Urbanisation is an important process helps and plays significant role in transforming the socio-economic as well as the natural environment of any region, state and nation. It is considered as an index indicating the continued improvement in the social status and that too in the quality of life in respective regions. Cities have always been considered the nucleus of human civilization and culture which owe their existence to the functions they perform not only for themselves but for their adjoining rural areas. Thus, the impact of cities on rural area extent according to the role they play. The areas beyond the boundaries of urban centres too are influenced by changes being recorded in urban economic and social systems. The transitional zone between the pure urban and pure rural landuse are described as urban fringe and/or urban rural fringe intensively transformed due to their important significantly improving contacts with its city or town. With the growth of population and diversification of economic activities, the limits of cities have extended into their fringe areas and gradually the limits or the territories of fringe areas further extend towards the adjoining rural areas. These urban fringe areas are directly or indirectly influenced by their urban activities.

Urbanisation and Industrialisation have been the two major processes of development, which rapidly was adopted by the country, state and region and has been substantially transforming the urban as well as the rural environment of the study region. Some of these important transformations include transformation of the process using the natural resources, transforming the quality of land and
water, transforming the demographic characteristics, transforming the transport network and associated systems, transforming the agricultural environment, transforming the urban settlements in reference to their size and shape, transforming the socio-economic status of the population and issues related to health, transforming the infrastructural facilities and finally transforming the rural environment in the study region.

With the completion of various developmental activities environment is transformed along with the adoption of modern techniques to initiate the rapid development that has caused and is causing many dangerous changes specially the rural environment. Most of the developing and developed regions are confronting with the emerging problems caused by the environmental transformation and study region is not an exception to this.

Jabalpur is an important urban centre of Madhya Pradesh. The name of this region is taken from an Arabic word Jabal, which means a rock. The site on which the town is built is partially rocky. Geographically, the region extents between 22º49' to 24º08' N latitudes and 78º21' to 80º53' E longitudes. Jabalpur region is located almost in the central part of Madhya Pradesh. The tropic of cancer passes through the middle of the region. Jabalpur region is surrounded by Katni district in the northeast, Mandla district in the southeast, Narsinghpur district in the southwest while in the west and northeast is boardered by Damoh district.
Administratively the region is divided into six tahsils i.e. Jabalpur, Shahpura, Patan, Majholi, Sihora, and Kundam. Jabalpur region is accommodating about 21,67,469 people with 11,34,870 males and 10,32,599 females (2001). The study region has about 3.58 per cent of the total population of the state. Population density in the region comes to 416 persons per sq. km. and the sex-ratio is 910 females per 1000 males.

Jabalpur region is one of the highly developed region of the state and is well connected with different parts of the country as well as of the state through railways and roads. Mumbai-Allahabad-Howrah broadgauge trunk route of west-central railways, traverses through the region from northeast to southwest. The process of converting the Jabalpur-Gondia narrow gauge section to uniguage of the southeastern railway connecting Jabalpur with important towns of Maharashtra state has started and the direct accessibility will enhance the movement on this route. The region is also served by National Highways i.e. NH-7 (Nagpur-Mirzapur) and NH-12 (Jabalpur-Jaipur) ensuring the accessibility with important cities. The State Highways No. 10,14,22 and 32 together are providing intra and inter-regional accessibility to the region under study. Recently the region has also been connected with important cities of the country through air transport mainly Delhi through Air India. The region also has a military airstrip and also an airport at Dummna at a distance of 15 kms on Pig Coal road.
The region is bounded by the sandstone cliffs of the Vindhyas in the west, metamorphic rocks of the Bhittrigah or by its spurs in the east, and the southeastern area is covered by Deccan trap. Region consists of long narrow plain running from southwest to northeast, flanked by the Bhandar and Kaimur ranges of the Vindhyan system on the west and various hills and spurs of the Mahadeo range and the Maikal range on east, lying at the junction of the Vindhyan and the Satpura range. Jabalpur region forms a part of the great central watershed of India. The southern half is drained by the Narmada and its tributaries the Hiran and the Gour. While the northern half by the Tons and Son of Yamuna system. River Narmada is the principle river of the region. The area along the eastern boundary of the region is drained by the Mahanadi, tributary of the Son. The rivers of the region have a monsoon character. There are numerous artificial lakes and tanks in the region. The tanks and lakes in the region are mainly used to meet the water requirement of domestic sector as well as of the irrigation also.

