grazing, lopping and fuel wood cutting by resident people may not be obvious in a short period. However, their impact on the forests is profound and often they cause irreparable damage to the ecosystem. The effects of grazing by domestic livestock, collection of fodder and fuel wood by cutting and lopping are manifold and cumulative, which directly modify the ecological processes. Overgrazing, which is also one of the major issues of Panna National Park, is defined as 'too frequent defoliation,' so that net shoot productivity is reduced. This applies both to direct grazing and browsing and lopping of trees for fodder (Ives and Messerli, 1989). The result in both the cases is deforestation, caused either by excessive lopping of broad-leafed trees causing them to die and also by saplings being trampled, so that no new trees replace the dead ones (Moench and Bandhopadhyaya, 1986). Natural succession is modified by selective grazing leading to dominance of unpalatable species, invasion by weeds and exotic species. Heavy grazing is detrimental as excessive trampling accelerates soil deterioration and erosion (Mashalla, 1988), can kill plants or lead to a marked reduction in their level of photosynthesis. Other effects of grazing include reduction in total biomass (Agarwal and Dhasmana, 1989), decrease in species diversity (Lamprey, 1983) and density (for palatable species) and decrease in biomass of native animals. Additionally, increased herbage intake leads to less litter and lower rates of decomposition, which cause reduction in nutrient pool with fewer nutrients in vegetation (Ovington, 1984). To some extent, fuel wood cutting accompanied by converting land gradually to grazing may either be responsible for loss of forests (Thapa and Weber, 1990). The felling of trees particularly on hillsides makes the entire rainwater rush down in torrents resulting in loss of nutrients into the watercourse and in massive erosion and flooding (Osei, 1993). It is a common experience even in Panna National Park that forests near habitations are generally poor as compared to those situated at a distance. Towards a village a

gradient of decreasing tree cover, or of increasing degree of degradation can be seen (Singh, 1981). This is due to the impact of biotic pressure in the form of grazing, lopping and cutting for fuel wood. Thus it is essential to quantify the level of such pressures so as to delineate the high-pressure areas for mitigatory measures and for maintaining its sustainability.

7.1 ASSESSMENT OF HUMAN PRESSURES:

7.1.1 Assessment of human pressure based on staff statement:

Discussions with the local staff led to the decision about the different types of impacts on the forest of the National Park. Grazing, firewood collection, NTFP and weeds were the main parameters taken into consideration for understanding the impacts on the forest of the National Park. The local staff analysed the compartments of the Park based upon the 4 parameters identified above. The results of the classification, of compartments by the local staff, into different types and extent of pressure, were analysed and the entire forest area was classified into different pressure zones. These results were then transferred into maps using GIS. These maps were got revalidated by the staff and management of Panna National Park. The final maps showing the types and extent of impacts are given as **Figures 5 to 8**. Similarly, 14 compartments covering an area of 32.54 sq. km. were found without any impact due to grazing, firewood collection and NTFP collection **(Figure 9)**. A total of 35 compartments covering an area of about 90.18 sq.km were without any impact of grazing and firewood collection **(Figure 10).** Whereas 34 compartments covering an area of about 93.01 sq. km. are under heavy impact of grazing and firewood collection **(Figure 11).** The impact of grazing and firewood collection can be seen comparatively localised while the impact of NTFP collection is more or less widely distributed in the park. Eleven compartments, in the central portion of the National Park, covering an area of about 27.67 sq.km., are practically without any human impact **(Figure 12).** Based upon the information about the impacts both within and outside the park a mutual impact zone for Panna National Park has been demarcated **(Figure 13).**

7.1.2 Assessment of human pressure based on field sampling:

Although, the information obtained through field sampling was gathered along 22 points identified all along the boundary of the park, there were following limitations.

- Due to time limitations the data collection could be done only once and the timing for this data collection for certain parameters such as regeneration status, grass growth, etc. was not very appropriate.
- Although, trainings regarding impact assessment techniques were imparted to the spearhead team members, there was a considerable difference among various members as far as the actual acquiring of hands on skills was concerned. This was again probably due to inadequate time available.

Because of above limitations it was not possible to validate the information obtained through the questionnaire. However, this information has been used to generate baseline data about the status of impacts in 3 areas in and around the park. Which can be used for future monitoring of the programme. The information obtained through field survey is compiled here in the following tables.

Tree density in different segments of the park

Village	Segment		
	0-800	1200-2000	2400-2800
Bador	60	70	50 (1)
Backchur	33.33	66.66	80 (1)
Barbaspura	160	80	60 (1)
Busor	63.33	66.66	80 (2)
Brijpura	33.33	33.33	40 (1)
Harsa	36.66	56.66	50 (2)
Hinota	50	23.33	0 (1)
Judi	26.66	63.33	65 (2)
Kawar	86.66	70	60 (1)
Khamari	66.66	16.66	20 (1)
Kudan	16.66	23.33	60 (1)
Madla	43.33	66.66	45 (2)
Naroli	26.66	50	--
Patan	50	123.33	180 (1)

