Supplementary Report

To be included in

District Model Land Use Plans

By

Bimal Kumar

Sponsored By

State Land Use Board, Uttar Pradesh
Department of Planning, Government of U. P.
Yojana Bhawan, Lucknow – 226 001

G. B. Pant Social Science Institute
Jhusi, Allahabad – 211 019
Phone: (0532) 667214, 667206, Fax: (0532) 667206, E-mail: bimal1950@rediffmail.com

Inclusion of Master Plan of Big Cities in District Model Land Use Plans

In our study we had already discussed about the trend of increase in area under urban limits. Findings regarding selected districts are as follows:

Though Allahabad had been divided, the area under urban limits increased from 89 sq.km. in 1961 to 146.8 sq.km. in 1981. i.e. an increase of 64.94 per cent during two decades. The share of urban population has increased from 18.12 per cent in 1961 to 24.72 per cent in 2001.

Similarly Varanasi which had been divided twice, the area under urban limits increased from 116.6 sq.km. in 1961 to 157.7 sq.km. in 1981. i.e. an increase of 35.25 per cent during two decades.

The urban area of undivided Gorakhpur was 82.8 sq.km. in 1981, while the urban area under divided Gorakhpur is 195.1 sq.km. That is area under urban limits had increased by more than 135 per cent during the decade 1981-91.

Azamgarh had also been divided therefore true picture could only be inferred from increase in urban area during 1971-81. The area under urban limits increased from 21.8 sq.km. in 1971 to 68.5 sq.km. in 1981. i.e. an increase of 214.22 per cent during two decade. The share of urban population has increased from 5.21 per cent in 1971 to 7.16 per cent in 1991 and to 7.64 per cent in 2001.

The area under urban limits have also been increasing in Faizabad district. The area under urban limits increased from 66.8 sq.km. in 1971 to 100.01 sq.km. in 1991. i.e. an increase of 49.72 per cent during two decades.

Jhansi had also been divided, the area under urban limits increased from 91.5 sq.km. in 1961 to 131.4 sq.km. in 1991. i.e. an increase of 43.61 per cent during three decades.

While preparing land use plan for selected districts, we have taken these factors into consideration also.

As regards Master Plans for big cities, it may be mentioned that *we received master plans for only two cities viz. Allahabad and Azamgarh*.

According to master plan of Allahabad Land Use area during 1987 was 18,511.00 hectares, which was projected to increase to 21689.53 hectares in 2001.

Thus, an increase of 17.20 per cent in urban area was projected during 1987-2001. However, the actual urban sprawl had been much higher as many areas in the urban fringe have also grown as urban settlements loosing their rural characteristics. We have also mentioned about this trend in our report and made suggestions to regulate such expansions.

The master plan of Azamgarh shows that area under urban land use was 783.5 hectares in 1987, and a proposal was made to increase it to 1187.5 hectares in 2001, i.e. an increase of 51.56 per cent in city area was projected for the period 1987-2001.

Area under Urban Limits in the Selected Districts

(in sq.km.)

District	2001	1991 (After division)	1991 (Undivided)	1981	1971	1961
Allahabad	NA	116.2	150.00	146.8	93.9	89.2
Varanasi	NA	96.1	156.15	157.7	129.2	116.6
Gorakhpur	NA	-	195.1	82.8	42.5	42.5
Azamgarh	NA	-	38.95	68.5	21.8	21.9
Faizabad	NA	62.1	100.01	93.3	66.8	66.0
Jhansi	NA	-	131.04	121.7	105.9	91.5

In view of the above facts, we have made following suggestions our report on District Model Land Use Plans.

Regulation of Land Use at Urban Fringes

There is need to regulate land use at urban fringes. This could be done by setting up an Urban Fringe Development Authority. The UFDA could decide on the following:

(i) Conservation of green areas such as orchards, agriculture, social forestry and allied activities.

(ii) Development of water management and drainage system. Ponds and other water retention structures be revived. Any encroachment on such land should be identified and legal proceedings against encroachers be initiated.