Jabalpur region has a variety of soils, formed by the decomposition of fragmented quartz, felspar and silica which are mixed with aluminium, iron, magnesium, lime and alkalise, the proportion being determined by the nature of the parent rocks. Alongwith these the entire area of the region is hilly. The elevation of the plain area varies from 457.50 to 1200.00 metres. Slopes differ in grade from 2.0 per cent to 30.0 per cent. The general slope of the area
are from northeast to southwest. Jabalpur region lies in a sensitive area affected by earthquakes. In the recent past few of the earthquakes have been felt, and minor to major damages were witnessed. Forest occur on the slopes of the hills located in the southern, eastern and southeastern parts of the region, and belong to tropical dry deciduous forests.

The economic opportunities offered by a developed city like Jabalpur has been initiating the series of new activities specially meant for the villagers living in the adjoining rural areas. This has silently been signalling a point of departure from their traditional occupations. For instance, most of the villages around Jabalpur city have been influenced by the market oriented economy not only by selling vegetables and milk products but also by providing their residents as labourers. The city has opened up a wide range of employment opportunities for the villagers and to some extent they have option to choose from the wide range offered alongwith the diversification of crops supported by modern inputs.

It has been observed that changes in the landuse pattern in rural-urban fringe area is a reflection of the changes being made in natural, economic, social and cultural structure over the period of time in the study region. Rapid technological changes being adopted too have created new needs which demand more land as well as new modes of land utilization. In last 25 years land utilization in the region has witnessed major changes alongwith the growth of population and
diversification and expansion of industrial and other related economic activities. Thus with these marginal adjustments between the land resources and expanding economic activities has caused widespread environmental degeneration in various parts of the region.

The history of resources being used clearly indicates, that with the increasing number of people along with the diversification of needs and their enhanced capabilities with the adoption of advanced technology, initially the best land has been used for cultivation. But with the growing pressure due to the population and economic development, gradually the pressure on the available agricultural land too has increased and even the marginal lands too are cultivated with the induction of modern scientific and technological innovations. As a result use of agricultural land has gradually been intensively diversified to a higher level. This is another notable factor, which has affected the agricultural land, considering the changing scenario the small, even the marginal farmers of the region also have start adopting the recent technical knowledge and the use of modern inputs in agriculture. Thus the study of landuse pattern provides the guidelines to maximise the use of available land in the area/region in optimum conditions.

With the study of landuse pattern, one can know the distribution and use of land in different categories. Land utilization in the region too has witnessed similar changes with the growth of
population, and activities related to rural industry, dairy and poultry. This has struck the transformation of environment.

To gauge the transformation, which has taken place in the study region, detailed survey has been conducted in the month of July, August, September and October, 2006 to find out the nature and direction of changes, brought out as a result of the implementation of science and technology for the development of agriculture and also to assess its multiple effects on the rural environment. The socio-economic changes in the region have become possible mainly with agricultural development and increased production. The available modern inputs have been systematically adopted by the farmers of the region.