Fig.5 Impact Zone of Fuel Wood in Panna National Park

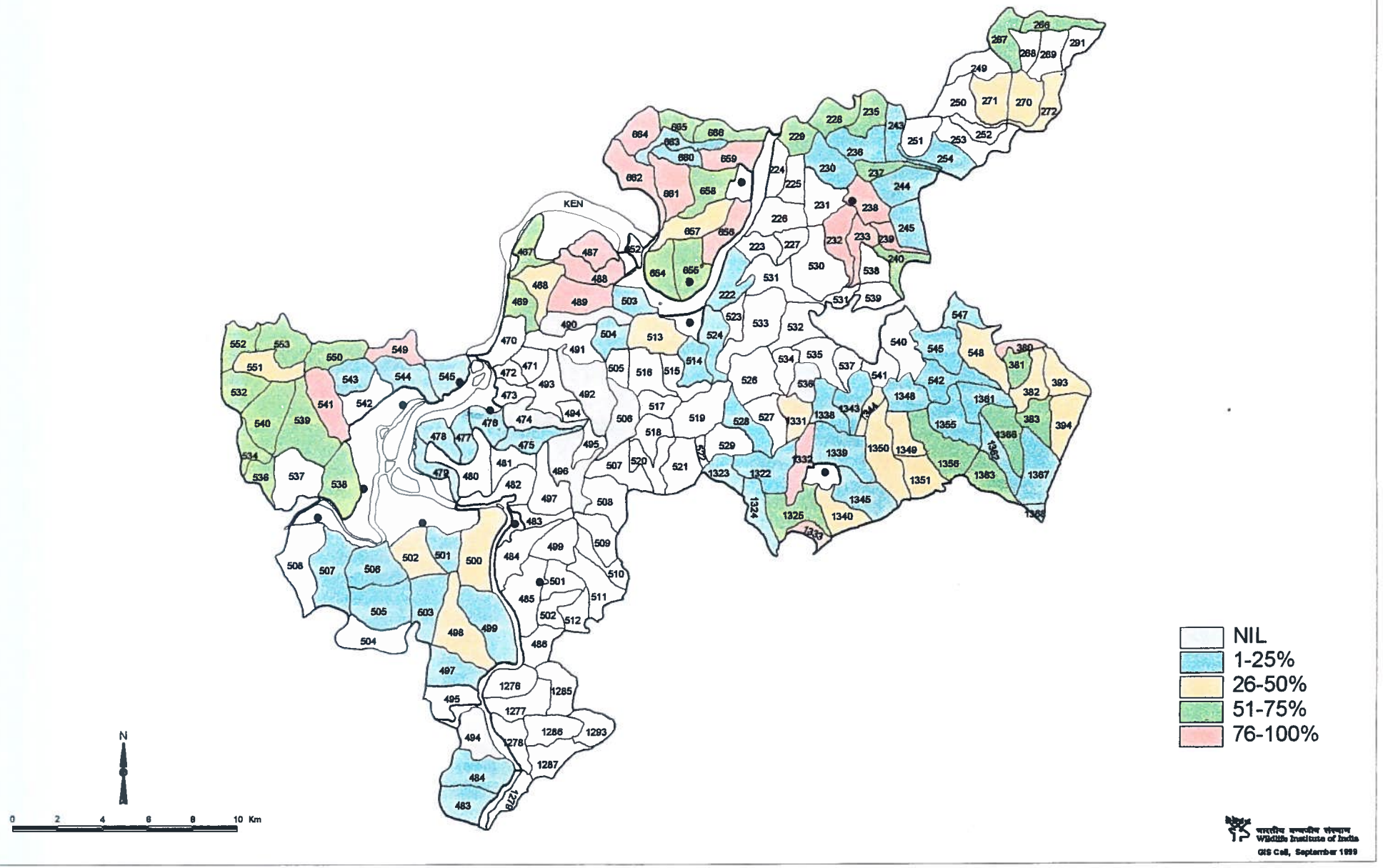


Fig.6 Impact Zone of Grazing in Panna National Park

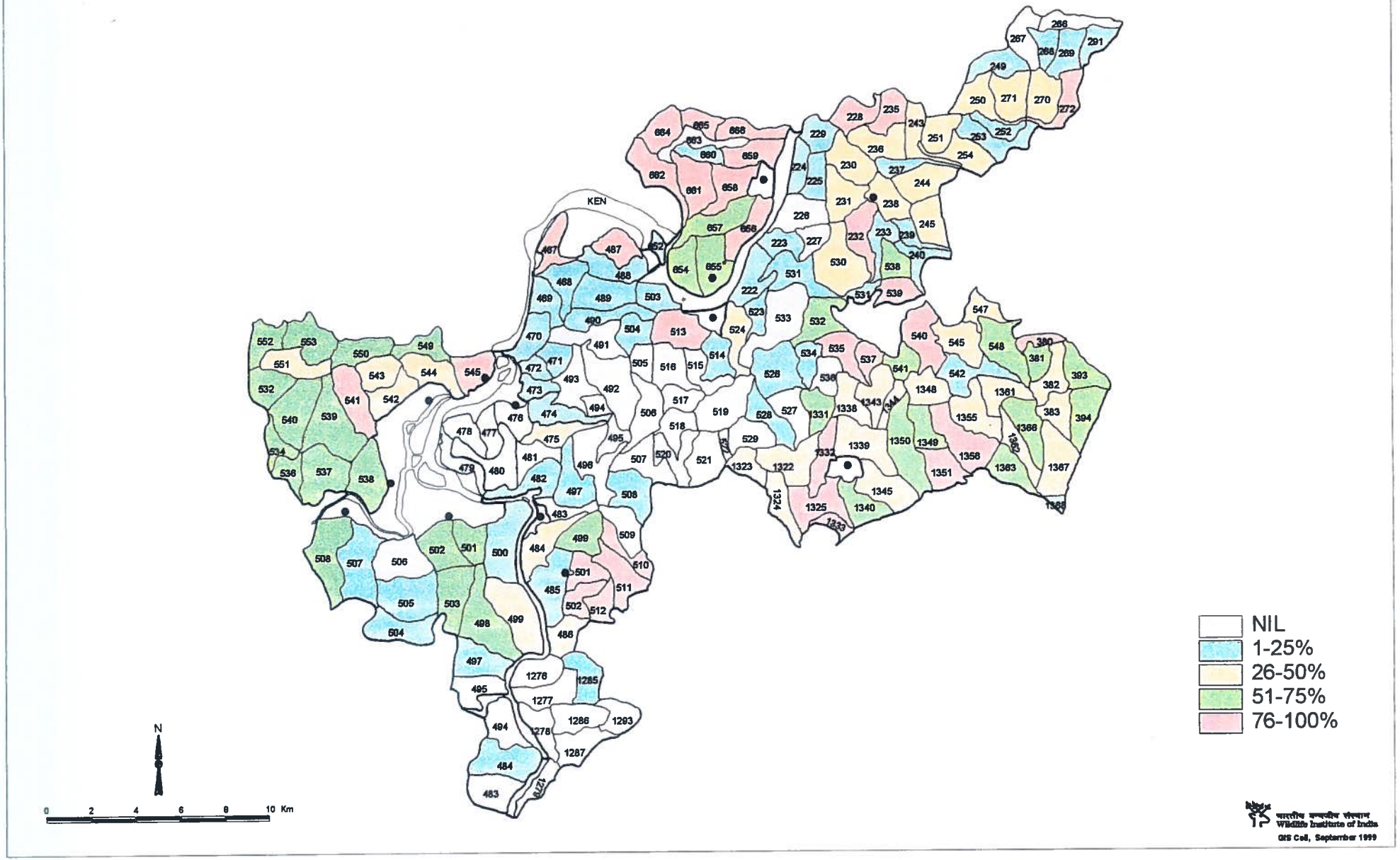


Fig.7 Impact Zone of NTFP in Panna National Park

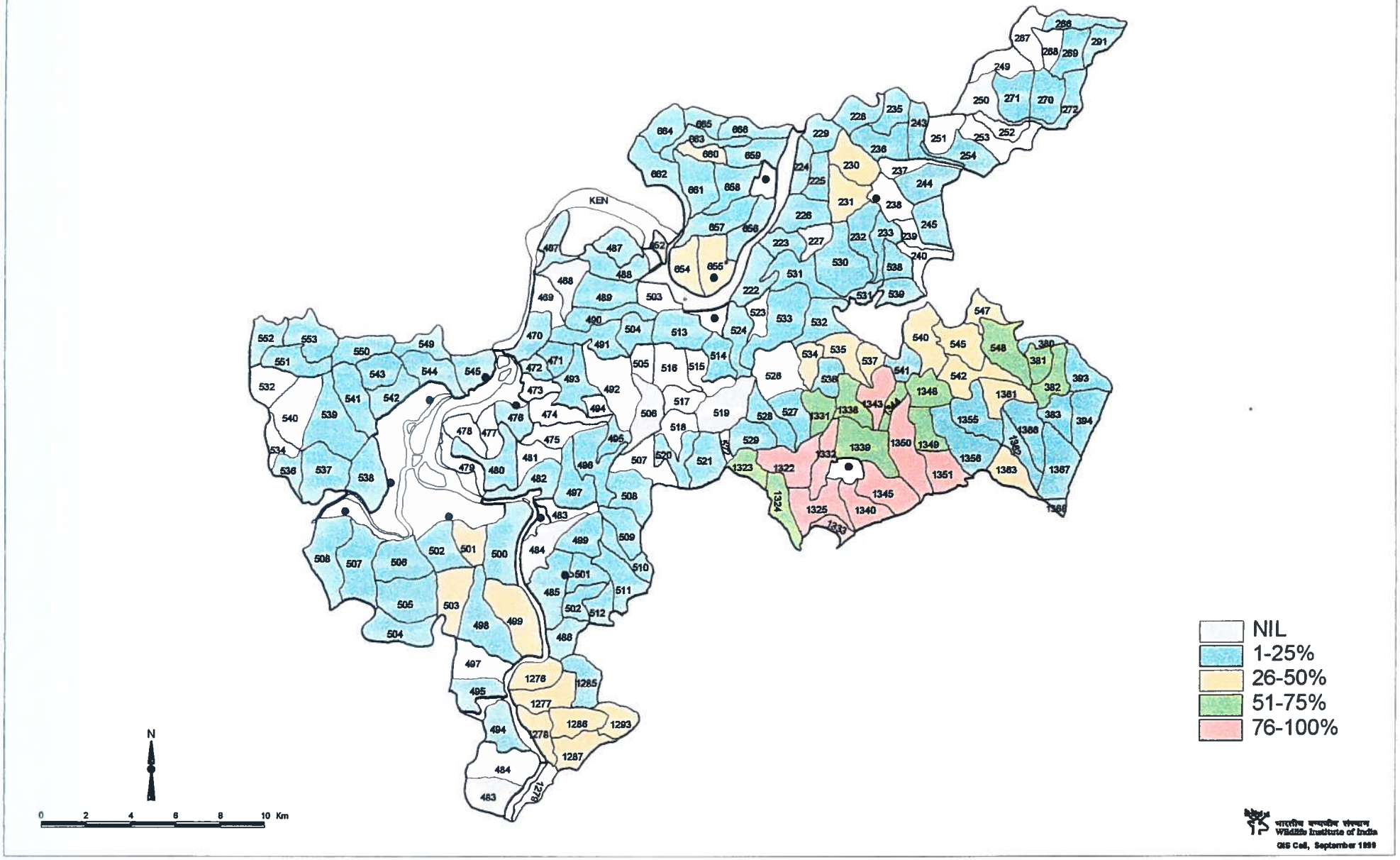


Fig.8 Impact Zone of Weeds in Panna National Park

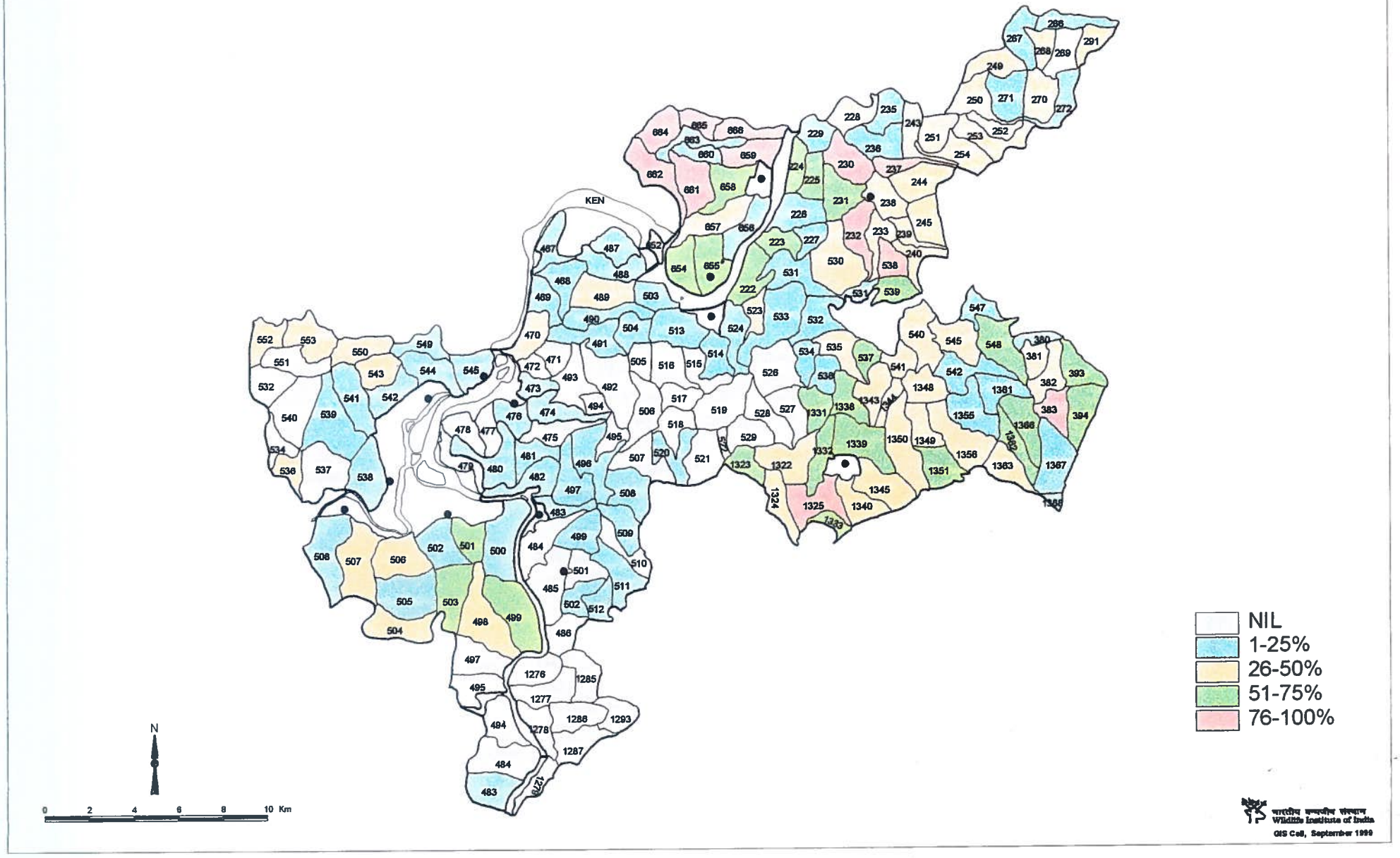


Fig.9 Area Free of Fuel Wood, Grazing and NTFP Collection Impact

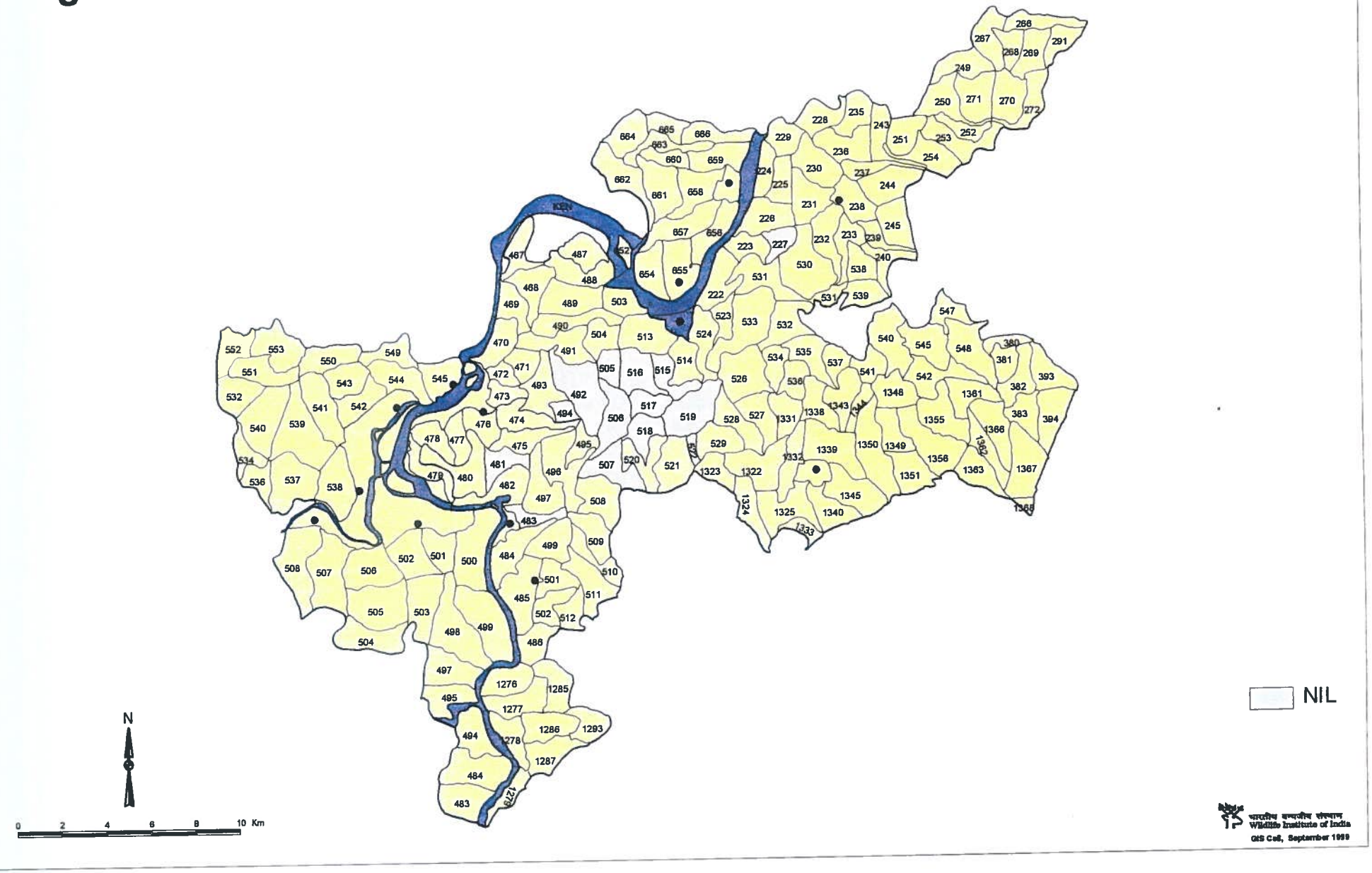


Fig.10 Area Free of Grazing and Fuel Wood Collection Impact

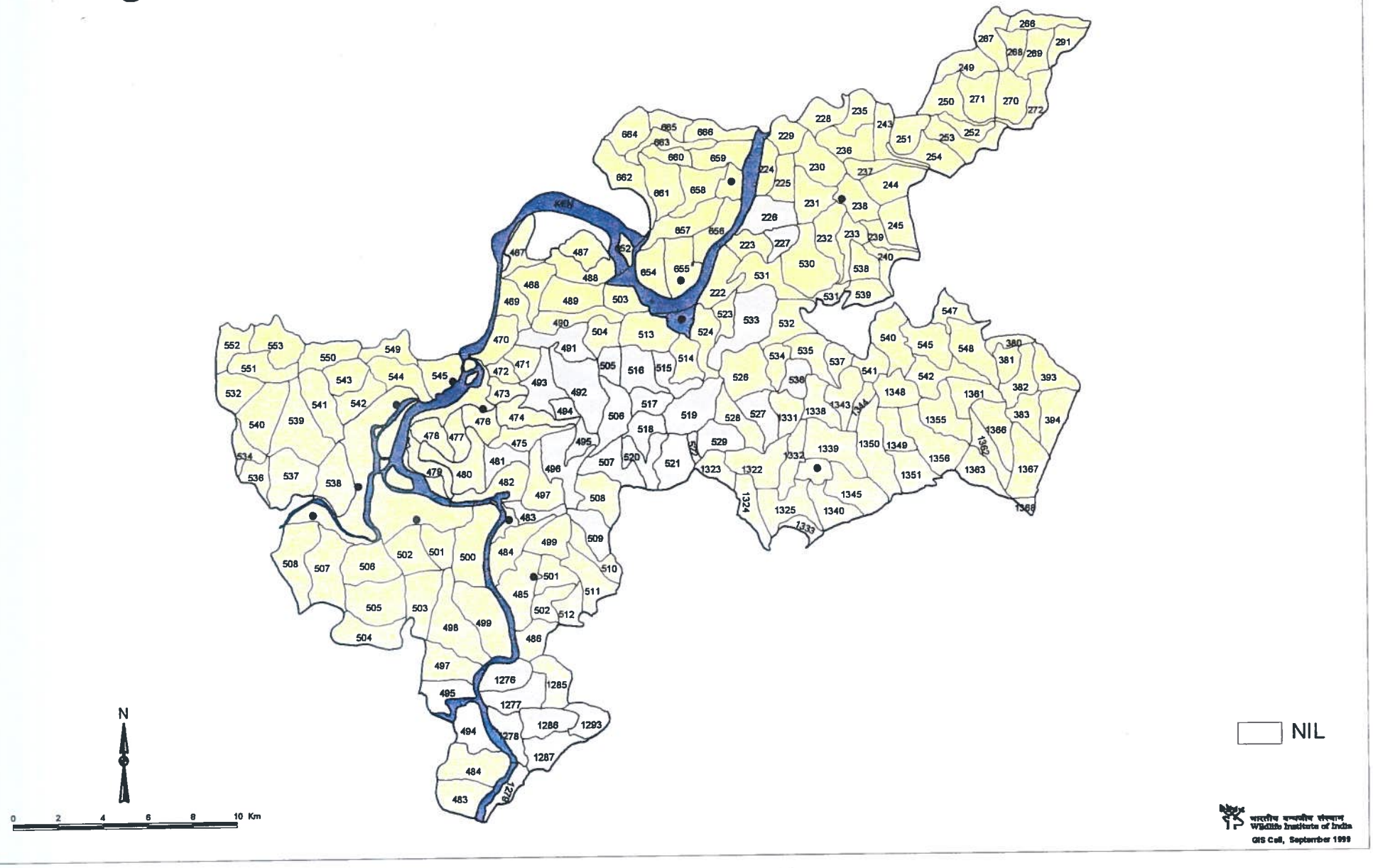


Fig.11 Area of Panna National Park Under Heavy Impact of Grazing and Fuel Wood

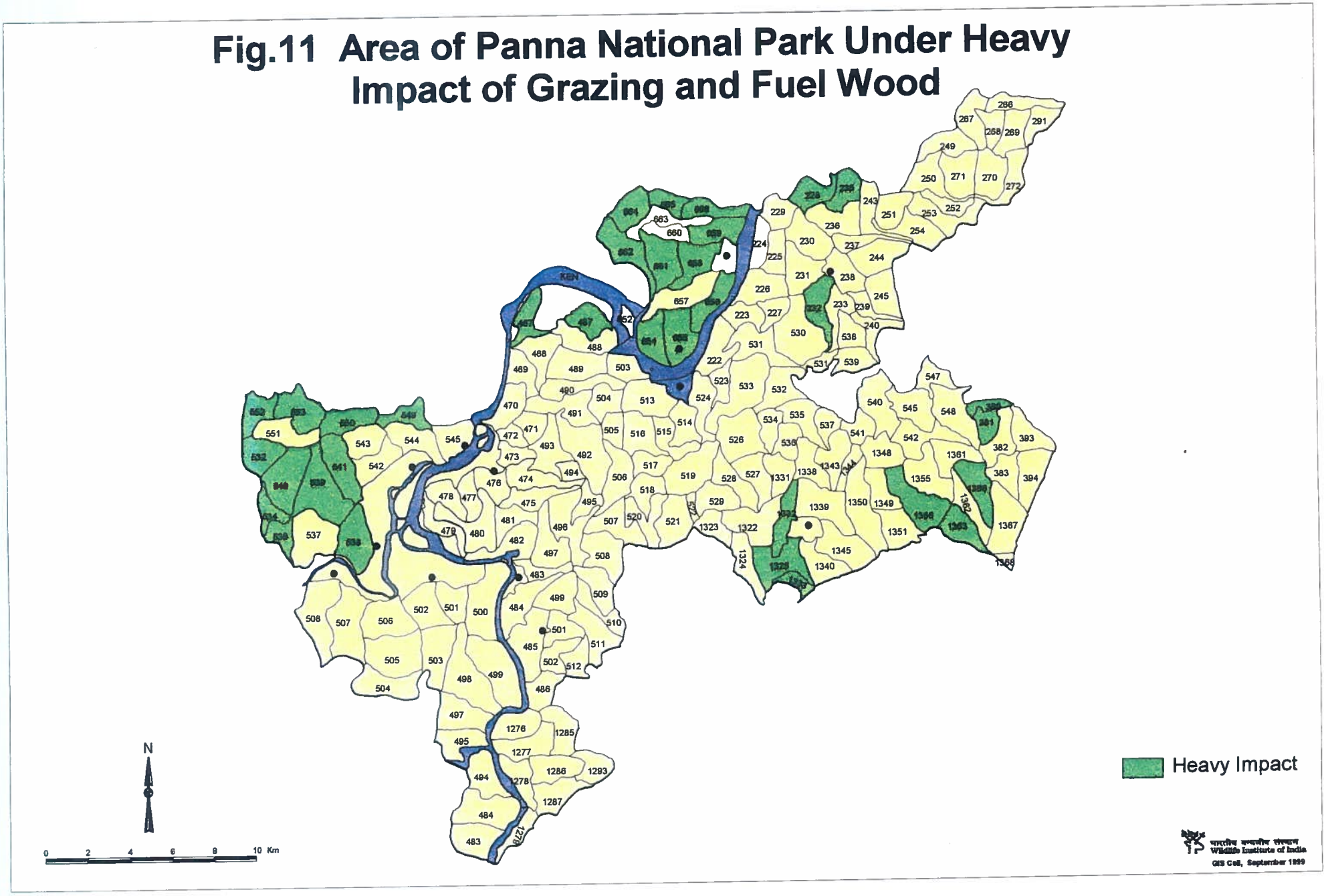


Fig.12 Impact Free Area in Panna National Park

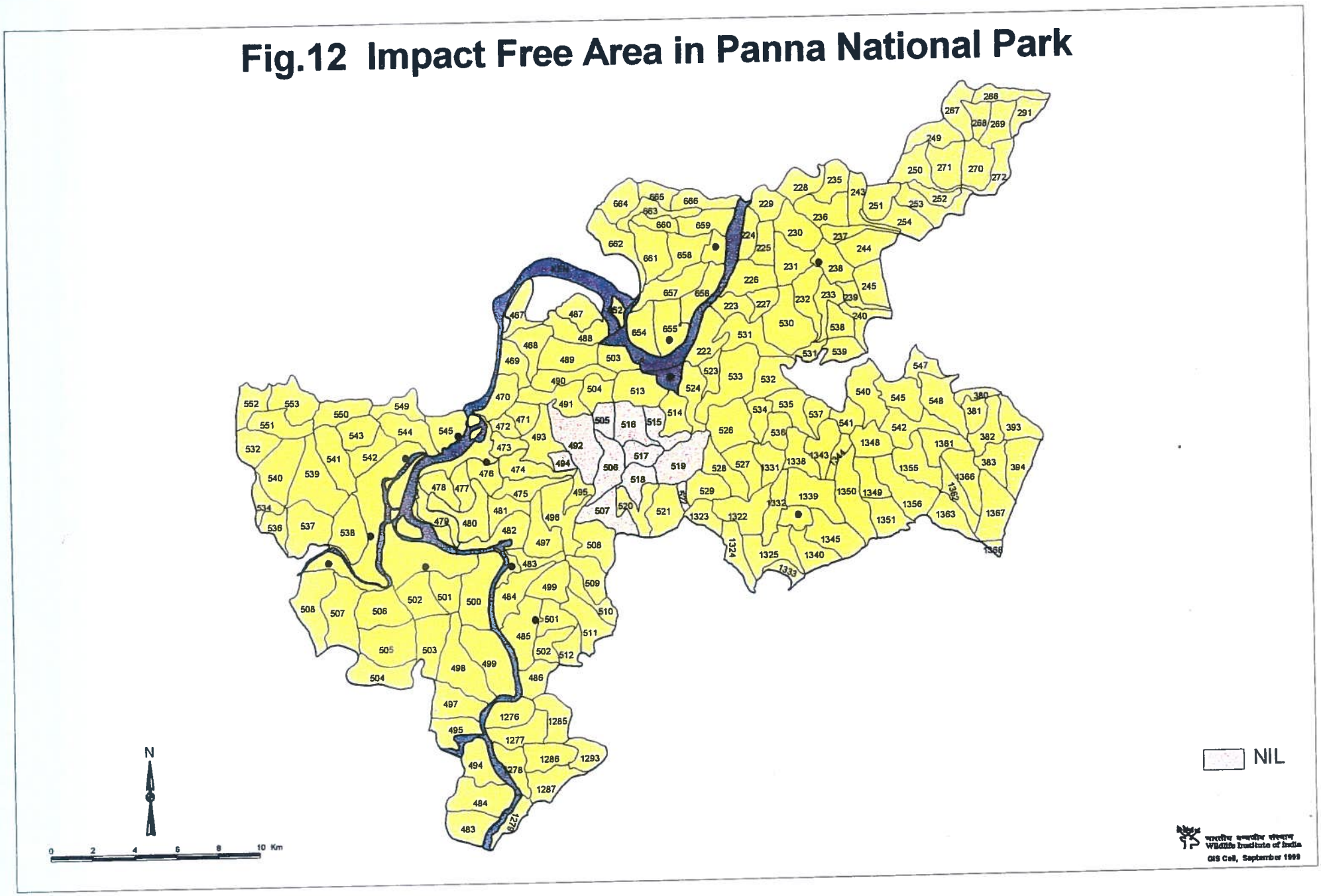
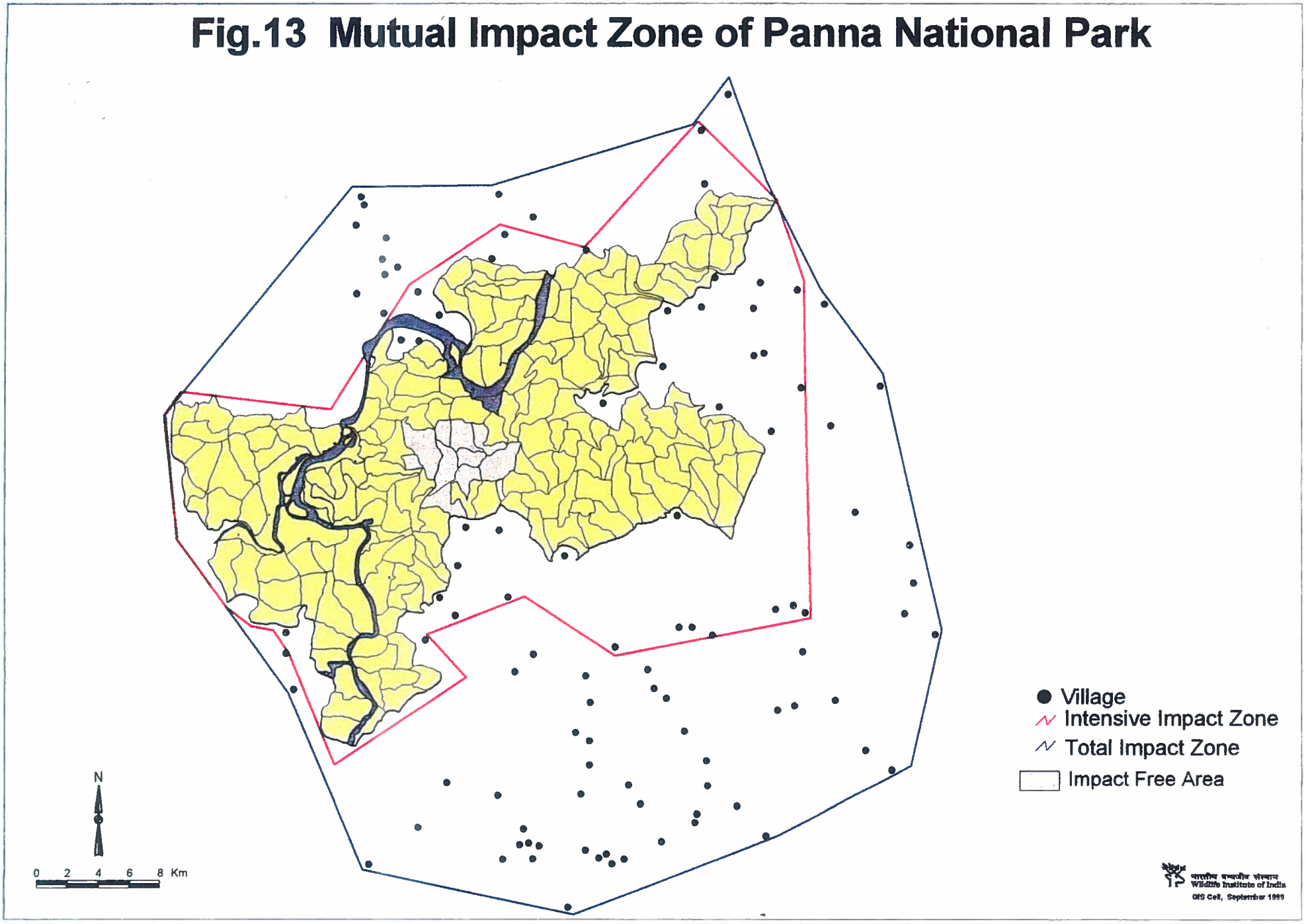


Fig.13 Mutual Impact Zone of Panna National Park



Patori	83.33	93.33	--
Rajgarh	83.33	90	85 (1)
Rampura	40	30	30 (1)
Salaiya	46.66	33.33	35 (2)
Talgaon	30	66.66	110 (1)
Umarawan	30	40	30 (1)

A glance at the above table reveals that the tree density in the northern areas of the park adjoining to villages such as *Barbaspura, Bhusor, Patan, Kawar, Rajgarh*, etc. is higher as compared to the other areas. This seems to be influenced mainly by two major factors, i.e. the extent of pressures from the adjoining villages and the type of forests. The forests in the northern part of the PA, although have high pressures from the surveyed villages, the tree density is comparatively high. This is probably due to good regeneration of teak in this area, which otherwise is comparatively less used as fuel wood species. In areas adjoining villages such as *Hinota, Brijpura, Naroli, Rampura*, etc. the forest is either of grassland type or with miscellaneous species of trees which are more preferred as firewood, small timber and other dependencies of local communities. This seems to be the reason, why tree density is low in these areas.

Shrub Density / Hectare

Village	Segments					
	0-800		1200-2000		2400-2800	
	Sap	Seed	Sap	Seed	Sap	Seed
Bador	63.33	0	356.66	6.66	260 (1)	70 (1)
Backchur	56.66	36.66	56.66	53.33	50 (1)	50 (1)
Barbaspura	210	216.66	123.33	33.33	230 (1)	0 (1)
Busor	36.66	3.33	40	0	65 (2)	0 (2)
Brijpura	33.33	6.66	33.33	20	10 (1)	10 (1)
Harsa	40	0	33.33	6.66	35 (2)	0 (2)
Hinota	333.33	33.33	236.66	20	0 (1)	0 (1)
Judi	23.33	30	16.66	0	20 (2)	15 (2)

Kawar	206.66	6.66	236.66	0	140 (1)	0 (1)
Khamari	50	0	3.33	0	10 (1)	0 (1)
Kudan	50	16.66	23.33	10	0 (1)	20 (1)
Madla	86.66	10	96.66	60	65 (2)	85 (2)
Naroli	73.33	23.33	63.33	30	--	--
Patan	150	0	626.66	156.66	450 (1)	340 (1)
Patori	103.33	0	40	6.66	--	--
Rajgarh	183.33	0	110	0	180 (2)	0 (2)
Rampura	26.66	3.33	20	16.66	30 (1)	30 (1)
Salaiya	20	16.66	16.66	3.33	5 (2)	0 (2)
Talgaon	96.66	36.66	76.66	13.33	70 (1)	150 (1)
Umarawan	10	13.33	26.66	16.66	90 (1)	20 (1)

A look at the sapling and seedling density in all the segments generally reveals that the sapling density is significantly high as compared to seedling density. In case of the 0-800m segment except in the areas adjoining the villages of *Barbaspura, Judi* and *Umarawan,* where the seedling and sapling densities are almost same, the density of saplings is significantly high. A similar trend was observed in the 1200-2000m segment except in the case of areas adjoining Backchur village. In the 2400-2800m segment the seedling density in case of Backchur, Brijpura, Kudan, Madla, Patan, Rampura and Talgaon villages, is high while in the others it is less.

In absence of relevant information about the normal forest structure of the PA area, the above information only indicates a high level of biotic pressure, particularly the grazing. This stresses the need for monitoring of the area over a long time by laying control plots in different habitat types of the PA.

Average Grass Height of 10 X 10 m plot

Village	Segments		
	0-800	1200-2000	2400-2800
Bador	7	15.8	65.2 (1)
Backchur	23.4	29.2	29.2 (1)
Barbaspura	5.33	8.06	5.8 (1)
Busor	2.93	2.4	3 (2)
Brijpura	39.46	11.8	0 (1)
Harsa	57.93	63	63 (2)
Hinota	89.86	87.26	52.8 (1)
Judi	80.33	108.53	125 (2)
Kawar	2.66	3.33	5.8 (1)
Khamari	38.86	26.13	60 (1)
Kudan	13.46	52.2	89 (1)
Madla	10.86	4.86	4.9 (2)
Naroli	61.1	36	--
Patan	6.8	3	0 (1)
Patori	95.4	31.66	--
Rajgarh	0	0	0 (1)
Rampura	145	100.46	154 (1)
Salaiya	3.46	4.13	5.15 (2)
Talgaon	2.73	2.4	9.4 (1)
Umarawan	18.8	27.66	22.4 (1)

The information about the grass cover also shows similar trends as that of seedlings and saplings. Interestingly in areas adjoining villages such as Rampura and Hinota, though the grazing pressure is high, the status of the grassland seems to be good. This raises another question about the palatability of the grasses available in the area and therefore, the studies and a monitoring mechanism to understand the quality of the grasses in these grasslands need to be established.

Chapter-VIII

Strengthening the Ecodevelopment Process in Panna National Park

Ecodevelopment planning process had already been initiated in the National Park. One of the special focuses during this study had been to strengthen this process in the area. The capacity building within the staff through the training workshop had been an important step in this direction. This has helped in improving the existing planning process in the area. The findings of this assignment can be translated into action only if a general environment needed for planning and implementation of ecodevelopment is created. Moreover, for the sustainability of the programme, strong linkages with other agencies working in the area need to be built up so as to optimise the use of resources and expertise available with different stakeholders. For this purpose, a number of steps for strengthening the ecodevelopment process were taken which are as follows:

8.1 INSTITUTIONAL COORDINATION AMONG THE STAKEHOLDERS:

Ecodevelopment will require a strong coordination between various stakeholders of Panna National Park. Keeping this fact in view and to ensure the larger acceptance of the programme in the area, a one-day's stakeholders workshop was conducted on 15-2-99 at Panna. The purpose of this workshop was to formulate joint strategies to mitigate these problems in the mutual impact zone as perceived by the different stakeholders, so as to secure the conservation values of the protected area as well as the livelihood security of the local communities. A long initial dialogue on one to one basis preceded the workshop with few important organizations in the area. In this workshop the participants represented a number of government departments including forest department, NGOs in the area, local *panchayat*, district *panchayat*, village community representatives etc. District Collector was also present in the workshop. The main objectives of this workshop were as follows:

- To identify the problems associated with the mutual impact zone of the National Park
- To identify various strategies to mitigate these problems
- To identify the mechanism for undertaking these strategies

The participants in this workshop deliberated on various issues of the mutual impact zone and came out with the possible strategies and mechanism to implement these strategies with the objective of conservation security of the Protected Area and the livelihood security of the village communities. The workshop report is attached as **Volume 3.**

8.1.1 Findings of the Workshop:

8.1.1.1 Problems of Mutual Impact Zone:

(A) Problems associated with natural resources of the National Park:

Delay in relocation of villages outside the park.

- Lack of coordination between the staff of park and adjoining forest divisions.
- Lack of will power in the government system for deciding the priorities.
- Continued pressure on the park due to traditional dependencies of the people.
- Lack of adequate area of the park (buffer zone).

(B) Problems of villagers in the mutual impact zone:

Lack of employment opportunities and resources in the villages.

- Increasing population and poverty.
- Inadequate medical facilities.
- Lack of willingness, cooperation and faith among the villagers.
- Inadequate *nistar* lands adjoining the villages.

(C) Problems associated with government system and staff:

Development not reaching to the villagers close to the park.

- Lack of information and awareness.
- Lack of coordination among politicians and government agencies.
- Lack of resources in the government system and inadequate communication facilities.
- Lack of appreciation for work done by the staff.
- Lack of help from the existing rules and regulations to the government employees.
- Inadequate protection to the staff and mental tensions due to government cases.
- Inadequate facilities to the staff.

(D) Problems associated with resources in the impact zone:

- High cattle population in the area and inadequate grazing and water facilities.
- Inadequate alternate energy sources.
- Pressure on the existing biodiversity and habitats.
- Spread of diseases from domestic livestock to the wild animals.
- Easy availability of forest resources and possibilities of illegal collections.

8.1.1.2 Strategies for mitigating problems in the mutual impact zone:

A) Development of local resources and their better utilization :

- Various methods to improve agriculture production.
- Different strategies for soil and water conservation for agricultural improvement.
- Improvement in the local cattle breed to increase the income of people and reduce the number of unproductive cattle.
- Improvement of existing pasture lands to reduce pressure on National Park.
- Better veterinary facilities for the domestic livestock.
- Production of fuel-wood, fodder, and small timber on private lands.
- Improvement of existing local small scale industries and other income generating activities.
- Developing capacity in the local people for better management and marketing.

- Encouraging local tourism and capacity building for NTFP collection and storage.
- Steps for control of by wildlife damage.

(B) Development of alternate resources:

- Encouraging and helping local people to adopt alternate sources of energy.
- Strengthening alternate employment generation through the schemes of various departments.
- Providing trainings and financial as well as technical assistance for new local employment.
- Development of buffer zone.
- Technical help for improvement of agriculture.
- Maximizing benefits from NTFP to the local people.

C) Making government system more effective:

- Bringing about better coordination of Govt. departments and joint schemes
- Deciding priorities in the government system.
- Steps for capacity building and motivation of staff.
- Providing basic facilities to the staff and legal protection during duty.
- Better coordination between park and territorial staff.
- Official's involvement for trust and confidence of the people and staff.
- Improved government resources and communication facilities to staff.
- Developing discipline by following rules and regulations rigorously.
- Develop awareness within government employees to reach the goals.

(D) Park expansion and better management :

- Considering the park and the adjoining forest areas as a single unit and taking steps for better

management of this unit.

- Improved buffer zone management to reduce pressure on the park.
- Undertake village translocation keeping in mind local culture and values.
- Providing identity cards to the villagers in the park.
- Capacity building of the staff and their welfare.
- Steps for extension and strengthening the system of park tourism.

(E) Educational and awareness:

- Making local people aware about their rights and responsibilities and schemes of various departments.
- Starting of awareness programmes for different target groups giving emphasis on will power honesty, political cooperation, and values of life. Involvement of school teachers to be ensured
- Taking steps for employment oriented education.
- Steps for family health, welfare and education giving due incentives.