(iii) The provisions made under Zamindari Abolition and Land Reforms Acts (specially section 143 and 154) and Consolidation of Holdings Act be used effectively to check diversion of agricultural land for non-agricultural purposes.

(iv) Heavy fine should be imposed (say ten times the cost of the land) in case of such diversion on the owner of the land.

(v) In addition to it, if the agricultural land had been sold then capital gain tax should be imposed on purchaser of the land. Because huge capital gain accrues to the builders who develop colonies in such land.

(vi) The first priority be given to development of social services in the fringe area which will include hospitals, educational centres, training centres for farmers and agro-based industries.

(vii) Barren and uncultivable land should be identified for development of micro-industrial estates and then for developing multistoried residential complexes which are land saving as well.

Besides urban fringes, there is need to restrict the rate of increase of area under land put to non-agricultural uses, in rural areas in general.

This could be made possible by adopting following steps.

(a) Discourage migration of people of nearby villages. This could be done by increasing transport facility and by improving road networks.

(b) Strengthen household industries of rural areas by providing them institutional support and market facilities.

(c) Develop green belt around city and any construction in the green belt area be strictly prohibited.

(d) Encourage multistory buildings and economic flats to weaker sections.

One important aspect of land put to non-agricultural uses is increasing number of residential houses. However, since population growth rate is faster, per person living area is decreasing. Even more disturbing factor is that per person open area in house premises is also declining. This is the trend in even rural areas. Hence space for community uses and common recreation places must be developed even in rural areas. In city planning we leave space for parks, playgrounds and recreation spots. Such planning should also be done for rural areas. Watershed management could then be linked with development of parks and recreation places. Some area could also be reserved for floriculture and horticulture.

Regulation of Land Use along Road Side

There has been a tendency to change land use along road side – specially national highways and state highways. Houses and shops are constructed or such land is put to even other non-agricultural uses. As a result of this contiguous effect leads to further expansion of settlements near highways and such places become accident prone. Therefore, there is need to regulate land use along roadside. Following measures could be adopted in this respect:

(i) A green strip be developed on both sides of road. Such green strip on each side should not be less than 10 meter wide.

(ii) Wherever, highways are connected with other roads, construction along side even such connecting roads be prohibited for a length of at least one kilometer.

(iii) Those who construct houses or buildings on agricultural lands along side road should be fined heavily (say ten times the cost of the land).

The rate of increase of area under the category of land put to non-agricultural uses could then be restricted to around 13.5 per cent of total reporting area by the year 2010.

We would also like to reproduce our suggestions made in chapter six of our report on Land Reforms and Effective Land Use Planning. This chapter discusses urbanisation and Conversions of Agricultural Land for Non-Agricultural Purposes.

Suggestions

(i) Land requirement norms should be evolved for expanding townships, and a detailed scheme for utilization of land to be acquired should also be prepared.

(ii) If the livelihood of the families whose land has been acquired is affected, then assistance for employment should also be provided by the acquiring agency. This assistance should be over and above the award of due compensation. Employment Guarantee Card should be provided to each affected family.

(iii) If the value of land appreciates after acquisition and the land acquiring agency reaps profit by allotting it to new users; then a part of profit should also be paid to the affected farmer.

(iv) Necessary support and credit should be provided to them so that they could take advantage of schemes which are specifically identified for them.

Framework for Urban Rural Balance

1. Fix critical limits for density of population as well as area of urban settlements for each city.

2. Once an urban settlement reaches a stage where density of population or the area crosses the critical limit, following steps be immediately taken up:

   (a) select markets/small townships which are 50 kilometers away from city limits and develop those townships with the facilities for i) higher education ; ii) big hospitals with facilities for specialised treatments; iii) sports and recreation centres; and iv)setting up of business and industrial complexes.

   (b) Provide all infrastructural (such as power, roads, communications etc.) facilities along with civic amenities.