The available modern methods have gradually replaced the traditional methods of agriculture being practiced in the region. The iron ploughs and/or tractors have replaced the wooden plough alongwith a pair of bullocks. The increasing number of threshers, harvesters and seed drills are being frequently used over the period of time and the adequate supply of water for irrigation in reference to the changing requirement has also become the reality of the day across the region. Considerable increase in the use of modern farm implements too has been noticed, throughout the region specially in last 20 years. Some of the industrial units, located within the region are also producing some of the modern machineries being widely used by the farmers, too have played and are playing important role in transforming the agricultural activities of the region.
In the region one of the major technical development during the post independence period has been the application of mechanical power in agriculture. Although mechanisation in region simply was referred with the use of tractors, power-based pump sets, tube wells, threshers etc. and their impact in improving the agricultural production as well as per unit of agricultural land has been noticed. Mechanisation has also lead to the proper utilization of inputs, including fertilizers, pesticides and adequate supply of water through irrigation. Because of these facts attempts has been made to gauge the role of various agricultural implements, being adopted by the farmers in the region.

Agriculture has been a fundamental occupation of the country, as well as of the region. With the growing population and to meet increasing demands agricultural system too has improved. Thus fundamental changes have been initiated in the agricultural sector with the adopting of modern inputs and agricultural techniques. At the same time changes have been noticed in land use pattern, cropping pattern, expansion of irrigational facilities and diversified agricultural production in transforming the agricultural environment. Jabalpur region as a part of upper Narmada valley is well known for its rich agricultural land. There is no doubt that the adoption and applications of modern inputs, on one hand has increased the agricultural production, and on the other has changed both the physical as well as the socio-economic environment. The rich
agricultural land of the region has gradually degenerated even at places degraded due to the excessive use of irrigation, use of polluted water for irrigation, imbalanced and excessive use of fertilizers and pesticides and improper use of modern machinery. Dumping of urban wastes near the agricultural fields too has recorded as one of the main factor for the declining yields and quality, and ultimately polluting the agricultural as well as the rural environment.

The high population growth in the urban-rural fringe area clearly indicates the increasing influence of urbanisation. Due to the high population growth and increasing demand of residential houses available agricultural land has been converted to meet the requirement of residential plots and other non-agricultural activities. As a result and also to reside apart from conversion, the landholdings are fragmented with increasing pace to meet the growing demand. Considering the family tradition normally the agricultural land owned by the family is divided among the sons of the family. It has been found that in the recent years due to the continued fragmentation of available agricultural land owned by the family the proportion of marginal and small farmers has increased and the region under study is not an exception to this urban array.

On the other hand in the recent years the pace of fragmentation of land has accelerated specially in the villages located on the outer margins of the Jabalpur urban area as to accommodate the increasing pressure due to the shifting of residential and various diversified
activities to these rural areas. As a result on a large scale agricultural land is being transformed into the non-agricultural uses and thereafter it is being constantly fragmented into small pieces assessing the demand and cost of land.

Process of social change in any region is initiated by variety of factors such as advancement of trade and transport facilities, political change, religious movement, industrialization and urbanisation or combinations of some or all of these. Urban environment has influenced the main stimulus of change in the surrounding villages. Thus, the feedback effect of urbanisation on villages is of a great significance in understanding the changes in reference to the prevailing traditional rural social structure.

The process and pattern of changes in the composition of the families is prompted by availability of employment opportunities in respective villages. Family dispute, marriage, increased family responsibilities, increase in family size and enhanced migration have also played an important role. The main reason for the split in the family is the employment opportunities. Most of the members of a family when finds a job in different institutions, are forced to move considering the long distances between the work place and their native place. During the field work it has been noticed that still there are good number of families whose priorities too have changed. As they have start giving greater importance for the education of their children and at times fails to spare money to share the responsibilities of the joint
families. As a result they opt to live independently rather a part of joint family. The other two major reasons for these change include marriage and increased family size. Less than 4.0 per cent of the respondent reported that the families have broken up because their family members have migrated to Jabalpur. However the assets owned by the joint family too were compensated by providing employment for single person. This also has led to a split in the family. The collectively owned assets have been yielding work for all members of the family and income with varying proportion for every one, including the womenfolk.