8.2 PROGRAMMES AVAILABLE WITH ADJOINING TERRITORIAL FOREST DIVISIONS:

The territorial forest of Panna north and south and Chattarpur forests divisions constitute more than half of the impact zone. Already Joint Forest Management programme of MP Forest Department is in place in these areas. A number of activities are being carried out under this programme, which can be tied up with the existing ecodevelopment programme of the Protected Areas. This will not only ensure the optimum utilization of resources but will also create greater ownership of the programme. Attempt was made to understand the possibility of dovetailing the activities of JFM in this programme. The main activities, which can be associated with the ecodevelopment programme of Panna NP are given in the **Box No. 9.**

BOX 9

Main works of JFM which can be linked to Ecodevelopment
• Protection works such as fire protection, digging of trenches, boundary walls etc.
• Forest regeneration works for degraded areas
• Plantation works
• Works related to harvest of plantation raised under JFM
• Income generating works of other agencies being routed through forest department
• Soil and water conservation works of the department

In addition to the JFM programme of the forest department, the ongoing works associated with forestry operations and protection of the territorial divisions can also offer employment opportunities in the form of daily wages. The social forestry programme of the Social Forestry Division can also be tied up with the ecodevelopment programme of the park. While undertaking microplanning, this potential can definitely be linked with the requirements of the local people.

8.2.1 Programmes of other district agencies:

Other district departments, *Panchayat* and NGOs functioning in the area who participated in the stakeholders workshop appreciated the problems of the area and proposed a number of strategies. They also identified their ongoing programmes/ activities in the area, which can be dovetailed, with the Ecodevelopment activities of the Park. Summary of these activities is given as **Annexure 14.**

Animal husbandry and veterinary department have schemes available for cattle breed improvement, animal health care as well as encouraging cultivation of fodder by local people. Since large number of unproductive cattle exerting pressure on the Park resources is a major problem this could be an important area where collaborations could be developed. Similarly schemes to generate alternate incomes are available with departments like agriculture, fisheries, tribal development, MP Agro Industries Corporation Limited as well as the *Panchayats*. Programmes for extending basic facilities such as drinking water, education, health, irrigation, etc. are also available with the respective departments. Facilities to build capacity and train villagers in various fields also exists. Effective

collaborations with these will be mutually beneficial to all the parties involved and will go a long way in reducing the biotic pressures on Panna National Park and the resultant conflicts.

8.3 SUPPORT TO THE MICRO PLANNING PROCESS:

Support to the microplanning process was an important output of this assignment, which was over and above the task given as per the Terms of Reference. This was basically to ensure smooth and effective planning as well as implementation of various ecodevelopment activities. For streamlining the ongoing process of microplanning and strengthening the future microplanning following activities were undertaken along with the spearhead team:

8.3.1 Village level workshop-cum-meetings:

During the course of field data collection and other exercises of the assignment wherever possible meetings were held with the local villagers for making them aware about this assignment and the ecodevelopment programmes of the park. In Harsa, Bukchur and Hinouta informal meetings were held while in Brijpura a workshop for the local villagers as well as the territorial staff was conducted. The objectives of this workshop were to understand the concept of ecodevelopment and the role of the park management and local communities in ecodevelopment. This workshop ultimately led to the microplanning process in this village.

Bador was another village where informal meetings were held for microplanning and the spearhead team later used this contact with the villagers for the creation of a microplan of the village.

8.3.2 Preparation of microplans:

Under this assignment a microplan for village Brijpura was prepared (attached as **Volume 4** with this report). Microplanning process for Bador village was initiated and the microplan is under preparation. This reflects the translation of the capacity of the spearhead team into action through these microplans and we hope that the team will be able to contribute effectively for further microplanning process in the villages of the impact zone.

Chapter-IX

Conclusion and Recommendation

9.1 NATURE AND EXTENT OF THE IMPACT ZONE:

9.1.1 Impact zone inside the Park:

The study has revealed that out of 543 sq.km only 27.67 sq. km, which covers 11 compartments, is practically without any impact. An area of 93.01 sq.km, covering 34 compartments, is under heavy impact of grazing and firewood collection. This area will need strict protection of the habitat and more focus on diverting the pressure by reducing the number of unproductive cattle. An area of 90.18 sq.km, covering 35 compartments is free of grazing and firewood pressures. Probably in this area the management could think of sharing of produce like grasses with the local communities in line with the grassland management in the area.

While understanding the impacts inside the park, compartment was taken as a unit. It is possible that in the same compartment the picture of impacts may vary. Therefore, it will be advisable to have detailed information for each compartment to get the baseline information of the impacts. Some of the impacts like Non-Timber Forest Produce are seasonal and they are more dispersed in the park as compared to the pressure of grazing and firewood, which are localized.

9.1.2 Impact Zone outside the Park:

In Chapter-VI Impact zone outside the National Park has been worked out. Out of the total impact zone of 1346 sq. km about 465 sq. km, which has 39 villages, is the zone with intensive impact on the park, which needs immediate focus. Remaining portion of the impact zone has comparatively low impacts or seasonal impacts. The strategy of ecodevelopment activities will vary in different areas. The boundary of the impact zone also has varied width in different areas. In the south and southeastern side it goes as far as 26 km while in the western side it is hardly 2.5 km. It was observed that, where the territorial forests surrounds the park boundary, the impact zone is comparatively

narrow, and is wider where the park is open. In addition to these, factors such as the economic status of the villages, communication etc. also play an important role in determining the width of the impact zone.

The impact zone outside the park is also dynamic and it may fluctuate during different seasons. The pressure on the minor forest produce and timber comes from far off places. Similarly, the migratory cattle also come from outside villages and during the season of these activities the size of the impact zone is probably at the peak. The impact of mining needs a detailed study. The mining activity is practically non-existent inside the park but just outside the boundary the areas are under active mining. It will definitely have impact on the animal population as well as the habitat of the park directly or indirectly.

9.2 MAGNITUDE OF VARIOUS IMPACTS:

This study enabled us to demarcate the area, nature and extent of impact zones for Panna National Park. It basically evolves a broad picture of the status of the Panna National Park vis a vis the surrounding human population. However, for exact and detailed quantification of impacts further long term ecological studies are needed.

9.3 LINKAGES WITH OTHER STAKEHOLDERS:

A one day workshop was held at Panna on 15-2-1999 to facilitate the process of coordination between stakeholders. This workshop brought all the important stakeholder agencies to a common platform wherein they could identify the problems in coordinating their activities as well as evolved mechanisms for facilitating the same in the future. Identification of various schemes, activities and expertise which can be coordinated for the better management of Panna National Park, was an important outcome of the workshop.

9.4 MICROPLANNING:

9.4.1 Institution building and capacity building for ecodevelopment:

The trained spearhead team is an important resource available with the park management which can be used for further trainings and in-house capacity building. During the course of this assignment the spearhead team successfully conducted one training workshop in Brijpura village which initiated microplanning process for this village.

9.4.2 Preparation of microplans:

Microplan for village Brijpura was prepared and microplan for Bador village is under preparation.

9.5 RECOMMENDATIONS:

9.5.1 Training:

During the course of the project one spearhead team has been created and trained in participatory processes and impact assessment methods. This team should be regarded as the core group for capacity building of staff and villagers. The management should prepare a time bound training schedule using the expertise of this team by providing necessary support and required resources. The spearhead team will require their own capacity enhancement from time to time which can be done through refresher training programmes.

9.5.2 Dependencies:

Two broad categories of villages have been identified. The first category consists of villages that are totally dependent on Panna national park and the second category of villages that are partially dependent on the Park. In the former category the major emphasis has to be on working intensively in reduction and diversion of dependence, using resources available with the management as well as by coordinating with the line agencies tying up with their programmes. In

the later category the focus has to be more on linkages with the territorial division and line agencies using the resources of their programmes. This has to be accompanied by strict regulations and awareness generation among the local people because for any good ecodevelopment programme a strong protection and awareness is a must.

The category wise focus for different villages can be as follows.

Category I: is comprised of villages that are totally dependent on Panna National Park and have no alternative forest to meet their requirements. People are poor and illiterate, cattle rearing and MFP collection being major livelihood sources. Cattle breed improvement and reduction in cattle number are the areas where major inputs are needed. This has to be accompanied by following measures:

- MFP value additions and marketing strategies to improve income of tribal.
- Alternative income generation sources are needed so that people's dependence on cattle reduces.
- As the alternatives fall in place it will be crucial to regulate the pressures inside the park through involvement of people.
- Tying up of part of fodder requirement with the biomass removal through grassland management activities from identified areas inside Panna National Park.
- Over a period of time focus should be on gradual shift in occupational pattern of livestock dependent families to make the livestock profession sustainable to the available resources.

Category II: is also characterized by villages totally dependent on Panna National Park. However, people are comparatively well off with some labor opportunities, agriculture and small business. They are comparatively educated however, there is preference for cattle rearing and sale of firewood.

- Improvement of agriculture including irrigation facilities
- Community wildlife damage control mechanisms should be in place.

- Provide maximum labour opportunities arising out of PA management activities to develop stake of people in Protected Area.
- For the economically well off villages, focus should be on awareness raising programmes and regulations, particularly in case of sale of produce from National Park.
- People being comparatively educated, ecotourism can be an option for reducing dependence in these areas.

Category III: consists of partially dependent villages for whom the territorial forest areas are available and people use park resources partly. There are opportunities of agriculture and some employment. There is problem of illicit felling in some areas. People are comparatively educated

- Awareness campaigns accompanied by regulations and control.
- Improvement in agriculture including irrigation facilities.
- Employment opportunities in the form of labor
- Linkages with JFM and social forestry programmes of the territorial divisions
- Crop protection measures

Category IV: These are also partially dependent villages. However, due to lack of employment opportunities and poor agriculture they exert more pressure on Panna National Park. There are problems of all resource use and activities like encroachment and poaching.

- Income generation activities are needed
- Regulations and awareness campaign
- Tying up with the line agencies and the territorial divisions for providing labour opportunities
- Value addition and marketing strategies for NTFPs.

9.5.2 Relocation:

- Immediate relocation of villages from the Panna National Park particularly Budhrod,

Pipartola and Jhalar settlements which are having tremendous pressure of grazing and fuel wood collection, is needed. This would free a big chunk of forest from human impacts.

- Sound ecodevelopment package for working with the relocated villages

9.5.4 Reduction of impacts:

Grazing is one of the major impacts and there are two types of areas emerging. One with very high pressures and other with comparatively low pressures. Park areas adjoining low pressures have better status of grasslands with more palatable species. Here grassland management is going to be a major issue and the grass resources generated due to management practices can be systematically shared with the local communities. Other highly impacted grasslands need more protection and management. However, any kind of grassland management would need validation through research. Promotion of Non Conventional Energy Resources will reduce pressure for fire wood. This would need not only a thorough feasibility analysis of any fuel alternative proposed but also extension work for promoting their use among villagers.

9.5.5 Mining:

Although there are no mines inside the NP but mining activities are going on almost all along the boundary of the park. There is dispute regarding the status of these mines between forest department and district administration. An immediate joint verification of records should be carried out to resolve the issue. Mining is an activity adversely affecting the habitat and is a source of continuous disturbance to wildlife, in the impact zone. It is however, an important source of income to the local villagers. Hence, this issue needs detailed study as any step towards this would have far reaching consequences for people – park relationship in the area.

9.5.6 Tourism / Pilgrimage:

Tourism has a good potential as an income generation activity to help the local economy. However, if uncontrolled it may also cause serious damage to Protected Area values. Therefore,

proper controls, especially during high visitation times and ensuring a mechanism of benefits flow to local communities would be an important tool for park management.

9.5.7 Setting up of a coordination committee:

A Protected Area level coordination committee needs to be set up consisting of, park management, adjoining territorial division, district development agencies, *panchayat* and representatives of local NGOs and community. All implementation activities should be coordinated by this committee.

9.5.8 Delineation of buffer zone:

There is need of demarcation of buffer zone and this study can help in defining the impact zone part of buffer. Based on this and other ecological studies being presently carried out at Panna National Park a buffer zone for the National Park can be delineated which should be under the unified control of park management.

9.5.9 Monitoring Programme:

A participatory monitoring programme involving various stake holders particularly frontline staff and local communities need to be developed and put in place to monitor the activities of the programme. This will help in making necessary and timely changes in the ongoing programme as and when required so as to keep focus on the management objectives.

All the above can be achieved through only a well trained and motivated staff. To ensure this, staff welfare activities and systems of recognition and rewards for good work need to be set up. A beginning in this line can be done by setting up of a staff welfare fund on the lines of other important parks such as Gir National Park, Kanha National Park, etc. Research is an important component that would enable the management to take informed decisions. Setting up of proper monitoring mechanism is also needed.

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Annexure-1

MADHYA PRADESH FORESTRY PROJECT
CONSULTANCY TO IDENTIFY AND ASSIST IN
IMPACT ZONE ASSESSMENT AROUND PANNA NATIONAL PARK

TERMS OF REFERENCE

BACKGROUND:

The Panna National Park came into the ambit of Project Tiger in 1994. The area has since attained greater significance in the field of wildlife conservation in this Biogeographic region of the country. The area is also surrounded by human habitations all around. There are lots of stone quarries in the adjoining areas plus the only active Diamond Mine in the country. The Park is devoid of any notified buffer zone around it. Thus the core area, i.e. the National Park/Tiger Reserve area is in direct contact with the zone of severe biotic pressures on the Reserve. Neutralizing these biotic pressures, will tremendously strengthen the Park management and benefit the ecological processes so delicately operative in this Reserve.

Thus realizing the fact that:

- There exists a zone around Panna National Park abundant with negative factors adversely affecting the flora & fauna therein.
- The Ecological processes operative in Panna National Park are under severe threat of disintegration due to the biotic interference from outside the Reserve.
- The identification of the extent of the "strip-area" is very much required.
- The ameliorating works. i.e. ecodevelopment works in this "strip-area" or Impact zone will neutralize the negative factor adversely affecting the Reserve resources.
- The PRA exercise in this impact zone will provide useful input for preparation of Ecodevelopment plan.

OBJECTIVES:

It is therefore, necessary to examine these factors and identify the Impact Zone around the Panna National Park by using PRA techniques. That would help in deciding the nature and extent of ecodevelopment works required to be undertaken in this area.

C. SPECIFIC TASKS:

The consultant would examine:

i. The nature and extent of "IMPACT ZONE" around Panna National Park. The consultant would identify various types of pressures on the park resources, categories, the magnitude and extent of such pressures, identify demographic characteristics associated with such pressures and rank these pressures according to the magnitude of their negative influence on the park. The listing of ecodevelopment activities is required village wise in the impact zone. Any other activities will turn the people living in the impact zone friendly towards the National Park.

ii. By using PRA techniques the consultant would list possible ecodevelopment activities to address various types of pressures.

iii. In this process he would also identify possibilities of dovetailing programmes of other agencies to meet the objectives of Ecodevelopment and would suggest procedure or means to achieve such linkages with various agencies.

iv. For the pressures, which have serious adverse impacts on PA but are not emanating from resource dependent people, the consultant would suggest strategies to eliminate or mitigate these pressures.

D. DURATION OF CONSULTANCY:

The initial report may be submitted within 4 months of the issue of sanction, whereas the complete report covering all the aspects of the TOR should be submitted within 6 months of sanction order.

E. QUALIFICATION OF CONSULTANT:

The consultant should have at least five years experience in the application of PRA techniques and socio-economic studies in rural settings. The consultant should also have experience of ecological impact assessment and understanding of Protected Area management objectives.

G. SUPPORT FROM MPFD:

The consultant would be provided free accommodation in Forest Rest Houses wherever available subject to availability on the date of visit. He would also have access to all the relevant data available with the Park Director.

G. TIME SCHEDULE FOR CONSULTANCY:

The Inception report	-	within 15 days from the date of signing of agreement
The Area visit	-	within 3 months from the date of signing of agreement.
The First report	-	within 4 months from the date of signing of agreement.
The Draft report	-	within 5 months from the date of signing of agreement.
The Final report	-	within 6 months from the date of signing of agreement.

(The duration for the assignment has been revised to 10 months instead of 6 months as per the request of Wildlife Institute of India due to field requirements).

H. REVIEW COMMITTEE:

A review committee will review and monitor the consultancy at various stages.