(c) Develop a very efficient transport system from villages to these town ships on the one hand and from these small town ships to big cities on the other.

(d) If an agricultural land of prime quality is being acquired with the approval of the state legislature and gaon sabha for urban development, i) a levy must be imposed on such transfers and ii) 50 percent of the final sale proceed be transferred for “agricultural development fund” of that area.

(3) Three level planning cum administrative setup comprising state, region and block be developed for future planned development. Districts could remain nodal units for maintaining law and order and administration of justice. Decentralise most of the politic administration to the block level. Block level plans be formulated instead of district level plans in the area of health, education, manpower planning, irrigation, rural industrialisation, information and communication technology and for the energy sector. This could directly be linked with regional level planning cum administrative units.

(4) Plan dispersal of industries. Serious efforts should be made to develop industrial zones in least fertile and marginal lands.

(5) Housing schemes should be promoted at , as far as possible on barren and infertile land.

(6) Fast transportation system and efficient communication network should be developed to link each and every village.

1.1 District - Allahabad

The total area of Allahabad district reduced from 7261.00 sq.km. to 5437.20 sq.km. due to carving out of new districts.

The number of residential houses have been increasing at the rate of around 24 per cent or more per decade.

Though Allahabad had been divided, the area under urban limits increased from 89 sq.km. in 1961 to 146.8 sq.km. in 1981. i.e. an increase of 64.94 per cent during two decades. The share of urban population has increased from 18.12 per cent in 1961 to 24.72 per cent in 2001.

The decennial growth rate of population had been very high during the last three decades. This has resulted in the pressure of population on land.

The pressure on land in Allahabad continues to increase because a sizable work-force was found to be engaged in agricultural activities.

It was also found that whereas the proportion of agricultural labourers has increased during 1981-91, the proportion of workers in household industry and in other services have declined during the same period.

1.1.1 Land Use Plan Related to Agricultural Land

In Allahabad district the average size of landholding was 0.75 hectare as per the 1995-96 agricultural census and 91.43 per cent holdings belonged to the small and marginal farmers, while they accounted for only 57.25 per cent of total area under all landholdings.

The net sown area as percentage of total reporting area increased from around 64 per cent to above 67 per cent after 1994-95.

But the analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had been above 70.0 per cent during 2000-01 or during some past years. There were only 4 out of 20 blocks where net sown area had been low. These are Chaka, Karchana, Uroowa and Meja. Net sown area in Chaka was low because it is on the urban fringe. There is need to regulate land use on urban fringes. In other blocks net sown area could be increased through micro water shed management programmes.

The cropping intensity of the Allahabad district had almost consistently increased since 1960-61, and has increased to 157.3 during the period 2000-01.

The most important factor which has effected cropping intensity is irrigation.

The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 23.16 per cent in 1960-61 to 71.31 per cent in 2000-01. This trend was discernible in all the blocks of the district as well.

Furthermore, gross irrigated area as percentage of net irrigated area has also increased during the last twenty five years from around 118.46 in 1980-81 to around 162.8 in 2000-01 with fluctuating trends during intervening periods.

Canals and Tubewells are now the major sources of irrigation in Allahabad district, and account for more than 97 per cent of net irrigated area.

There is another aspect of analysis of sources of irrigation. The role of public sources continues to be very important. Because canals and government tubewells together account for more than 60 per cent of net irrigated area in the district. That means, public investment in irrigation will continue to play an important role in increasing gross irrigated area, which in turn would help in increasing the cropping intensity in many blocks of the district.

The cropping pattern in the district has vastly changed during the last 30 years.

The main crops viz. paddy, wheat and potato have witnessed large increases in their productivity also during the period 1960-61 to 1998-99.

Thus farmers have shifted to crops, which are highly irrigated, fertilizer use is higher on them and whose productivity is also comparatively very high.