Broadly the houses built for residential purpose is classified into three types i.e. kuccha, pucca and mixed. In the kuccha houses roofing, flooring and walls are made by the locally available construction materials. In a typical kuccha house or country-made tiles are used for roofing, mud-flooring and mud-wells. While in pucca houses the walls are made of bricks plastered by cement-concrete and the flooring by red tiles. On the other hand in the mixed houses various types of construction material is used depending upon the availability of the materials and the cost.

Type of houses being constructed in the region is considered as one of the parameters to judge the socio-economic status of the households also indicates the life style of the people in the sample villages of the region. Nature and type of the residential houses become one of the main factor determines the use of electricity with its enhanced frequency for domestic purposes. During the field work it
has been noticed that most of the Kuchha houses are hardly using electricity for domestic lighting only. Some of the houses though have the connection of electricity, but their consumption of electricity is very limited. Whereas most of the Pucca houses have the electric connection and are using electricity for lighting, cooling and are using various electrical appliances to meet the domestic needs i.e. electric fans, electric press, grinders, coolers and refrigerators etc.

During the field work it has been noted that over the period of time the living environment in most of the residential areas of the sample villages has start degenerating due to the construction in a very unplanned manner causing congestion. With the increasing gap in the civic amenities as compared to the construction of the houses and expansion of residential areas, presents a very disorderly and unhygienic conditions in and around the residential areas. Most of the residential houses are facing the congested, cramped and are overcrowded scene. It has also been noted that most of the rooms do not have the proper lighting and lacks cross-ventilation and the living becomes highly unhygienic. In some of the houses the use of electricity becomes a necessity even during the day time due to poor lighting. Due to the partition of rooms and poor ventilation and with the conversion of front portion for the commercial use in most of the residential houses of the adjoining villages are constantly facing the problems arising due to the non-availability of fresh air.
As per the tabulation of the primary data more than 63.76 per cent respondents from the sample villages use open space to attend their nature’s call. Surprisingly among the sample villages Bahoripar is the only village 100.0 per cent respondents have the facility of flush latrines, which has emerged as an exception among the respondents of the sample villages in the region.

The process of urbanisation has played an important role in transforming the composition of occupational structure. As a result over the period of time the proportion of agricultural workers has substantially declined in the adjoining rural areas. In the study region, with the expansion of urban and industrial activities, large number of workers have start migrating to these areas in search of better job opportunities. Similarly due to the increasing demand of agricultural labourers in the villages, increase in the intra regional migration too has been noticed in the region.

Majority of the persons living in the adjoining villages are engaged in the agricultural and other allied activities. But in last two decades the proportion of people engaged in non-agricultural activities has increased substantially. However, agricultural sector still account for the major share of workers for three different reasons i.e. Firstly, people who totally depend upon agricultural land; Secondly, people who are engaged in agricultural activities and partly depend on non-agricultural activities and finally people,
who have given their agricultural land on hire and are presently engaged in non-agricultural activities.

Villages close to urban areas like, Maharajpur, Matamar, Pipariya and Saliwara are well known for their developed and organised dairy units and poultry farming. The growing demand of milk and eggs, poultry farms and dairies have been established and are developing on the adjoining agricultural fields.

Change in occupation is one of the indices for assessing a change in the status of the people which has brought about a shift in the socio-economic status of people in and around the area. Villagers have not only been affected due to the occupational mobility caused by urbanisation but are also confronted by a variety of goods and services which city offers. There is a wide range of possibilities in which they choose to spend their income, being acquired through new economic gains.

Population of the region, fulfil its requirement and job opportunities through urbanisation as well as industrialisation, which has adversely effected the environment of the study region. Rapid and unplanned industrial growth is mainly responsible for the speedy transformation of the rural environment.

Urbanisation as well as industrialisation provides a way to demographic changes in the region. This not only creates new job opportunities which has been attracting people towards the urban areas of Jabalpur. But because of this there has been rapid increase
in the urban population due to large scale in migration from the nearby and distant rural as well as urban areas.

With these increase the population density and size of urban centres and of its adjoining villages has changed. The growth of population and the process of industrialisation has changed the urban as well as rural environment. Due to the expansion in the proportion of agricultural activities alongwith manufacturing has recorded an increase both in urban and rural areas.