Annexure-2a

Details of Man-Animal Conflict Cases for Panna National Park

Human Injuries:

Sr. No.	Year	No. of cases	Compensation paid
1.	1995-96	4	Rs.11,466.00
2.	1996-97	3	Rs.11,000.00
3.	1997-98	-	-

Cattle Lifting:

Sr.No.	Year	No. of Cases	Compensation paid
1.	1995-96	5	Rs. 8,500.00
2.	1996-97	9	Rs.14,000.00
3.	1997-98	16	Rs. 29,050.00

Annexure 2b

Details of Offence Cases for Panna National Park:

Sr. No.	Year	Number of Offence Cases						
		Timber	Fire wood	Bamboo	Grazing	Fire	Hunting/ fishing	Others
1.	1995-96	236	10	22	321	52	27	25
2	1996-97	261	16	19	498	71	41	10
3	1997-98	231	14	12	393	34	15	27

Annexure-3

List of Spearhead Team Members who participated in village survey

1. Shri R.K. Sharma
2. Shri Ajai. Pateria
3. Shri R.K. Patel
4. Shri V.K. Awasthi (could not join the team due to other assignments).
5. Shri Neel Gogate
6. Shri M.P. Tamrakar
7. Shri Ramakant Tripathi
8. Shri Shivraj Patel
9. Shri Devendra Prasad Pandey
10. Shri Suraj Pratap Singh
11. Shri Bahadur Singh
12. Shri Badri Prasad Tiwari
13. Shri Murari Lal Ahirwar
14. Shri Maharaj Singh
15. Shri Raghua
16. Shri R.T. Sanago (attended part of training and field work)
17. Shri A.S. Qureshi (attended part of training and field work)
18. Shri Ram Naresh Yadav (attended part of training and field work)
19. Shri Kesari Singh (attended part of training and field work)

Annexure-4

Format for Rapid Village Survey

1. **Village details:**

   Name of the village:

   Name of the *Panchayat*:

   Block:

   Range:

2. **Distance of the village from National Park:**
3. **Compartment of Panna National Park from where facility of resource use is allowed:**
4. **Purpose of use of compartment:**
1. **Whether the villagers are dependent on the resources of forest area other than National Park:**

   If yes, then the distance of this forest from the village:
2. **Dependency types on Panna National Park:**

Type of dependency	Throughout the year	Seasonal
Firewood		
Fodder/Grass		
Non-Timber Forest Produce		
Bamboo		
Timber		
Entry to Park		

3. **Population of the village:**

Male	Female	Children	Total

Total no. of families:

4. Details of community (No. of families):

General category:

Scheduled Caste:

Backward Class:

Tribal:

Other Categories:

5. Cattle population:

6. Level of education:

Gender	Persons upto primary level	Persons upto middle level	Persons upto college level
Male			
Female			

7. Main source of income:

Source of income	No. of families
1. Service	
2. Agriculture	
3. Labor	
4. Cattle rearing	
5. Sale of Non Timber Forest Produce	
6. Others	

8. Total land available:

9. Land for agriculture:

Total extent of land	Irrigated	Non-irrigated

10. Fuel being used mainly:
11. Source of firewood:
12. Source of grass and fodder:
13. Nearest road:
14. Nearest hospital:
15. Nearest primary school:
16. Nearest market:
17. Whether the village is electrified:
18. Details of crop damage:

Crop season	Month	Wild animal doing damage	Percentage of damage (approx.)
Rabi crop			
Kharif crop			

19. Details of human/cattle loss in the last 5 years:
20. Details of other developmental works going on in the village:

Name of the scheme	Concerned department	Time since scheme is going on	Benefit of the scheme

Annexure-5

Format for Village Survey

Sr. No.	Name of the head of the family	Members of the family			Main profession	No. of employed persons	No. of unemployed persons.
		Male	Female	Children			
1	2	3	4	5	6	7	8

Education			Land		Livestock			
Educated	Level of Education	Un-educated	Irrigated	Non irrigated	Cow	Buffalo	Goat/ Sheep	Others
9	10	11	12	13	14	15	16	17

No. of cattle going to forest	No. of stall fed cattle	Monthly income	Main source of income	Facility of electricity	Facility of drinking water	Other facilities
18	19	20	21	22	23	24

Dependence on Forests								Main crops	Other information
Firewood		Grazing		Timber		Non Timber Forest Produce			
Total	Partial	Total	Partial	Total	Partial	Total	Partial		
25	26	27	28	29	30	31	32	33	34

Annexure-6

Format for survey of compartments

Two Step Method:

This method should be used from the beginning of each transect, i.e. from the boundary of the park upto every 400m segment. In this method the participant would walk 50 steps and at every second step he would note down the object such as soil, rocks, grasses, dry leafs, dung, etc., whatever falls below his toe. This exercise should be repeated for every segment (i.e. 0-400, 401-800 and so on) and the information should be recorded separately.

Sr. No.	Distance of Segment	Soil	Rock	Grass	Leaf litter	Dung
1.	00 m					
2.	400 m					
3.	800 m					
4.	1200m					
5.	1600m					
6.	2000m					
7.	2400m					
8.	2800m					

10 X 10 Meter Plot Details:

Sr. No.	Trees		Shrubs			Cutting	Lopping	Minor Forest Produce	Grass Height (cm) (Four corners and center)				
	Species	Girth	Species	Sapling	Seed-ling				1	2	3	4	5

Annexure-7

INTRODUCTION TO THE COMPETENCY GUIDE

The competency guide for this training programme of "Ecodevelopment for Biodiversity Conservation" draws heavily on the job functions of PA managers. The guide lays down the standards of performance expected of participant trainees that they could achieve within the training environment. Unit is made of several elements. An element is a description of what a trainee should be able to do. Performance criteria (PC) for each element specify the level and quality of performance. Range statement or Scope wherever applicable sets the scope of performance required of trainee participants. All together, the element, the performance criteria and the range statements define standards or criteria against which the participants can be assessed. Assessment scheme card has been put up at the end. Each element can be separately assessed based on the portfolio of evidences gathered by the participants and supplemented with questions by assessors (faculty).

In order to help the participant trainee achieve the standards, various sessions have been developed which will be supported by field work and field tour. The instructional strategies adopted for sessions are based on the principles of Androgogy (Adult learning) and therefore, rely heavily on experiential learning methods.

The module, thus, drafted along the above lines would be piloted through the workshop (October 10 -16, 1998) and will require co-operation from all quarters so that it gets validated and subsequently can be handed over to the participants, who can work as trainers in their work place environment.

While doing Self Assessment

Please use Assessment scale of 1-5 written against each PC. While the scale denotes progressive achievement of the trainee officer against the set criteria, Low value on scale (1-2) only means that the trainee will require more time to move towards higher value. This is perfectly in tune with Principles of Androgogy that recognise individualised nature of learning process. The resource faculty would be most willing to commit time and learning resource to help the participants record higher progression the scale.

The role of trainers is to create a learning environment wherein the participant trainers are able to chart out their own route to progression (against Performance Criteria). The workshop mode given to the training programme while adopting experiential learning mode has tried to bring in ongoing corrective measures based on the daily feed back from the participants.

Note: While carrying out the self assessment participants can also comment on the adequacy of the Performance Criteria (along with associated range statement).

Unit - 1:	Developing skills for stakeholder participation in conservation through ecodevelopment measures.

Element 1.1: Explain Ecodevelopment	
Performance Criteria: 1. Ecodevelopment is *defined.* 2. *Key issues* in the ongoing debate on ecodevelopment are analysed. **Range Statement:** 1. Range of issues to cover: What, why, where (with respect to existing legislation) and by whom.	**Underpinning Knowledge and Understanding:**

Element 1.2: Identify role of local communities in conservation.	
Performance Criteria: 1. Significance of community participation, in ecodevelopment, is analysed. 2. To analyse the dependencies of local communities on the natural resources of the protected area. 3. Significance of Local Traditional Knowledge in conservation is shown. 4. Community beliefs and value systems governing conservation are identified.	**Underpinning Knowledge and Understanding:** Typology of participation.

Element 1.3: Analyse issues pertaining to stakeholders participation in ecodevelopment.	
Performance Criteria: 1. Reasons for collaborative management are identified. 2. Various stakeholders in the given PA are listed and the primary stakeholders identified. 3. *Issues* in developing collaborative partnership are analysed. 4. Existing village level institutions are identified and their role in conservation is understood 5. Issues related to the development of village level institutions identified and analysed. 6. Effectiveness of village level institution is identified. **Range Statement:** 3. Range of issues to include: Goals of partnership; Role of traditional management structures in village institutions, issues of membership, adequacy of representation of marginalized groups, gender; Roles and responsibility of partners; Existing policy/ legislation; Co-ordination amongst various interest groups; Role of NGOs and institutions; Staff reorientation. 4. The existing village level institutions will include traditional as well as non-traditional institutions.	**Underpinning Knowledge and Understanding:** Concept of institutions and organisations.

Element 1.4: Develop framework for planning ecodevelopment in a given Protected Area.	
Performance Criteria: In consultation with key stakeholders 1. Different component of village level microplans are identified and linkages between these components are established. 2. Protected Area mutual impact zone is identified by using *appropriate tools.* 3. Villages for ecodevelopment are *prioritised.* 4. To develop criteria of a good microplan. **Range Statement:** 3. Prioritisation criteria to include factors like - intensity of mutual impact, distribution of workload among various administrative units and staff members and availability of human and capital resources.	**Underpinning Knowledge and Understanding:**

Element 1.5: To suggest livelihood option strategy for ecodevelopment	
Performance Criteria: 1. Linkages between conservation and development are demonstrated. 2. Factors affecting linkages between conservation and development are listed. 3. Livelihood strategy in and around the protected area is analysed. **Range Statement:** 3. Analysis will cover technical, social, legal and environmental issues of the area.	

Annexure-8

Different categories of villages as per socio-economic conditions and resource dependency

Category	Sr. No.	Name of Village
I		Hinouta
		Maria
		Etawan
		Shivarajnagar
II		Bador
		Shyamra
III		Gahadara
		Simaria
		Barbaspura
		Bandhikalan
		Ramnagar
		Wamati
		Makarandganj
		Taparian
		Nayapura
		Kuwarpura
		Vikrampur
		Narayanpura
		Maharajpur
		Bhagepur
		Murachh
		Jhumta
		Mahewa
		Purwa
IV		Koni
		Barachh
		Dobha
		Darera
		Madaiyan
		Majhauli
		Marha
		Khamari
		Siri
		Hardwahi
		Pagra
		Pali

V		Harja
		Bagauhan
		Khagwan
		Majhota
		Silon
		Kawar
		Karondiya
		Gora
		Kanti
		Siro
		Rampur Barauhan
		Majhgawan
		Shankarpur
		Ratanpura
		Wardvaha
		Jhamtuli
		Sukwaha
VI		Salaiya
		Gangau
VII		Lalar
		Jardhoba
		Tapariyan
		Churaran
		Barbaspura
		Katahari
		Bilhata
		Kudan
		Akola
VIII		Chandranagar
IX		Shivarajpur
		Dhamna
		Bajara
		Toria
		Majhgawan
		Dharampura
		Madhaiyan
		Itaura
		Piparia
		Singaura
		Kachnaura
X		Hinauti
		Piparwah
		Bakchur
XI		Purana Panna

XII		Jharkuva
		Udla
		Kamtana
		Devri
		Tara
		Tighara
		Jaitupura

Annexure-9

Village Details (General Information)

Sr. No.	Name of Village	Village *Panchayat*	Block	Human Population				Domestic animals			Caste (No. of Families)				
				Male	Female	Children	Total	sheep/ goat	Cattle	Total	Gen	SC	ST	OBC	Others
	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
1	Koni	Katahari Bilhata	Panna	108	111	191	410	108	380	488	-	-	68	-	
2	Siri	Siri	Gunour	396	390	786	1572	1400	1110	2510	80	97		85	
3	Khamari	Rampur	Gunour	102	75	136	313	116	296	412	-	-	54	-	
4	Lalar	Lalar	Panna	200	178	338	716	105	544	649	34	23	48	9	
5	Bhinyatal	Bhinyatal	Rajnagar	*	*	*	2445	-	-	4500	5	80	10	197	
6	Kaloopura	Pathargawan	Rajnagar	60	45	100	205	-	-	185	1	8	-	26	
7	Pathargawan	Pathargawan	Rajnagar	155	145	165	465	-	-	250	7	2	-	44	
8	Jangipura	Pathargawan	Rajnagar	290	270	330	890	-	-	480	-	59	-	-	5
9	Salaiya	Salaiya	Ajaigarh	500	400	300	1200	-	-	1500	5	15	80	20	5
10	Madla	Madla	Panna	483	395	707	1585	-	-	1069	19	84	66	95	8
11	Tapariyan	Lalar	Panna	47	47	105	199	84	283	367	1	2	15	8	-
12	Baharpura	Patan	Rajnagar	275	240	421	976	-	-	427	3	5	-	75	3
13	Patan	Patan	Rajnagar	428	345		773	-	-	770	-	6	2	119	-
14	Umravan	Bador	Panna	60	40	50	150	-	-	85	1	-	23	1	-
15	Bakchur	Bagauhan	Panna	22	20	52	94	-	-	316	-	-	-	16	-
16	Amjhiriya	Janwar	Panna	100	75	125	300	-	-	400	-	-	15	25	-
17	Manki	Kunjvan	Panna	111	125	294	530	-	-	221	-	-	111	-	-
18	Bilhata	Bilhata-Katahari	Panna	77	77	46	200	-	-	150	-	-	40	-	-
19	Katriya	Jardhoba	Panna	40	41	122	203	-	-	245	-	4	24	20	-
20	Jaruapur	Manaur	Panna	300	300	400	1000	-	-	400	14	-	35	98	3
21	Manaur	Manaur	Panna	120	95	110	325	-	-	260	3	3	70	54	-
22	Purana Panna	Purana Panna	Panna	100	90	110	300	-	-	50	2	12	33	5	-
23	Ranibag	Purana Panna	Panna	335	250	250	835	-	-	400	5	30	34	60	10
24	Madaian	Bador	Panna	75	40	60	175	-	-	165	-	-	33	2	-
25	Shivarajpura	Shivarajpura	Rajnagar	575	540	450	1565	-	-	650	20	40	-	81	4
26	Gahra	Gahra	Panna	150	150	200	500	-	-	150	-	-	65	35	-

27	Vikrampur	Vikrampur	Gunour	500	480	174	1054	40	305	345	13	67	70	60	-
28	Itwakalan	Itwakalan	Panna	1600	1550	1450	4500	300	2500	2800	80	90	250	80	-
29	Shivarajnagar	Itwakalan	Panna	340	300	360	1000	60	150	210	30	70	100	50	-
30	Madaian	Itwakalan	Panna	810	790	400	2000	100	3000	3100	90	40	-	300	-
31	Jharkuwa	Jharkuwa	Panna	350	340	310	1000	60	400	460	90	60	30	100	-
32	Rampura	Itwakalan	Panna	55	53	36	145	50	150	200	-	-	40	-	-
33	Tara	Tara	Panna	500	480	220	1200	60	300	360	10	20	-	170	-
34	Gahadara	Talgaon	Panna	315	300	285	900	300	600	900	19	-	61	5	-
35	Katahari	Katahari Bilhata	Panna	47	47	76	170	33	182	215	1	3	30	2	-
36	Rakseha	Talgaon	Panna	50	45	30	125	100	50	150	1	-	22	11	-
37	Kudan	Tara	Panna	80	78	160	318			420	3	-	45	2	-
38	Bador	Bador	Panna	205	140	302	647	100	386	486	6	1	94	40	-
39	Hinouta	Hinouta	Panna	324	302	517	1143	437	619	1056	16	12	85	60	3
40	Chandranagar	Chandranagar	Rajnagar	570	528	1376	2474	-	-	247	62	43	33	110	15
41	Bhatiyapura	Chandranagar	Rajnagar	85	70	145	300	-	-	109	1	-	-	44	-
42	Rajgarh	Rajgarh	Rajnagar	306	279	548	1135	-	-	506	6	78	53	55	-
43	Jaswantpura	Jaswantpura	Gunour	-	-	-	-	-	-						
44	Marha	Rampur	Gunour	55	54	180	289	125	213	338	-	-	40	-	-
45	Bhapatpura	Bhapatpura	Ajaigarh	1400	1300	600	3300	-	-	1080	100	125	200	125	-

Annexure 10

Village Details (Access to Facilities)

Sl. No	Name of Village	Nearest Motor Road	Nearest Hospital	Nearest Primary School	Nearest Market	Is village electrified	Description of Schemes of other departments in the village				
							Scheme	Concerned Department	Since when running	Benefits of Schemes	No. of Beneficieries
	1	2	3	4	5	6	7	8	9	10	11
1	Koni	Amanganj (24 Km)	Amanganj (24 Km)	Koni	Amanganj (24 Km)	Yes	-	-	-	-	-
2	Siri	Amanganj (4 Km)	Amanganj (4 Km)	Siri	Amanganj (4 Km)	Yes	Construction of Bridge	Gram *Panchayat*	-	-	-
3	Khamari	Amanganj (20 Km)	Amanganj (20 Km)	Rampur (10 Km)	Amanganj (20 Km)	Yes	Project	-	-	-	-
4	Lalar	Rangawan, Distt. Chattarpur (5 Km)	Chandra Nagar, Distt. Chattarpur	Lalar	Rangawan (Chandra Nagar)	Yes	Electrification	Madhya Pradesh Electricity 399Board (MPEB)	10 years	Light, Floor mill, Irrigation and Drinking water	-
							Education	Education Dept.	45 years	Knowledge Improvement	-