1.1.2 Forest

The forest land was around 2.7 per cent of total reporting area during the period 1970-71 to 1997-98. Thereafter it increased to around 3.6 per cent. There are four blocks in the district where area under forest has some sizable proportion. These are: Shankargarh (10.23 per cent), Meja (9.16 per cent), Koraon (8.24 per cent) and Manda (13.75 per cent). The area under culturable waste was above 5.0 per cent of total reporting area in the following blocks: Kaurihar, Baharia, Phulpur, Bahadurpur, Chaka and Meja, while area under other fallow was above 5.0 per cent of total reporting area in Kaurihar, Shankargarh, Meja and Manda blocks.

The area under forest could be brought to around 5 per cent of total reporting area, if some part of the land under other fallow and some part of land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of fruit trees rather than timber linked growth of forests.

1.1.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been continuously increasing over the past 40 years. It was around 9.5 per cent during 1960-61 and has risen to around 12 per cent by the end of year 2000.

Land in this category has been steadily increasing. However, this increase is faster in blocks located at the urban fringe. Chaka is one such block where land put to non-agricultural uses is 21.22 per cent of the total reporting areas.

Besides Allahabad, there are nine townships in Allahabad district. These have also affected growth of land put to non-agricultural uses.

Besides these, there are some non-notified local markets. Land put to non-agricultural uses is also high in them. These include Kaurihar (16.91 per cent), Soraon (14.15 per cent) and Saidabad (14.02 per cent).

Uroowa is one block where proportion of land under category of land put to non-agricultural uses is very high because the area of the block is small and a large part of it is covered by rail and road network.

1.1.4 Barren and Unculturable Land

We hope that through these measures, area under barren and unculturable land could be reduced from 3.5 per cent to 1.0 per cent of reporting area in district Allahabad.

1.1.5 Culturable Waste

Currently area under culturable waste is 2.46 per cent of total reporting area. A part of it (say around 1.5 per cent) could be converted into social forestry and the rest i.e. around 0.9 per cent could be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pasture land and growing fodder.

1.1.6 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had been the first victim of population growth and conversion for other uses.

Land under this category could be increased by 1.0 per cent of total reporting area by converting 1.0 per cent of total reporting area under other fallow land for growing miscellaneous trees and groves. We propose this because we feel that it would be difficult to bring back all the other fallow land under cultivation.

1.2 District - Varanasi

The total area of Varanasi district reduced from 5092.00 sq.km. In 1991 to 1550.30 sq.km. in 2001 due to carving out of new districts.

The number of residential houses have been increasing at the rate of around 25 per cent or more per decade.

There were only two blocks in the district namely Pindara and Cholapur where the proportion of workers depending on agriculture was above 60 per cent. And these are the two blocks where workers engaged in secondary sector was less than 15 per cent.

The average size of landholding was 0.56 hectare as per the 1995-96 agricultural census, 95.1 per cent holdings belonged to the small and marginal farmers, while they accounted for only 69.4 per cent of total area under all landholdings.

1.2.1 Land Use Plan Related to Agricultural Land

After division of the district, the net sown area as percentage of total reporting area increased to around 75 per cent. This is so, because the blocks which have remained with Varanasi district had higher proportion of net sown area.

The analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had almost remained same and fluctuated within the range of two to three per cent during the last twenty years, i.e. Since 1980-81, barring the year 1995-96, which seems to be an exceptional year.

The cropping intensity of the Varanasi district had almost consistently increased since 1960-61 and has hovered around 150 during the period 1985-86 to 2000-01. The most important factor which has affected cropping intensity is irrigation. The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 51.91 per cent in 1975-76 to 78 per cent in 2000-01. This trend was discernible in all the blocks of the district as well.

Furthermore, gross irrigated area as percentage of net irrigated area has also increased during the last twenty five years from around 125 in 1975-76 to around 150 in 2000-01 with fluctuating trends during intervening periods.

Tubewell is now the dominant source of irrigation in Varanasi district, and accounts for more than 80 per cent of net irrigated area.