Distribution of population in rural and urban areas of the study region has become very uneven. The collected data clearly shows a decline in rural population in last few decades i.e. 1961 to 2001. The unplanned growth of urban areas and the population has caused greater pressures on natural resources in few areas and this has caused the lowering of environmental quality and also the ecological imbalances.

Similarly ever increasing concentration of population in urban centres has created the existence and expansion of environmental pollution causing degradation. Increasing population in the urban areas has disturbed the available infrastructural facilities, quality of life, and the prevailing socio-cultural environment of the region.

In the urban areas and its adjoining villages growth of population, density of population, proportion of literates as well as of non-agricultural workers has increased. While in reference to the increasing distance from urban areas this proportion gradually declines.
Chapter VIII

Conclusion

The main reason for such increasing pattern of distribution is attributed to administrative activities, availability of adequate non-agricultural opportunities, developed education and medical facilities, developed trade, transport, commerce and communication related activities. They together have been attracting a large number of people, causing very high growth of population and rapid increase of population density in the study region. Availability of non-agricultural occupations has accelerated the immigration of educated people and also because of educational centre with diversified education facilities, it generates educational consciousness among the masses. With this fact the literacy rate has increased sharply in the region.

Further male population migrates from villages to urban areas and they leave their families in villages, that is why the sex ratio is low in urban areas, while it is high and very high in the native areas. Thus urban centre has a high concentration of population which creates several environmental problems. High growth of population creates unplanned growth of built up areas and houses, dumping of garbages, scarcity of drinking water, improper waste management which creates serious imbalances and disorders in the ecosystem of the urban area and its adjoining territories. Thus it has become necessary to check the growth of population, to improve the quality of life, living conditions and quality of environment as a total in the study region.

It has been observed that people residing in the adjoining villages have positively responded to the available employment
opportunities being offered by the city. While rural areas have their own limitations. Though the rural people opted for salaried jobs with minimum salaries making as they join most of the jobs as a helper or as unskilled workers in the industrial units or even as Chowkidar, peon, gardener and sweepers mostly in the private sector. It has been recorded that apart from other sectors commercial sector has a dominating share in offering the job opportunities in the potential areas to the rural people living in the fringe areas. Considering the availability of wide variety of opportunities some of the rural people have start working as wage earners doing few odd jobs while others are working as vendors, hawkers, barbers, and so on specially by the people belong to the low castes and also as the artisan castes in particular, who tend to take the initial steps in this direction.

A concomitant change that has occurred in most of the sample villages is that the villagers have start giving importance to education. As a result the proportion of children sent to the schools within and outside the villages has increased substantially. The upper castes, who do not want to be left behind too have start taking initiatives for higher education to their children with a hope that this will help in providing better jobs as office assistant and/or supervisory levels in the city.

The impact of urbanisation and occupational changes progresses steadily recorded that most families in the village have at least one member working in the Jabalpur urban area. In a region,
population engaged in agricultural activity as a main earning source, are less educationally qualified. Along with this, a new category of part-time farmers also emerged in the region and as a result of this actual farm worker's are slowly transformed as the landless labourers. Those who don't have their own land plays an important role in farming activities as well as other non-agricultural activities like dairy workers and labourers, etc. At the same time, women also contribute their share as agricultural worker and even as a constructional labourer.

As compared to rural boys the proportion of rural girls in school and even in job activities in Jabalpur city has been very less. The main reason behind this is that females have to take care of their families in the absence of males.

Some enterprising village families also venture into independent businesses in Jabalpur city, focusing on grocery or readymade garment stores, cycle repair shops, tea shops, etc. As time passes, the range of private enterprises widens to include almost every type of enterprise.