							Bal vikas	World Bank	2 years	Education & Food for Children	-
							Drinking Water	Public health & Mechanical Dept.	15 years	4 handpumps	-
							Telephone	Village *Panchayat*	2 years	-	-
							Forest Protection	Panna NP, Forest Dept.	16 years	To Control of illicit felling, Poaching, & Grazing	-
							Protection	Police Dept.	20 years	Protection of human lives	-
5	Bhinyatal	Chandra nagar	Chandra nagar	Bhinyatal	Bhinyatal	yes	-	-	-	-	-
6	Kaloopura	Bamitha	Bamitha	*	Bamitha	Yes	-	-	-	-	-
7	Pathargawan	Bamitha	Bamitha	Patharga wan	Bamitha	Yes	-	-	-	-	-
8	Jangipura	Bamitha	Bamitha	Jangipura	Bamitha	Yes	Waiting room	Village *Panchayat*	6 months	-	-
							School Boundary	Village *Panchayat*	3 months	-	-
9	Salaiya	Bariyarpur (6 Km)	Ajaigarh (32 Km)	Salaiya	Ajaigarh	yes	-	-	-	-	-
10	Madla	Madla	Madla	Madla	Madla	yes	Road	*Panchayat*	Current year	Road facility	-

11	Tapariyan	Rangawan (5 Km)	Chandra Nagar	Lalar	Chandra Nagar, Distt. Chattarpur (13 Km)	No	Rajiv Gandhi Siksha Mission	Education Deptt.	4 years	Education for Children	44
							Drinking water	Public health & Mechanical Deptt.	7 years	1 handpump	-
							Jwahar Rojgar Yojana	Village *Panchayat*	2 years	Road Construction, Pond etc. for cattle and wildlife	-
							Finance Commission Yojana	Village *Panchayat*	1 years	For village development	-
12	Baharpura	Bamitha	Bamitha	Baharpura	Bamitha	yes	Stopdam	RES	2 years	getting benefit	-
							Pool & Chabutra Construction	Village *Panchayat*	Currently	getting benefit	-
13	Patan	Chandranagar	Chandranagar Bamitha	Patan	Chandranagar-Bamitha	yes	-	-	-	-	-
14	Umravan	Backchur	Panna	Madaian	Panna	yes	-	-	-	-	-
15	Backchur	Backchur	Panna	Manaur	Panna	yes	-	-	-	-	-
16	Amjhiriya	Panna-Katni	Panna	Panna	Panna	yes	-	-	-	-	-
17	Manki	Amjhiriya-Panna-katni	Panna	Panna	Panna	yes	-	-	-	-	-
18	Bilhata	Amanganj (30 Km)	Amanganj	Bilhata	Amanganj	No	-	-	-	-	-

19	Katriya	Amjhiriya (5 Km)	Panna	Manki	Panna	No	-	-	-	-	-
20	Jaruapur	Manaur	Panna	Jaruapur	Panna	yes	-	-	-	-	-
21	Manaur	Manaur	Panna	Manaur	Panna	yes	-	-	-	-	-
22	Purana Panna	Panna	Panna	Purana Panna	Panna	yes	-	-	-	-	-
23	Ranibag	Ranibag	Panna	Ranibag	Panna	yes	-	-	-	-	-
24	Madaian	Backchur	Panna	Madaian	Panna	yes	-	-	-	-	-
25	Shivrajpura	Panna-Chattarpur-Chandranagar	Chandranagar	Shivrajpura	Chandranagar	yes	-	-	-	-	-
26	Gahra	Panna	Panna	Gahra	Panna	yes	-	-	-	-	-
27	Vikrampur	* 3K Panna-Katni	Amanganj	Vikrampur	Amanganj	yes	-	-	-	-	-
28	Itwakalan	Panna-Katni	Itwakalan	Itwakalan	Panna-Amanganj	yes	-	-	-	-	-
29	Shivrajnagar	Panna-Gunaur	Itwakalan	Shivrajnagar	Panna-Gunaur	yes	-	-	-	-	-
30	Madaian	8 Kms	Itwakalan	Madaian	Panna-Amanganj	yes	-	-	-	-	-
31	Jharkuwa	Jharkuwa	Amanganj	Jharkunwa	Amanganj-Panna	yes	-	-	-	-	-
32	Rampura	Panna-Katni	Itwakalan	Rampura	Amanganj-Panna	No	-	-	-	-	-

33	Tara	Panna-Katni	Amanganj	Tara	Amanganj	yes	-	-	-	-	-
34	Gahadra	Dwari	Amanganj	Gahadra	Amanganj	Yes	Rural Development & Anganwadi	*Panchayat*	1 year	*Panchayat* Bhavan, Pond, Secondary School Construction & Distribution of Milk, Dalia for tribal children	-
35	Katahari	Piparawah (Panna-Katni)	Amanganj	Bilhata	Amanganj Majhganwa	No	Ecodevelopment	Panna NP	3 years	Drinking water, Paultry, Gobar gas, Fish, Plantation etc.	
							Rural Dev	*Panchayat*		School, Well, Handpump & construction	-
36	Rakseha	Piprawah	Amanganj	Gahadra	Amanganj	No	*Panchayat* Yojana	*Panchayat*	1 month	Education Guarantee Bhawan	-
37	Kudan	Dwari	Amanganj	Gahdara	Amanganj	No	Ecodevelopment	Panna NP	2 years	Drinking water, Gobar gas, Irrigation, fishing, Paultry facilities	-
							Panchayat Yojana	*Panchayat*	2 years	Road	-

38	Bador	00 Majhgawan-Panna	Panna	Bador	Panna	Yes	Jawahar Rojagar Yojana	*Panchayat*	1 year	Road construction	20
							Anganwadi	Mahila Bal vikas	2 years	40 Nos people	40
							Briddha-vastha Pension	*Panchayat*	6 months	Getting Pension	2
							Indira Awas	*Panchayat*	5 months	House consturction	5 family
39	Hinauta	Hinauta	Panna	Hinauta	Panna (Hinauta for one day)	yes	Ecodevelop ment	Panna NP	15 days	Crop Protection	42
							Ecodevelop ment	Panna NP	3 years	Gobar gas Plant	6 family
							Jawahar Rojagar Yojana	*Panchayat*	1 month	Pakki Road	30
							Finance Commission	*Panchayat*	1 month	Khadanja consturction	30
							Rajiv Mission	*Panchayat*	6 months	School consturction	-
							Indira Awas Yojana	*Panchayat*	6 months	House consturction	5 family

							Bridhavastha Pension	*panchayat*	6 months	Pension facility	5
							Anganwadi	Mahila Bal vikas	6 months	Anganwadi centre	40
40	Chandranagar	Chandranagar	Chandranagar	Chandranagar	Chandranagar	yes	Well Constructed	*Panchayat*	2 month	-	-
							Hostal	*Panchayat*	1 year	-	-
41	Bhatiapura	Chandranagar	Chandranagar	Chandranagar	Chandranagar	yes	Rajiv Gandhi Mission	Education deptt.	-	-	-
							Road Repair	*Panchayat*	3 months	Got benefit	-
							Gobar gas & Latrine construction	*Panchayat*	-	-	-
42	Rajgarh	Panna-Chatarpur	Chandranagar	Chandranagar	Chandranagar	yes	Gobar gas	Forest Deptt.	1 year	-	
							Fishing	Fishery Deptt.	1 year	Got benefit	-
							Tailoring	Forest deptt.	1 year	-	-
							Smokeless Chullaha	Forest Deptt.		-	-
							Panchayat Bhavan	*Panchayat*		-	-
43	Jaswantpura	4 Kms	Amanganj	Jaswantpura	Amanganj	yes	-	-	-	-	-
44	Marha	20 Kms	Amanganj	Marha	Amanganj	yes	-	-	-	-	-
45	Bhapatpur	Bhariparpur	Ajaigarh	Bhapatpur	Ajaigarh	yes	-	-	-	-	-

Annexure-11

Village Details (Resources Dependency)

Sr. No.	Name of Village	Any forest other than PNP available for resource use	If yes name of the area and distance from village	Compartment of PNP in which resource use is allowed	Compartment in PNP in which resource use not allowed but is used	Type of Dependency on Panna National Park (PNP)							
						Fuel wood	Grazing/ Fodder	NTFP	Bamboo	Timber	Passage	Main type of fuel used	Source of fuel wood
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Koni	Yes	Regional Forest Division	1251 & 1292	508 & 509	Yes (10 months)	Yes	Yes	yes	Yes (seasonal)	Yes	Fuel	Forest, PNP & Regional Forests
2	Siri	Yes	Regional Range (Amanganj)	-	-	Yes	-	-	Yes (Seasonal)	Yes (Seasonal)	-	Fuel	Regional Range (Amanganj)
3	Khamari	Yes	Regional Forest Division (8 km)	1291 & 1292	1277, 1278 & 1285	Yes (10 months)	Yes	Yes (Seasonal)	Yes (Seasonal)	Seasonal	Yes	Fuel	Park & Regional Forests
4	Lalar	-	-	487, 467, 488, 489, 468 & 469	-	Yes	Yes (9 months)	yes (Seasonal)	Yes	Yes	Yes	Fuel & Dung Cake	PNP
5	Bhinyatal	-	-	-	-	Yes (8 months)	-	-	-	Yes	Yes	Fuel	PNP & Agricultural land
6	Kaloopura	-	-	-	-	Yes	-	-	-	Seasonal	-	Fuel & Dung Cake	PNP & Agricultural Land
7	Pathargawa n	-	-	-	-	Yes (8 months)	-	-	-	Yes	-	Fuel & Dung Cake	PNP

8	Jangipura	-	-	-	-	Yes (8 months)	-	-	-	Seasonal	-	Fuelwood	PNP
9	Salaiya	Yes	Regional Forests, Range Madla (North Forest Division) (6 Kms)	-	-	yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	Regional Forests , Range Madla & PNP
10	Madla	Yes	Reginal Forests, Madla Range	234 North Side	-	Yes	Yes	Seasonal	Seasonal	Seasonal	Yes	Fuelwood	PNP & Regional Forets
11	Tapariyan	-	-	467, 468 & 469	-	Yes	Yes	Seasonal	Yes	Yes	Yes	Fuelwood & Dung Cake	PNP
12	Baharpura	-	-	664	-	Yes	Yes	Seasonal	-	Seasonal	Yes	Feul	PNP
13	Patan	-	-	662	-	Yes	Yes	Yes	Seasonal	Yes	Yes	Fuel	PNP
14	Umravan	Yes	Regional Range, Madla	-	-	Yes	Yes	Seasonal	Seasonal	yes	Yes	Fuelwood	Regional Range Madla & PNP
15	Backchur	Yes	Regional Forest Range Mandla	-	-	Yes	Yes	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	PNP & Regional Forests
16	Amjhiriya	Yes	Regional Forest Range, Panna	-	-	Yes	Yes	Seasonal	Yes	Yes	Yes	Fuelwood & Dung Cake	PNP & Regional Forests
17	Manki	Yes	Regional Forests, Range Panna	-	-	Yes	Yes	Seasonal	-	Yes	Yes	Fuelwood	Regional Forests & PNP
18	Bilhata	Yes	Regional Forests	-	-	Yes	Yes	Seasonal	-	Yes	Yes	Fuel & Dung Cake	PNP
19	Katriya	Yes	Regional Forests Range Panna	-	-	Yes	Yes	Seasonal	Yes	Seasonal	Seasonal	Fuelwood	Regional Forests & PNP

20	Jaruapur	Yes	Regional forests Range, Panna & Madla	-	-	yes	-	Seasonal	-	Yes	Yes	Fuelwood	Regional Forests Range, Madla, Panna
21	Manaur	Yes	Regional Forest Range, Madla	-	-	Yes	Yes	Seasonal	Seasonal	Yes	Yes	Fuelwood	Regional Range, Madla & PNP
22	Purana Panna	Yes	Vishramganj Range, Panna Regional	-	-	-	-	-	-	Seasonal	-	Fuelwood	Regional Range Vishramganj & Panna
23	Ranibag	Yes	Regional Range Vishramganj	-	-	Yes	Yes	Seasonal	Seasonal	Yes	Yes	Fuelwood	Regional Range Vishramganj & NP
24	Madaiyan	Yes	Regional Range, Madla	-	-	Yes	Yes	Seasonal	Seasonal	Yes	Yes	Fuelwood	Regional Range Madla & PNP
25	Shivarajpura	-	-	-	-	Seasonal	-	-	-	Yes	-	Fuelwood & Dung Cake	PNP & Agriculture Land
26	Gahra	Yes	Regional Forest Range, Panna	-	-	Yes	-	Seasonal	Seasonal	Yes	Yes	Fuelwood	Regional Forests Range, Panna & PNP
27	Vikrampur	Yes	Regional Forests, South Forest Division	1340	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	PNP & Regional Forest
28	Etwakalan	Yes	North Forest Division	-	-	yes	Seasonal	Seasonal	Seasonal	Seasonal	yes	Fuelwood & Dung Cake	PNP & North Forest Division,

29	Shivarajnagar	Yes	North Forest Division (10 Kms)	-	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	PNP & North Forest Division
30	Madaiyan	Yes	Regional Forest (North Forest Division)	-	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	PNP & North Panna
31	Jharkuwa	yes	Regional forest (south)	-	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood & Dung Cake	PNP & Regional Forest Amanganj
32	Rampura	Yes	Regional Forests, Panna (North)	1356 & 1363	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood	PNP
33	Tara	Yes	Regional Forests North Division	-	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood	PNP & North Forest Division
34	Gahadara	Yes	Regional Forest South Division	105 & 102	-	Yes	Yes	Seasonal	-	yes	Yes	Fuelwood & Dung Cake	PNP & Regional Forests
35	Katahari	Yes	Regional Forests & South forests Divisions	1323 & 1324	311, 1312 & 1326	Yes	Yes	Seasonal	-	Yes	Yes	Fuelwood & Dung Cake	PNP & Regional Forests
36	Rakseha	Yes	Regional Forests South Forest Division, Panna	-	-	Yes	Seasonal	Seasonal	-	Yes	Yes	Fuelwood	PNP & Regional Forests
37	Kudan	-	-	1334, 1335 & 1326	-	Yes	Yes	Seasonal	-	Yes	Yes	Fuelwood & Dung Cake	PNP
38	Bador	Yes	Regional Forests	-	-	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Fuelwood & Dung Cake	Regional Forests, PNP

39	Hinauta	Yes	Regional Forests	540	543 & 544	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Fuelwood & Dung Cake	PNP
40	Chandranagar	-	-	665	-	Yes	Yes	Seasonal	-	Seasonal	-	Fuelwood & Dung Cake	PNP
41	Bhatiyapura	-	-	-	-	Yes	Yes	Seasonal	Seasonal	Seasonal	-	Fuelwood	PNP
42	Rajgarh	-	-	-	-	Yes	Yes	Seasonal	Seasonal	PNP	Yes	Fuelwood	PNP
43	Jaswantpura	Yes	Regional Forests (6 kms)	1342 & 1346	-	Yes	Yes	Seasonal	-	Yes	Yes	Fuelwood	PNP & Regional Forests
44	Marha	Yes	Regional Forests Amanganj	-	509 & 510	Yes	Seasonal	Seasonal	Seasonal	Seasonal	Yes	Fuelwood	-
45	Bhapatpur	Yes	Regional Forests, North Forests Division	-	-	Yes	Yes	Seasonal	Seasonal	Seasonal	-	Fuelwood, Dung & Dung Cake	Regional Forests

Annexure-12a

Details of Selected representative Villages for different Categories

Bador

This village is located on the boundary of Panna range of Panna National Park and in the Madla range of North Panna territorial division. It was settled about 165 years ago. It comes under the Bador *panchayat* of tehsil and development block of Panna. There is a stone quarry adjoining the village which influences the economy of the village.

Demography:

The total population of the village is 536 belonging to eight castes mostly tribal. The number of families under various castes is as follows:

Brahman	-	3
Yadav	-	21
Nandgond	-	33
Gond	-	38
Bharbhunja	-	2
Sahu	-	3
Lohar	-	3
Dalpat	-	1

Total		104

The demographic structure of the village is as follows:

Male	Female	Children	Total
140	131	265	536

The main cast of the village i.e. *Gond, Nandgond and Yadav* are primarily engaged in labour works of mining, cattle rearing and collection of Minor Forest Produce

Literacy Level:

Literacy level is as low as 12%. There are 52 persons studied upto primary level and only 14 persons with secondary level education.