There is another aspect of analysis of sources of irrigation. Though tubewells have become dominant source of irrigation, the role of public sources continues to be very important. Because canals and government tubewells together account for more than 50 per cent of net irrigated area in most of the blocks. That means, public investment in irrigation will continue to play an important role in increasing gross irrigated area, which in turn would help in increasing the cropping intensity in these blocks.

The cropping pattern in the district has vastly changed during the last 30 years. The main crops viz. paddy, wheat, potato and sugarcane have witnessed very large increases in their productivity also during the period 1960-61 to 1998-99.

Thus farmers have shifted to crops, which are highly irrigated, fertilizer use is higher on them and whose productivity is also comparatively very high.

1.2.2 Forest

The forestland increased from around 14.5 per cent of total reporting area in 1960-61 to around 14.78 per cent by 1970-71. Thereafter in the next decade i.e. during 1971-1980, it

registered a further increase to around 15 per cent. The area under forest further increased to around 15.2 per cent by the end of eighties. This trend continued till around 1996.

The area under forest dropped to nill after that and is presently only 0.47 per cent of total reporting area. The area under forest could be brought to around 2 per cent of total reporting area, if some part of the land under other fallow and some part of land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of fruit trees rather than timber linked growth of forests.

1.2.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been continuously increasing over the past 40 years. It was around 8 per cent during 1960-61 and has risen to around 13.25 per cent by the end of year 2000.

The proportion of land put to non-agricultural uses is already very high in present Varanasi district. During the last two decades, it had increased by 2 per cent of reporting area per decade. With the forest area having virtually become nil, increase of land put to non-agricultural uses needs to be restricted severely. Failing which, it would not be possible to convert land available under other uses to bring under plantation.

1.2.4 Barren and Unculturable Land

Barren and unculturable land be used for further expansion of residential places, playgrounds and construction of building for common uses such as school or panchayat bhawan. It could also be used as Khalihan if it is nearby fields. And it could be used for cremation ground or graveyard if it is far away from habitation.

Thus, barren and unculturable land could be shifted for use as land put to non-agricultural purposes. Some part of it could also be used for developing as pasture and grazing land.

We hope that through these measures, area under barren and unculturable land could be reduced from 2.11 per cent to 1.0 per cent of reporting area in district Varanasi.

1.2.4 Culturable Waste

This is a category showing non-enterprise. To our mind, there should be no such category. If cultivation is not possible then it could be converted into area for social forestry or developed as pasture and other grazing land.

Currently area under culturable waste is 1.65 per cent of total reporting area. A part of it (say around 0.65 per cent) could be converted into social forestry and the rest i.e. around 1.0 per cent could be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pasture land and growing fodder.

1.2.6 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had been the first victim of population growth and conversion for other uses.

Land under this category could be increased by 1.0 per cent of total reporting area by converting 1.0 per cent of total reporting area under other fallow land for growing miscellaneous trees and groves. We propose this because we feel that it would be difficult to bring back all the other fallow land under cultivation.

1. 3 District - Gorakhpur

The total area of Gorakhpur district reduced from 6314.00 sq. km. In 1971 to 3397.00 sq. km. in 1981 due to carving out of new districts.

There had also been obvious changes in the number of residential houses and number of households during the last 40 years.

The number of residential houses have been increasing at the rate of more than 10 per cent per decade.

The urban area of undivided Gorakhpur was 82.8 sq.km. in 1981, while the urban area under divided Gorakhpur is 195.1 sq.km. That is area under urban limits had increased by more than 135 per cent during the decade 1981-91.

The decennial growth rate had been very high during the last three decades. This has resulted in the pressure of population on land.

The density of population of the district was as high as 750 persons per squire kilometre in 1991, which increase to 1140 persons per square kilometre in 2001.

The literacy rate increased from 19.8 per cent in 1971 to 43.3 per cent in 1991.

The pressure on land in Gorakhpur has remained very high because the work-force on agriculture remains high.

The high proportion of agricultural labourers shows that wage-workers were not able to get employment in secondary and tertiary sector.