This stage marks a quantum jump in terms of the spatial mobility of the village population. The villages are invariably connected by city bus services, either as a terminal point or as an important transit point in the network area. Bicycles and motorcycles however, continue to play an important role as a popular mode of transport. The village economy is transformed in many ways. Shops having a variety of urban consumer goods are appear in the village itself. Radio, television, mobile phone and other electrical and household gadgets
are found in a good number in surrounding villages. There is a rapid increase in the number of bicycles, scooters and motor cycles, providing greater personal mobility. Dressing sense and even eating habits undergone various changes. Houses are rebuilt using cement and bricks as a main raw material. Maximum proportion of single storied houses are replaced by doubled storied and even three storied structures. The housing environment in study area has slightly improved with better furnishing and equipments but the basic amenities, such as water supply, sewage disposal and drainage facilities has recorded a minimum improvement. Apart from these in the villages sanitary conditions are hardly in evidence and as usual people expect the administration to improve the conditions.

The process transforming the rural environment has been a complicated interplay of shifts towards urbanisation, industrial structure, the character of economics and social organisation, change in the quality of life, changes of agricultural practices, and changes in the proportion of population engaged in agricultural activities which provide a key to economic growth. The expansion of Jabalpur urban area has influenced the rural environment both towards the development and modernisation and has caused degeneration and even degradation by polluting the rural environment.

**Problems**

During the fieldwork some of the areas have been identified as highly problematic areas and also noticed with emerging problems
which has caused and is causing more environmental hazards. Attempts have been made to understand and identify the problems being noticed during the field work mainly include -

With the growing population to meet the increasing demand for food and other requirements pressure on the agricultural land has been increasing in the study region. To have the maximum output from the available agricultural land, use of modern inputs and technologies has favourably yielded the positive results by giving better returns since last two decades. But with this certain environmental problems too have emerged in various parts of the study region. The rich agricultural land has gradually been degraded in Maharajpur, Saliwara, Pipariya and Kungwa sample villages due to the excessive use of irrigation, increasing use of polluted water for irrigation, imbalanced and excessive use of fertilizers and pesticides and improper use of modern machinery. Dumping of agricultural land too has resulted the decline of quality of land and their yields mainly in Kungwa, Pipariya, Saliwara and Maharajpur sample villages.

The room density represents a very diverse picture considering the size of the built up area in different sample villages clearly indicates that irrespective of the size of the houses room density is high specially among the villages located on the outer margins of the Jabalpur city and in those villages which are accessible with the urban centre through dependable fast transport. On the other hand most of these villages have start accommodating the population gradually using to these areas
comparing the cost of living and even the rent they have to pay. The villages located on the rural urban fringe of the study region have witnessed the increasing pressure on the available residential space. To meet the expanding demands of residential and/or commercial activities efforts have been by modifying or altering the available space by adding residential space and also by converting the residential space into commercial space. Due to change in front portions of old houses and inner part of houses, the available living space and the reduced size of room availability of sufficient light, fresh air and cross ventilation, living environment has been transformed and people are forced the compromise with these changes though the living conditions are adversely affected.

In the study region, it has been found that modern inputs are used in large scale mainly in close distance villages Maharajpur, Pipariya, Kungwa, Saliwara while villages exists at a distance from the urban area use modern inputs proportionately less. Emerging problem of labourers in the rural areas has forced the cultivators to use the agricultural implements and tractors for agricultural activities. The excessive and intensive ploughing of the land has enhanced the removal of the upper layer of productive soil. As a result decline in the agricultural fertility of soil, has become evident and ultimately decline in the capacity of the agricultural land has been noticed.

It has been reported by the residents of Maharajpur, Pipariya, Saliwara, Nimkhera, Umariya choubey and Kungwa sample villages
during the field work that as a result of dumping of urban wastes in and around the agricultural land not only the yields have been effected but quality of crops too has declined. Most of the farmers used this waste as manure and soils have been polluted. Finegrained particles of such wastes are gradually deposited on the agricultural land. In rainy season the decayed wastes mixed with rainy water or irrigation water percolates in to the lower layer of soil. Polythin, other harmful waste materials and products too are mixed with soil and generate harmful germs which adversely affect agricultural crops.