Income & Employment

The main profession of the local people had been cattle rearing and firewood selling. With the initiation of sandstone mining in the village, many of the people switched over to mining work giving up their old profession of selling fuel wood. Mining also brought some prosperity to this village. Some of the people started agricultural and therefore a decline came in the incidences of forest thefts. Hinouta being the nearest market place (about 5 km) provides contact with comparatively educated and employed people, thereby having a positive impact on the village.

At present main source of livelihood is labour work in sandstone mining, cattle rearing, selling of milk, agriculture and collection and sale of NTFP such as fruits of *Anwala*, Mahuwa, and *Achar*. Some people have started small business like grocery shop, ironsmith shop, flourmills etc. Average monthly income/family is about Rs. 1150. A total of 69 families are landless.

Facilities available in the village:

The village is situated almost on Majhagawan – Panna road about 15 km from Panna thereby enjoying good communication facilities. It has a primary school and Anganvadi. The village is electrified. Water is available from hand pumps, wells and pond. The nearest market and the hospital are available at Majhagawan. Due to easy access of the village benefit of schemes like *Jawahar vikas yojana and Indira Awas yojana* have accrued to this village. Modern facilities like T.V., Radio, Tractor, Diesel pump set, etc. can also be seen with some families in the village.

Description of the Land:

The land is available only with 35 families and many of them have started making use of irrigation. The extent of irrigated and unirrigated land is as follows:

Irrigated	Un-irrigated	Total
82 Acre	86.25 Acre	168.25 Acre

The main crops taken in the village are paddy, *kudawa, urd, arahar,* gram, wheat, green pea and mustard. There is 20% to 40% damage to the crops by the wild animals such as nilgai, wild pig and chinkara. Even cattle lifting is reported from the village.

Livestock Population:

The village is surrounded by territorial forests where the livestock grazes throughout the year. Approximate 80 buffaloes and 230 cattle graze inside the park occasionally in winters. The total population of livestock in the village is as follows:

Cattle	Buffalo	Goat	Total
291	120	77	488

Fuel wood:

Five families are totally dependent on the sale of fuel wood for their livelihood. Part of the daily requirement of fuel wood is met from the territorial division. The per capita consumption of fuel wood is 6-8 kg/person/day.

Timber:

Sometimes timber is collected from the park during the months of January and March. Rest of the timber requirement is met from territorial.

NTFP:

Except for 15 families of Yadav all other collect NTFP from the Park area during summer/ monsoon. The main NTFP collected from the park are *Mahuva, Achar, Anwala* and *Tendu patta.*

The seasonality of various dependencies on the park is given as follows:

	J	F	M	A	M	J	J	A	S	O	N	D
Grazing	x									x	x	x
NTFP			x	X	x	x						
Timber	x						x					
Firewood	x	x	x	X	x	x	x	x	x	x	x	x

Village Hinouta

Hinouta is located on the boundary of PNP inside North Panna Division, about 20 km from Panna. The village settlement is about 200 years old. The NMDC Diamond mine is located in Hinouta. As a result, there has been a rapid increase in public facilities but at the same time there has been increasing pressure on surrounding forests. Hinouta also forms the main market place for the nearby surrounding villages.

Demography:

This is a mixed village comprising of *Yadav, Brahmins, Gond. Konder, Ahirwar*, Muslims, etc. Total population of the village is 1143 comprising of 186 families. The demographic structure is as follows:

Caste wise division of families

Muslims	-	3
Kumhar, Thakur, Jain	-	16
Tribal	-	85
SC	-	12
OBC	-	70

Total	-	186

Male	Female	Children	Total
324	302	517	1143

Literacy:

Literacy level is comparatively high because of availability of better education facilities and communication.

Primary	Secondary	College
98	89	9

Income & Employment:

After the establishment of Majhagawan diamond mine the continuum of employment in the village has diversified, although, the main occupation still remains agriculture and cattle rearing. A number of families are employed in the diamond mine and other supporting activities. Few people are engaged in business also.

The broad categorization of the families in different professions is as follows:

54 Families	-	Service, dairying, contractors (Economically well …)
21 families	-	Small merchants (Medium)
111 families	-	Labours (Very poor)

Main occupation of people is agriculture

105 families	-	Labour
32 families	-	Service
16 families	-	Agriculture
29 families	-	Small business

Description of the Land:

Details of land resource available with the village is as follows:

Forest land	Non forest land	Agricultural
52.26 ha	252.60 ha	124.95 ha

3.60 ha. Land is irrigated, whereas the remaining 121.35 ha land is un-irrigated.

Both rabi and kharif. crops are taken in the village. The major crops are paddy, *Urd, Jowar, Kudawa,* wheat, *Arahar, Masur,* gram and mustard.

Water Source:

Drinking water is supplied by NMDC. However, there are following water sources also available in the village.

Natural	-	1 reservoir constructed by NMDC
Manmade	-	3 working hand pumps

Access to Facilities:

Due to the presence of the NMDC office and residential complex in the adjoining Majhgawan area, Hinouta village has access to a number of facilities. School, *Panchayat*, Post office, Primary health centre, veterinary hospitals, bank, police station as well as fair price shops are present in either of the two settlements. The motor road passes through the village on which NMDC buses ply. Telephone facility is also available at Hinouta. Part of the village is electrified. Old age pension is provided by the *Panchayat.*

Dependence on Forests:

Grazing: There are a large number of cattle kept by the villagers as well as by the NMDC employees. Most of these cattle are free grazed cattle and there is intense pressure on forest because of them.

Fuel Wood: Majority of the people depend on wood collected from the part area and the adjoining areas for their fuel requirements. Some people also sell fuel wood for their livelihood requirement.

Timber: A large part of the timber requirement is met from the park area. Cases of illicit felling of timber are also recorded.

NTFP: Except for 22 families, rest all collect NTFP from the park area during the summer and monsoon months.

Village Shivarajpur

Shivarajpur village is located in district Chattarpur at a distance of 7 km from the boundary of Panna National Park. It is located 4 km. North of Chandranagar on the Panna Chattarpur highway. This falls under Shivarajpur punchayat of tehsil and development block of Rajnagar. This village is comparatively well off due to better irrigation facilities for agriculture..

Demography :

The total village population is 1565. This village is inhabited by a number of castes. The caste-wise break up of families is as follows:

Kushwaha	-	37
Yadav	-	28
Brahman	-	15
Dheemar	-	7
Sahu	-	3
Kumhar	-	4
Muslim	-	6
Dhobi	-	7
Thakur	-	1
Harijan	-	20
Basor	-	4
Nai	-	5
Darjee	-	1
Badhai	-	1
Others		6

Total	-	145

Income, Employment and other facilities:

The main occupation of the people is agriculture, animal husbandry and labour. The village has facilities like drinking water, electricity, school, motor road, flour mill, etc.

Description of the Land:

The total land available with the village is about 1500 ha, of which about 1200 ha is irrigated.

The village is getting irrigation facility from Rangawan dam which is responsible for the increased agriculture production of the area. The Chandra Sagar pond with an area of 100 acres is located here. The main crops are wheat, paddy, gram, mustard, green pea, potato, groundnut, *til, urd* etc. About 10% of the crops are destroyed by the wild animals such as nilgai and wild pig. About 40 families are landless.

Dependence on Forests:

Grazing: Total number of livestock is 650 of which 250 are cattle, 100 buffalo and 300 goats. The cattle are mostly stall-fed for 8 months and for rest of the time they are grazed in the pastureland. There is hardly any pressure on the park for grazing.

Fuel wood: Almost 115 families use fuel wood of which 15 meet their fuel wood requirements from revenue land. Out of remaining 100 families 60 get their fuel wood from the park, while 40 families purchase the same from outside. They also use dung cakes as fuel.

Timber: There is no pressure on the park for timber from this village.

NTFP: The only NTFP collected from the park is *Anwala*. About 10 families collect nearly 200 kg of *Anwala* every year.

Village Harsa

This village is located at about 7 km inside from the Panna Chattarpur highway. It is about 10 km from Madla and 30 km. from Panna town. It is located 1 km northeast of the park boundary adjoining the territorial division of Panna North. It comes under the Madla *panchayat* of tehsil and development block of Panna. There is a fair weather road that links the village to Madla village.

Demography:

Gaur	-	15
Muslim -	-	1
Thakur	-	16
Brahman	-	8
Konder-		25
Basor	-	4
Yadav	-	7
Patel	-	2
Gupta	-	3

Total	-	81

Income & Employment:

Main occupation of the people is cattle rearing, agriculture, sale of timber and NTFP as well as poaching and hunting. Agriculture is largely rain fed. There is lot of damage to crops by wild animals. As a result, people depend on the forests for their needs and sell forest produce for their livelihood requirements. About 44 families are landless.

Access to Facilities:

The village is electrified, has drinking water facilities and a primary school. It is also connected with Madla through a fair weather road. Nearest medical facility and the market is at Madla.

Description of the lands:

Total agriculture land in the village is about 53.8 ha. The main crops sown are wheat, paddy, *arahar and jowar.* The only irrigation facility is from a nearby nallah originating from the park. About 20% of the crops are damaged by wild animals such as nilgai, and wild pig.

Dependencies:

Grazing:	Total livestock population is 206, out of which 105 are cattle and 101 are buffalo. Of the total grazing pressure about 40% is on the park and remaining 60% is on the territorial forest area.
Fuel wood	All the families depend upon on the near by forest for their fuel wood requirement for almost through out the year. Selling of fuel wood is not very common in this village. The distribution of the fuel wood pressure is again 40:60 between national park and territorial forest area.
NTFP	The main NTFP collected from the area are *mahuva, achar, anwala and tendu patta.* About 80% of the collection of first two is from the national park, while for the remaining two 60% collections are made from the park.

Village Jharkuva

This village is located at a distance of 7 km. from the boundary of Panna National Park. It is 30 km away from Panna town and comes under Tehsil Panna, block Gunour, *Panchayat* Jharkuva. It is located at a distance of 2 km. from the Panna Katani motor road. The village has a long history of about 300 years and most of the inhabitants are settled from the beginning.

Demography:

Total population of the village is 1080 and the demographic structure is given below:

Male	Female	Children	Total
382	285	413	1080

Main castes inhabiting the village are Brahmans, Thakur, Baniya, Muslim, Yadav, Dhobi, Doriya, Dheemar and Lakher.

Income & Employment:

Main occupation of the people is agriculture, livestock rearing, labour and sale of fuel wood.

Access to facilities:

The village is electrified and has a flourmill and a pakka road. It has a primary and a secondary school. About 40% of the people are educated. There is the facility of irrigation from Rampur dam. The nearest medical facility is available at Amanganj or Panna.

Description of Land:

Total land available is about 914 ha. Of which about 60% is un irrigated. The main crops taken in the area are wheat, mustard, gram, mustard and *til* etc. About 71 families are landless.

Dependence on Forests:

Grazing:	Cattle are grazed mostly in the territorial forest while partly Panna National Park area is also used.
Fuel Wood:	Main fuel wood requirement is met with from the Tara and Jasavantpura beats of Amanganj range of territorial forests of Panna South division. However, part of the fuel wood requirement is met from the Rampura east and west and Kudan east beats of Panna National Park.
Timber:	Timber is collected both from the territorial and the national park forests.
NTFP:	NTFP such as *mahua, achar* and *tendu patta* are collected from both the territorial forest and National Park.
Bamboo:	Though, there is facility of *nistar* from Tara Depot, sometimes bamboo is taken away from the park areas.

Village Lalar

Lalar is located in Lalar *panchayat* of Panna block adjoining to Madla range of the national park. This village is about 45 km from Panna Town and is hardly 100m away from the park boundary. The location of this village is peculiar in the sense that it is surrounded on three sides by the national park and the fourth side is covered by Ken river. The religious shrine of Nararan, which is visited by the people of this and other nearby villages is hardly 5 km away from it.

Demography:

The total population of the village is 1463 belonging to 147 families. *Thakurs* and *Yadavs* are the major communities in the village. There are some families belonging to Schedule Cast community too. The demographic structure of the population is as follows:

Male	Female	Children	Total
575	500	288	1463

Income & Employment:

The main occupation of the village is agriculture and cattle rearing. However, they do depend on collection and sale of fuel wood and minor forest produce to supplements their incomes. There are few families engaged in service for their livelihood.

Access to Facilities:

Lalar is comparatively a developed village. Nearest motor road is about 5 km from the village. There is a primary school in the village. Police chowky is also located in the village. The village is fully electrified. For small children there is an *Anganvadi.* Four hand pumps provide drinking water facility in the village. There is a telephone being run by the village *panchayat.* The village also enjoy the facility of Public Distribution System through a Ration Depot. Nearest hospital and market is at Chandranagar.

Literacy Level:

Literacy level is about 20%, which can be considered comparatively high for this area because of easy access of the village to the major towns of Chandranagar and Bamitha. Some of the people have undergone even college education.

Description of Land:

A total extent of agricultural land is about 183 ha. About 22% of which is irrigated.

Irrigated	Un-irrigated	Total
40	143	183

Livestock Population:

Total livestock population of the village is 676.

Cow	Buffaloes	Goats
474	99	103

Agriculture:

The main agriculture crops are paddy, *urad, masur, til, arahar,* gram and wheat. About 25% of the crops are destroyed by wild animals such as nilgai, wild pig, etc.

Dependence on Forests:

The main dependency of the local people on the forest is for grazing, fuel wood collection, timber and NTFP collection.

Grazing: Grazing in the national park is as high as 75% and the remaining pressure is on the revenue land. The grazing is for nearly nine months in a year.

Fuel wood: Totally dependent on the national park, both for self consumption as well as for sale throughout the year.

Timber: Timber is brought from the national park for self-consumption.

NTFP: Collected from the national park both for self-consumption as well as for sale.

Village Gahadara

This village is located about 8 km away from the park boundary of Panna National Park (Panna range) at a distance of 40 km from Panna Town. This village falls under Panna Tehsil and development block and Talgaon *panchayat.* This is a tribal village and is largely undeveloped.

Demography:

There are total 83 families comprising of Gond, Brahman, Thakur and Yadav. The break up of the total population is as follows:

Male	Female	Children	Total
130	103	218	451

Income & Employment:

Since, the village is underdeveloped, there are hardly any employment opportunities. People largely depend on agriculture, labour and sale of fuel wood. Due to lack of irrigation facilities agriculture production is low. Monthly income ranges from Rs. 500-4000.

Access to Facilities:

Among the basic facilities, there is a primary school in the village. Nearest town is Amanganj (24 km) which provides the facilities of hospital and market. For communication there is a telephone tower, which is not functioning at present. The village is electrified and can be approached from Piparwaha, which is situated on the Panna - Katani road. Although there is a river near to the village, during summer season it dries up and water requirement of the village are met with from either a perennial spring in the river or the hand pump available in the village.

Literacy Level:

Though 65 people are literate, only 7 persons have reached the secondary level and 34 have studied upto primary level.

Description of Land:

A total of 47 families (about 57%) of the village have varying extent of land and 36 families are totally landless. Extent of Irrigated and Unirrigated land in the village is as follows:

Irrigated	Un-irrigated	Total
4.6	81	85.6

Livestock Population:

Total livestock population of the village is 530.

Cow	Bulls	Calves	Buffaloes	Goats
101	89	45	76	219

Agriculture:

The main agriculture crops are *jwar, kudava,* gram and wheat. The problem of crop damage by wild animals like nilgai and wild pig are responsible for low agriculture production.

Dependence on Forests:

The main dependency of the local people on the forest is for grazing, fuel wood collection, timber and NTFP collection.

Grazing: Mainly in territorial forests but also in national park from July to October.

Fuel wood:	Totally dependent on the national park, both for self consumption as well as for sale throughout the year.
Timber:	Timber is brought from the national park for self-consumption.
NTFP:	Collected from the national park both for self-consumption as well as for sale.

Village Koni

This village is located on the boundary of Khamariya beat of Hinouta range of Panna National Park at a distance of 40 km. from Panna town. It falls in Katahari *Panchayat* of Tehsil and development block of Panna. It is located at a distance of 15 km from the Amanganj - Katani road. This village is about 100 years old.

Demography:

Basically this is a *gond* tribe village consisting of 79 families. About 40 families are the original inhabitants of the area whereas the remaining families have shifted and settled from adjoining areas of Badgadi, Khamariya and Bhadar located inside the national park due to dacoit problems about 20 years back. The demographic composition of the population is as follows:

Male	Female	Children	Total
128	114	234	476

Livestock:

There are 472 domestic livestock in the village. The details of which are given below:

Cattle	Buffalo	Goat
340	32	100

Income and Employment:

The village mainly depends on labour, selling of fuel wood and other forest produce, cattle rearing, and agriculture. Agriculture is mainly rainfed and therefore the productivity is very low. The land is rocky and there is lot of damage from wild animals as a result people largely depend on the sale of forest produce for their livelihood. Except for 18 families all other are very poor The income ranges from Rs. 500 to 1500 per family.