Another feature of dependency on land is that while the share of cultivators among total workers has declined from 54.54 per cent in 1981 to 41.08 per cent in 1991, the

proportion of agricultural labourers has increased from 26.48 per cent in 1981 to 30.01 per cent in 1991.

1.3.1 Land Use Plan Related to Agricultural Land

In Gorakhpur district the average size of landholding was 0.58 hectare as per the 1995-96 agricultural census, 93.04 per cent holdings belonged to the small and marginal farmers, while they accounted for only 64.54 per cent of total area under all landholdings.

The net sown area of the district as percentage of total reporting area hovered around 77 per cent after 1996-97.

But the analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had almost remained same and fluctuated within the range of two to three per cent during the last twenty years, i.e. Since 1980-81, barring some exceptional years.

The cropping intensity of the Gorakhpur district had almost remained constant around 150 since 1980-81.

The most important factor which has effected cropping intensity is irrigation.

The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 62.78 per cent in 1980-81 to 74.89 per cent in 1999-2K. This trend was discernible in all the blocks of the district as well.

Furthermore, gross irrigated area as percentage of net irrigated area has increased very slowly during the last twenty years from around 105 in 1980-81 to around 110 in 1999-2K with fluctuating trends during intervening periods.

Tubewell is now the dominant source of irrigation in Gorakhpur district, and accounts for more than 90 per cent of net irrigated area.

There is another aspect of analysis of sources of irrigation. Though tubewells have become dominant source of irrigation, the role of public sources continues to be very important. Because canals and government tubewells together account for more than 50 per cent net irrigated area in most of the blocks. That means, public investment in irrigation will continue to play an important role in increasing gross irrigated area, which in turn would help in increasing the cropping intensity in these blocks.

The cropping pattern in the district has vastly changed during the last 30 years.

The main crops viz. paddy, wheat, potato and sugarcane have witnessed very large increases in their productivity also during the period 1960-61 to 1998-99.

Thus farmers have shifted to crops, which are highly irrigated, fertilizer use is higher on them and whose productivity is also comparatively very high.

1.3.2 Forest

The forestland fluctuated around 8.75 to 8.5 per cent of total reporting area during the period 1960-61 to 1989-90. Thereafter in the next four years i.e. during 1989-90 to 1993-94, declined and fluctuated around 6.3 per cent. The area under forest further decreased to around 1.72 per cent by 2000-01.

The area under forest dropped to nill after that and is presently only 1.72 per cent of total reporting area. The area under forest could be brought to around 3 per cent of total reporting area, if some part of the land under other fallow and some part of land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of fruit trees rather than timber linked growth of forests.

1.3.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been continuously increasing over the past 40 years. It was around 7.7 per cent during 1960-61 and has risen to around 12.25 per cent by the year 2000-01.

The proportion of land put to non-agricultural uses is already very high in present Gorakhpur district. During the last two decades, it had increased by 1.5 per cent of reporting area per decade. With the forest area having become very small, increase of land put to non-agricultural uses needs to be restricted severely. Failing which, it would not be possible to convert land available under other uses to bring under plantation.

1.3.4 Barren and Unculturable Land

Barren and uncultivable land in the district has increased from 0.52 per cent in 1960-61 to 1.21 per cent of total reporting area in 2000-01. This trend needs to be reversed.

Barren and unculturable land can be used for further expansion of residential places, playgrounds and construction of building for common uses such as school or panchayat bhawan. It could also be used as Khalihan if it is nearby fields. And it could be used for cremation ground or graveyard if it is far away from habitation.

Thus, barren and unculturable land could be shifted for use as land put to non-agricultural purposes. Some part of it could also be used for developing as pasture and grazing land.

We hope that through these measures, area under barren and unculturable land could be reduced from 1.21 per cent to 0.5 per cent of reporting area in district Gorakhpur.