Use of polluted water alongwith the rain water the pollutants gradually reach to the lower layer of soil and slowly the rate of porosity in the soil starts declining.

Land is used for housing, industrial expansion, agriculture, transport and even for waste dumping and other basic needs supporting human life. Due to the growing human activities and their unplanned development, land has been affected more as compare to air and water. During the survey, it has been found that land is more affected and polluted by the various expanded both by industrial as well as agricultural activities.

In the study region excavation of land for brick kilns has badly altered, changed and modified the natural landscape in Matamar, Maharagipur, Kungwa, Pipariya, Saliwara and Nimkhera sample villages whereas in Suhagi, Imaliya and Kandrakheda villages, changes in landscape has been made due to the extraction and waste dumping activities.
Maximum problems have been reported which have been created due to the regular and disorderly dumping of urban and industrial wastes. Discharging of large quantity of solid as well as liquid industrial wastes at different points in the surrounding rural areas has been causing the land degradation. Waste dumping in the nearby agricultural fields is done in a very unplanned manner and is causing degradation of agricultural land. Land degradation can also be witnessed in and around the Maharajpur, Matamar, Pipariya, Kungwa, Saliwara and Nimkhera sample villages mainly due to the dumping of urban wastes.

A large amount of land is lost due to water logging and dumping of liquid wastes released by urban and industrial areas. In Maharajpur and Saliwara villages agricultural fields are logged with the urban sewage water. Such conditions are very common in the Jabalpur region mainly in the upcoming unplanned residential areas.

As a result not only land is polluted but also the adjoining water sources has been polluted as well as groundwater and become ideal conditions for spreading diseases and germs in Maharajpur, Saliwara, Kungwa, Matamar and Pipariya. The solid waste management the adjoining villages land and too has been badly affected. Though, the land is allotted and demarcated by the Nagar Nigam for the urban waste dumping, however additional areas are used as a dumping grounds in Maharajpur village. The shortage of available space mainly in Kungwa, Suhagi, Maharajpur, Piparia and out growth area of
Mandla road, Damoh road, Bheraghat road, Kundam road, Parihat river and Gour river, which are incompatible and are causing environmental problem. Insufficient landuse has also caused the degradation of land. These are the main contributing factors causing degradation of the rural environment. Some of the areas have been identified as incompatible and inefficient land use, and are causing serious environment problems.

Urbanisation and industrialisation in the agricultural land too has badly been affected. First of all the agricultural land of the region is being used for expanding non-agricultural uses. In Maharajpur, Pipariya, Saliwara, Kungwa Umariya Choubey and Nimkhera sample villages sizable land is being used for residential purposes, alongwith activities like dairy, poultry and brick kiln. Alongwith this in and around the urban areas the proportion of culturable waste land has increased. Secondly, the agricultural land of the region has been polluted due to water logging and inadequate facilities of irrigational facilities, which brings salts and minerals on the surface which gradually makes the sewage water dirty and pollute flowing through the urban area by the villagers of Saliwara, Maharajpur and Pipariya villages alongwith the few outgrowth area of the Jabalpur city, land has been polluted and growing crops are also been affected. Thirdly, due to the excessive and imbalanced used of chemical fertilizer of soil has been declining. In Khursi, Kukrikhedha, Chhitri Khurd and Pindrai sample villages fertilizers and pesticides are being used without and discrimination and the production is adversely affected.
Frequent and repeated use of pesticides by the farmers of the region, the germs and insects have become resistant. During the fieldwork it has also been found that most of the farmers living in the sample villages, have start using pesticides without assessing the need, type and quantity of the fertilizers and pesticides. This has caused and is causing harmful effects on the yield of crops, soil fertility, animals and residents.