Access to Facilities:

There are no major facilities available in the village. There is a primary school within the village. But nearest market and hospital are at Amanganj, 27 km from the village. There is no source of drinking water except for one hand pump, which is also nonfunctional at the moment. The requirement of water is met from a *Bavadi*. Village is partly electrified.

Description of Agriculture Land:

Total extent of agriculture land available in the village is about 98.5 acres. All the land is without any irrigation facility. Eleven families are landless. The major crops taken in this area are *jowar, kudawa,arahar*, gram and wheat. There is the problem of damage to the Crops by Wild Animals such as wild pig and nilgai and inspite of regular watch, 25% of the crop is lost to wild animals.

Dependence on Forests:

Grazing: Grazing is largely in the territorial forests. In addition to grazing about 40 *pullas* of grass is brought from the forest every day.

Fuel wood: Dependency of fuel wood is for self consumption (19.75 Qt./per day) as well as for sale (12.5 Qt./day).

Timber: Timber requirement is met mainly from the national park from April to June for self consumption as well as for sale.

NTFP: NTFP are collected from territorial forests as well as from the national park. Approximately 2.37 Qt. *Mahua*, 1.5 Qt. *Achar* and 4 Qt. *Anwala* are collected from the forest every day during the season.

Chandranagar

The village Chandranagar is situated on Panna, Chhattarpur State highway about 30 Km from Panna. It is a revenue village and is situated on the periphery of the National Park. The nearest park boundary is about 2 km. It comes under the Chandranagar *panchayat* of Tehsil and development block of Rajnagar. People belonging to different communities inhabits in this village. Comparatively this village is quite prosperous due to it's location. Many families of this village are dependent on National Park for their fuel wood requirement. Moreover, most of the cattle of this village are dependent on the national park for grazing. Chandranagar village is about 70-80 years old. Most of the people of this village were initially from nearby Rajgarh village about 80 years ago when there was an incidence of epidemic in Rajgarh, people came to Chandranagar village leaving their belonging behind. Today also the remnants of that habitation can be seen in the forest of Rajgarh.

Occupation:

The main occupation of this village is business, service and agricultural practices. However most of the people they are either doing some business, service or carrying out agricultural practices. Pigories, Goldsmith.

Facilities:

Following facilities are available in the village :
Electricity, Dispensary, Primary School, Private education centers, Village Development Bank, Post Office, *Panchayat*, Veterinary hospital, Anganbadi, Flour mill etc.

Demography:

There are 398 families in this village comprising of 628 male, 550 females and 1054 children.

Education:

Literate 212 (94 primary and Junior)

Land:

Irrigated 380 acre, un-irrigated 8 acre

Crops:

Main crop wheat, Channa, Satai

Average Production:

Wheat 15 Ton, Channa 20 Ton

Crop damage:

Wild Boar, Nilgai and few other wild animals causes damage to the crops.

Dependency on Forests:

Grazing: Round the year in Rajgarh beat of Panna National Park.

Livestock: Cattle 148, Buffalo 124, Goats 167, Total 230

Fuelwood: In winter season for warming up and in other seasons for sale purpose.

Timber: Not much dependent on National Park for this purpose.

NTFP: About 50 families of village are dependent on National Park for the collection of NTFP.

Bamboo: About 8 families of Scheduled Casts are dependent on forest for their Bamboo requirement to manufacture small articles.

Bakchur

This village is located on the boundary of Madla range of Panna National Park. It is located on the Panna – Chattarpur road at a distance of about 7 km. from Panna town. It falls in the Bagauhan *Panchayat* of Tehsil and development block of Panna.

Demography:

People from Purana Panna who use to come to this area to graze their cattle during monsoon season settled here about three decades ago. This is how the this village came into existence. Bakchur is a non-tribal village, most of the families of this village belongs to Yadav community which falls into OBC category. The total population of the village is 115 comprising of 21 families.

Male	Female	Children	Total
28	24	63	115

Livestock:

There are 278 domestic livestock in the village. The details of which are given below:

Cattle	Buffalo	Goat
160	118	278

Income and Employment:

Majority of the families are keeping cattle and therefore their main income comes from dairy or selling of cattle. One of the family controls all the agricultural land of the village. Agriculture is mainly rain fed and therefore the productivity is very low. There is damage to the crops as well as to the cattle from wild animals. People therefore, do depend upon labour as well as NTFP collection.

Access to Facilities:

There are no major facilities available in the village. However, the nearest market, hospital and education facility is available in Panna at about 7 km. For drinking water there is a hand pump in the village. The water requirement of cattle is met with from the nearby village pond for part of the season and during dry season the cattle are taken about four km inside the park to a water source. The village is electrified.

Description of Agriculture Land:

Total extent of agriculture land available in the village is about 98.5 acres. All the land is without any irrigation facility. Eleven families are landless. The major crops taken in this area are *jowar, kudawa, arahar*, gram and wheat. There is the problem of damage to the Crops by Wild Animals such as wild pig and nilgai and inspite of regular watch, 25% of the crop is lost to wild animals.

Dependence on Forests:

Grazing: This village has 100% Grazing pressure in the national park area..

Fuel wood: Dependency of fuel wood is only for self consumption and on a negligible rate (1 to 1.5 kg./day/person).

Timber: About 80% of the timber requirement is met from the national park for self consumption.

NTFP: NTFP are collected from territorial forests as well as from the national park. Approximately 25 kg *Mahua*, 5 kg *Achar* and 25 kg *Anwala* are collected from the forest every day during the season.

Village Purana Panna

Purana Panna is located about 3 km from boundary of Vishramganj (Madla) range of PNP. It is almost a part of Panna town and as a result, there has been better public facilities available for people of Purana Panna. However, there has also been increasing pressure on surrounding forests.

Demography:

Purana Panna is a mixed village. However, most of the people belong to Schedule cast, Schedule tribes and Other Backward Class. Only 3% of the total population is of general category.. The major communities are *Konder, Gond (Nandgond and Rajgond), Basor, Yadav, Kushwaha and* Muslims, etc. Total population of the village is 448 comprising of 92 families. The demographic structure is as follows:

Category wise division of families

General	-	3
Schedule Cast	-	9
Other Backward Cast	-	22
Tribal	-	58

Total	-	92

Male	Female	Children	Total
132	117	199	448

Literacy:

Though the village is basically a backward village, the literacy level is comparatively high because of availability of better education facilities and communication in Panna.

Income & Employment:

After the establishment of Majhagawan diamond mine the continuum of employment in the village has diversified, although, the main occupation still remains agriculture and cattle rearing. A number of families are employed in the diamond mine and other supporting activities. Few people are engaged in business also.

Main occupation of people is agriculture

105 families	-	Labour
32 families	-	Service
16 families	-	Agriculture
29 families	-	Small business

Description of the Land:

Total land available with the village for agriculture purpose is 7½ ha. 100% land is of un-irrigated type.

Both rabi and kharif. crops are taken in the village. The major crops are paddy, wheat, *Kudawa, Arahar,* gram and mustard.

Water Source:

Drinking water is supplied by Panna Nagar Palika.

Access to Facilities:

Due to the presence of the district headquarter, Panna, Purana Panna has access to a number of facilities. School, *Panchayat*, Post office, Primary health centre, District Hospital, veterinary hospital, bank, police station, weekly and daily market and the fair price shops are present. The Panna –

Ajaygarh and Panna – Chattarpur road passes close to the village on which various means of transport are available. Telephone facility is available at Panna. The village is electrified.

Dependence on Forests:

Grazing: The cattle of Purana Panna are taken to the Bakchur village by the villagers in monsoon season for grazing them inside the National Park. Most of these cattle are grazed freely and therefore creates an intense pressure on the beats of Panna National Park adjacent to Bakchur village.

Fuel Wood: Majority of the people depend on the National Park area for their daily fuel wood requirement. Some people also sell fuel wood for their livelihood requirement.

Timber: A large part of the timber requirement is met from the park area. Cases of illicit felling of timber are also recorded.

NTFP: Except for 22 families, rest all collect NTFP from the park area during the summer and monsoon months.

Annexure-12b

Resource Utilization pattern of representative villages from different categories

Sr. No.	Name of the village	Total human population (No. of families)	Total livestock population	Fuel wood pressure /family /year (in M.T)	Total fodder pressure/ cattle unit/year (in Pulla)	Total timber/ family/ year (in No. of pieces)	Total Non-Timber Forest Produce/family/year				Small Timber pressure/family/year			
							Mahua (in kg)	*Achar* (in kg)	*Anwala* (in kg)	*Tendu patta* (in gaddi)	Kurva (in no.)	Dhassam (in no.)	Balli (in no.)	Bamboo (in No.)
1	Koni	476 (79)	472	8	3244	19.74	2.97	1.92	5.06	-	4	1.26	18	-
2	Salaiya	(193)	237	-	-	30	5	5	25	100	-	-	-	-
3	Harsa	(81)	206	0.98	2804.36	-	40	8.00	30.24	180.86	-	-	-	-
4	Bakchur	115 (21)	278	1.6	1381	-	25	5	25	500	-	-	4	-
5	Jharkuva	1080 (156)	270	-	394	-	3.84	1.92	-	-	5	-	-	10
6	Gahadara	451 (83)	530	2.48	1539.3	-	29.69	22.84	85.5	666.26	5	-	-	10
7	Bador	546 (104)	488	1.28	1469.00	11	26.73	45.43	134.61	422.00	1	-	0.2	10
8	Hinouta	1143 (186)	1056	5.19	1640.75	-	32.4	10.75	11	946.24	10	-	5	8
9	Lalar	1463 (147)	676	6.31	24.57	36.75 cum.	15	8.00	10	500	10	-	10	100
10	Shivarajpur	145 (1565)	650	0.96	-	-	-	-	20	-	-	-	-	-

Annexure 13

Summary of agreed Activities of other District Agencies

Veterinary and Animal Husbandry Department:

Veterinary and animal husbandry department has agreed to undertake the following activities for the Park: Vaccination of and investigation cum on the spot treatment of different diseases in the cattle. Milch cattle improvement by castration of local bulls and artificial insemination through improved varieties of bulls.

For the demonstration plots of fodder, the department will provide subsidy to different groups for raising fodder crops in their land. For different categories of people the subsidy is as follows:

Category	Area of Fodder Plot	Subsidy (in Rs.)
General Category	¼ Acre	50
Schedule Caste	-do-	75
Schedule Tribes	-do-	100

For controlling the misuse of green fodder, the department is also providing subsidy for purchase of efficient tools as follows:

Under normal scheme	-50% of the cost of tools subject to maximum of Rs. 250.
Under tribal area scheme	- 75% of the cost of tools subject to maximum of Rs. 300.

Supply of poultry, piggary and goats: Under this scheme, the beneficiaries of schedule caste and schedule tribes are supplied with 15 number of chicks along with the feed, medicine and cage for

keeping the chicks free of cost. Also better quality goats and pigs can be provided in place of inferior local stock.

Agriculture Department:

1. Soil Testing Programme:

This programme is available free of cost in which the soil can be tested through Village Assistant and Patwari or local forest staff.

2. Training and Providing Information for Improved Agriculture Crops:

This scheme provides for the training and agriculture related issues like sowing, pest control and information about high yielding crops.

Fisheries Department:

1. Selection and Training of Fishermen:

This 30 days programme covers the training of the fishermen each beneficiary is given Rs. 25 as training allowance in addition to actual bus fare for journey to the training center and back and 2 kg. of nylon thread for making the net. During the training, the beneficiaries are trained for making the net, identifying local species, production of fish seeds etc. for making the local people skilled in this work. Selected fishermen from outside the state also provide training about modern methods of fishing. These trained fishermen are also provided an insurance cover of Rs. 35,000 at the cost of the department.

Financial Assistance to the Fishery Cooperative Societies of General, Schedule Caste and Schedule Tribe Communities:

The maximum subsidy/assistance is Rs. 25,000 for one society, which is given only on the proposal of the *Panchayat.* These societies are provided subsidies for fishing in the ponds on the patta lands. For patta pond assistance and fish seedlings the subsidy is given for those schedule castes and schedule tribes who are below poverty line and who are proposed by *Panchayat.* The maximum subsidy for three years is Rs.5,000. Under the three tier *panchayati* raj system, the ponds are allotted for seven years depending upon the area by the *panchayats*.

M.P. Agro Industry Development Corporation Limited

This agency is undertaking following activities:

Establishment of Bio-gas Plants: In order to reduce the pressure of firewood, bio-gas plants are being established for the local communities. It was agreed that bio-gas plants can be provided to the beneficiaries in the mutual impact zone to large number of people. Under this scheme for 2 and 3 cubic meter capacities bio-gas plants are being provided. For this the agency is providing a subsidy of Rs.1800 per beneficiaries under general category and Rs.2,300 for schedule castes and schedule tribes as well as local farmers for establishment of bio-gas plants.

Providing expertise and financial help for improved implements. Under this scheme the agency is providing expertise through demonstrations and use for various efficient implements being used for agriculture and fodder cutting. There is a provision of financial assistance for the purchase of these improved implements to the local farmers along with other technical expertise.

Trainings for local capacity building. The agency is providing trainings to less educated youth at Sagar for various areas like carpentry, tailoring, works related with leather industry, iron smith, weaving, etc. During the period of training the trainees are provided an allowance of Rs.250.00 and 260.00 for man and woman respectively. After the training an amount of Rs.400.00 is provided to each participant for purchase of implements.

For the schedule caste under special agriculture improvement programme, financial assistance in the form of subsidy upto 25% of the total cost is being provided for irrigation, construction of wells,

repair of wells, establishment of irrigation pumps etc. Under the self employment scheme for starting small scale industry and other trade, educated unemployed youth are being provided financial assistance upto Rs.6,000.00 as subsidy. The remaining amount can be provided as a loan from various banks for starting activities of self employment. The selection of the beneficiaries is done by the District Collectors. The beneficiaries can use this money for purchase of auto rickshaws, mini buses, trucks, jeep, taxies or starting shops. This can also be used for other business activities including purchase of land upto 3 acre for starting these activities.

1. Activities for schedule tribes: The activities mentioned above are being undertaken for the upliftment and development of schedule tribes by District *panchayat* and tribal development authority.

Tribal Development Programme:

Under this programme at the level of district and block development, a number of schemes are under implementation, which is being controlled by District Collector. These are:

Single point electric connection to the families of tribal.

Provision of financial assistance in the form of subsidy and loans on low interest rates for various alternate income generating activities such as the purchase of hand-cart, auto rickshaws, rickshaws and other machine instruments.

For education improvement, the tribal children are provided free hostel facility, food and books in the Ashram Schools located in rural areas. The students are also provided scholarships for encouraging education among them. This scholarship is for 10 months as follows:

Scholarship

Class	Male Student	Female Student	Remarks
6-8	Rs.270/- per month	Rs.290/- per month	For Ashramshala
9-10	Rs.280/- per month	Rs.300/- per month	-do-
3-4	-	Rs.150/- per month	State Scholarship
6-8	Rs.200/- per annum	Rs.300/- per annum	-do-
9-10	Rs.300/- per annum	Rs.400/- per annum	-do-

Along with this scheme, the students are also given the benefit under Student Welfare Scheme, Girls Literacy Promotion Scheme and pre-examination training programme.

District Collector can also provide financial help as per the requests for girls who are seriously ill and without any resources, handicap and illiterate people.

District *Panchayat* and District Village Development Agency, Panna:

District *Panchayat* President, Smt. Santosh Kumar Patel was very keen to effectively implement different schemes with required transparency. This agency is providing following schemes:

Distribution of Mini Kits: The beneficiaries are being provided with mini kits for agriculture under agriculture improvement programme.

Maintenance of Public Roads/streets and providing light facilities: Under this scheme *Panchayat* is providing financial assistance for the lighting facilities and maintenance of roads/streets in different areas.

Non Traditional sources of Energy: Under this scheme assistance for non traditional sources of energy like solar energy, bio-gas energy, etc. is being provided.

Employment Guarantee Programme: With the recommendation of beneficiaries by the Gram Sabha works upto Rs.3 lakhs can be sanctioned for Jeevan Dhara Yojna, Indira Vikas Yojna, integrated village development, Tricem, Improved tool kit distribution, etc.

Agency is also providing support for works related with agriculture improvement and social forestry, training for production of vegetables, fruits and medicinal plants cultivation. It is also providing assistance for construction and improvement of common water sources like village ponds. Under the Rajeev Gandhi Water Conservation Scheme, proposals for mini watershed development are being sanctioned by this agency.