1.3.5 Culturable Waste

This is a category showing non-enterprise. To our mind, there should be no such category. If cultivation is not possible then it could be converted into area for social forestry or developed as pasture and other grazing land.

Currently area under culturable waste is 1.03 per cent of total reporting area. A part of it (say around 0.50 per cent) could be converted into social forestry and the rest i.e. around 0.53 per cent could be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pasture land and growing fodder.

1.3.6 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had been the first victim of population growth and conversion for other uses. Area under this category declined from 3.11 per cent of total reporting area in 1960-61 to 0.45 per cent in 2000-01.

Land under this category could be increased by 1.0 per cent of total reporting area by converting 1.0 per cent of total reporting area under other fallow for growing miscellaneous trees and groves.

1.4 District - Azamgarh

The total area of Azamgarh district reduced from 5740.00 sq.km. in 1981 to 4234.00 sq.km. in 1991 due to carving out of new districts.

There had also been obvious changes in the number of residential houses and number of households during the last 40 years.

The number of residential houses increased from 367128 in 1961 to 393898 in 1971, which shows an increase of 7.29 per cent during the decade. The trend in the increase of residential houses increased to 23.41 per cent during decades 1971-81 and 1981-91.

Thus the number of residential houses have been increasing at the rate of around 24 per cent or more per decade.

Azamgarh had been divided therefore true picture could only be inferred from increase in urban area during 1971-81. The area under urban limits increased from 21.8 sq.km. in 1971 to 68.5 sq.km. in 1981. i.e. an increase of 214.22 per cent during two decade. The share of urban population has increased from 5.21 per cent in 1971 to 7.16 per cent in 1991 and to 7.64 per cent in 2001.

The population pressure started to increase on agriculture since 1931. The decennial growth rate of population had been very high during the last three decades.

It could also that whereas the proportion of agricultural labourers has marginally increased during 1981-91, the proportion of workers in household industry and in other services have declined during the same period.

1.4.1 Land Use Plan Related to Agricultural Land

In Azamgarh district the average size of landholding was 0.56 hectares as per the 1995-96 agricultural census and 95.18 per cent holdings belonged to the small and marginal farmers, while they accounted for only 72.28 per cent of total area under all landholdings.

The net sown area as percentage of total reporting area varied around 75.0 per cent till 1989-90, and thereafter declined to around 72.0 per cent during the decade 1990-91 to 1999-2K.

But the analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had been around or above 70.0 per cent during 2000-01 or during some past years.

The cropping intensity of the Azamgarh district had almost consistently increased since 1960-61, and has increased to 163.26 during the period 2000-01.

The most important factor which has affected cropping intensity is irrigation.

The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 50.38 per cent in 1960-61 to 88.33 per cent in 2000-01. This trend was discernible in all the blocks of the district as well.

However, gross irrigated area as percentage of net irrigated area has increased slowly during the last twenty five years from around 108.82 in 1980-81 to around 127.45 in 1999-2K which shows, it is still low.

Tubewells are now the major sources of irrigation in Azamgarh district, and account for 80.0 per cent of net irrigated area.

The cropping pattern in the district has vastly changed during the last 30 years.

The main crops viz. paddy, wheat and sugarcane have witnessed large increases in their productivity also during the period 1960-61 to 1998-99.

Thus farmers have shifted to crops, which are highly irrigated, fertilizer use is higher on them and whose productivity is also comparatively very high.

1.4.2 Forest

The forestland had been almost non-existent in the district. It has varied between 0.02 per cent to 0.04 per cent of total reporting area. There are scattered trees and bushes in some areas. The source of hope is that there are a number of commonest trees in the district which are all to be found singly or in clumps around the village sites or in the fields. Hence micro forests could be developed in or around villages.

The area under micro forests could be increased, if some part of the land under other fallow and some part of land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of fruit trees rather than timber linked growth of forests.

1.4.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been continuously increasing over the past 40 years. It was around 9.0 per cent during 1960-61 and has risen to around 12.6 per cent by the end of year 2000.