Some of the sample villages located close to the city are frequently used as the dumping sites for the garbage and sewage related from the city. All obnoxious land uses relevant to the normal life of urban areas are pushed towards the city's outer limits and often into the fringe villages. The classic examples of such land uses include garbage dumps, water works, sewage disposal tanks and farms, butial and cremation ground, airport, timber yards, brick kilns and so on. The Maharajpur, Kungwa, Saliwara and Pipariya villages are often considered as the most suitable for the relocation of city slums. The noxious gases and the chemical effluents released by too are discharged in and around the Maharajpur village, which is also adversely effecting human life. The village people have on say that in these matters decisions are made by the planners, administrators in Jabalpur city.

**Suggestions**

This study is related with formation to urbanisation, reveals that study area has undergone some major transformation, which not only is causing degradation of natural environment but also has
become hazardous for the human health. To check all these problems some effective measures have to be adopted by local people at local level by the administration. To check, control and monitor these problems efforts at individual level as well as at community level, society, region or state are considered the best. Some of the important suggestions which works on practical basis are prevent land from land degradation and transformation of some important measures should be adopted by local government as well as state government for the study region. These are -

- Proper planning is required at the time of developing the residential colonies especially the provisions related to fresh air, sunlight, ventilation, waste dumping points must be incorporated backed by strict provisions to monitor the progress.

- To maintain the fertility of soil and harm from the use of chemicals use of composite manure should be encouraged, encouraged to use organic pesticides like Neem oil. These should be adopted specially in Maharajpur, Saliwara, Pipariya and Kungwa sample villages

- At the time of planning of colonies attention should be given towards development of garden/colonies as open space.

- Land filling and waste disposal areas have to be kept opposite to the residential area.

- Proper techniques for handling and disposal supported by equipments be used for hazardous wastes.
➢ Brick kilns have to be shifted away from the village area and provisions have to be made to protect the regular loss of agricultural land to fallow or waste land. This not only prevents agricultural soil but also will protect the surrounding fields from the air pollution caused by these kilns.

➢ In the study region dust bean should be used combinedly by some households according to their accessibility, which will properly be maintained i.e. regularly empty, disposal in dumping place etc.

➢ More attention have to be paid towards monitoring the location of dust disbursement which is suitable for the residential areas by the local self and state government.

➢ Proper drainage system should be provided in the region.

➢ Attention should be paid towards fuel used in vehicles.

➢ To prevent agricultural land from the water logging, low lying areas should be monitored and provide proper drainage system to be developed in the affected rural areas.

➢ Restoration of land lost due to extraction activities should be covered by bio-degradable urban as well as agricultural waste specially in Saliwara, Maharajpur and Kungwa sample villages. This not only will protect the land from pollution but will help in the conversion of wastes into manure.

➢ To prevent land from the hazardous impacts of pesticides and chemical fertilizers, biodegradable products and organic
agriculture should be promoted in rural areas. To plan for these issues help proper from the Agricultural College and Training Centres have to be obtained. So keeping these things in mind regular survey and farmers have to be properly trained.

➢ To prevent land from water logging in agricultural fields, drip irrigation or sprinkler should be encouraged, and provide subsidies in biodegradable products and in eco-friendly techniques.

➢ Transforming the features of agriculture land to accommodate poultry and dairy, need more attention. Poultry and dairy farms should be far from residential areas and separately from agricultural fields. Proper waste disposal facilities and drainage facilities should be provided by the state authorities and government.

➢ To prevent soil from erosion basically from farm activities, attention and farm processing training should be provided by the authorities. Proper education of farmers can control the level of transformation. Education gives knowledge to understand and to evaluate the present situation, keeping future in mind. So proper education should be provided to the farmers.

➢ Agricultural equipments should be properly monitors and develop according to present need.
Out growing centres and residential areas, needs proper planning. Before establishment basic amenities should be provided by the government.

At the time of using sewage water for irrigation purpose, it should be checked whether sewage water is usable or not.

Special waste disposal system like, waste incinerator, power production from waste or proper safety land filling are such important measures to check the impact of ever increasing urban waste.