Land in this category has been steadily increasing. However, this increase is faster in blocks where small markets have also grown over time. There were three blocks in the district, where land under this category was found to be high. These are: Maharajganj (17.91 per cent) Harraiya (16.03 per cent) and Palhani (15.54 per cent).

1.4.4 Barren and Unculturable Land

Area under barren and unculturable land has declined from 4.4 per cent in 1960-61 to 1.69 per cent in 2000-01. Barren and unculturable land could be used for further expansion of residential places, playgrounds and construction of building for common uses such as school or panchayat bhawan. It could also be used as Khalihan if it is nearby fields. And it could be used for cremation ground or graveyard if it is far away from habitation.

Thus, barren and unculturable land could be shifted for use as land put to non-agricultural purposes. Some part of it could also be used for developing as pasture and grazing land.

We hope that through these measures, area under barren and unculturable land could be reduced by 1.0 per cent of reporting area in district Azamgarh.

1.4.5 Culturable Waste Land

This is a category showing non-enterprise. To our mind, there should be no such category. If cultivation is not possible then it could be converted into area for social forestry or developed as pasture and other grazing land.

Currently area under culturable waste is 1.45 per cent of total reporting area. A part of it could be converted into social forestry and the rest could be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pastureland and growing fodder.

1.4.6 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had changed little in the district.

Land under this category could be increased by 1.0 per cent of total reporting area by converting 1.0 per cent of total reporting area under other fallow land for growing miscellaneous trees and groves. We propose this because we feel that it would be difficult to bring back all the other fallow land under cultivation.

1.5 District - Faizabad

The total area of Faizabad district reduced from 4511.00 sq.km., in 1981 to 2643.20 sq.km., in 1991 due to carving out of new district.

There had also been obvious changes in the number of residential houses and number of households during the last 40 years.

The number of residential houses have been increasing at the rate of around 18 per cent or more per decade.

The area under urban limits have also been increasing. The area under urban limits increased from 66.8 sq.km. in 1971 to 100.01 sq.km. in 1991. i.e. an increase of 49.72 per cent during two decades.

The decennial growth rate had been very high during the last three decades. This has resulted in the pressure of population on land.

The pressure on land in Faizabad has remained high because a sizable work-force was found to be engaged in agriculture.

The large proportion of agricultural labourers shows that even wage employment in secondary and tertiary sector was limited in the district. This is evident from the fact that number of workers engaged in households industry was 1.96 per cent while those engaged in other than households industry was 3.44 per cent. The number of workers engaged in trade and commerce and other services was 3.44 per cent and 10.18 per cent.

1.5.1 Land Use Plan Related to Agricultural Land

In Faizabad district the average size of landholding was 0.6 hectare as per the 1995-96 agricultural census, 95.7 per cent holdings belonged to the small and marginal farmers, while they accounted for only 76.0 per cent of total area under all landholdings.

The net sown area as percentage of total reporting area varied to around 67 to 71 per cent during 1960-61 to 1998-99.

But the analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had almost remained same and fluctuated within the range of two to three per cent during the last twenty years, i.e. since 1980-81.

The cropping intensity of the Faizabad district had almost consistently increased since 1960-61 till around 1990-91, and has hovered around 160 after the period 1990-91.

The most important factor which has effected cropping intensity is irrigation.

The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 49.32 per cent in 1960-61 to 83.8 per cent in 1999-2K. This trend was discernible in all the blocks of the district as well.

Furthermore, gross irrigated area as percentage of net irrigated area has also increased during the last twenty five years from around 118.2 in 1980-81 to around 163 in 1998-99.

Tubewell is now the dominant source of irrigation in Faizabad district, and accounts for more than 88 per cent of net irrigated area.

The cropping pattern in the district has vastly changed during the last 30 years.

The main crops viz. paddy, wheat, potato and sugarcane have witnessed very large increases in their productivity also during the period 1960-61 to 1998-99.

Thus farmers have shifted to crops, which are highly irrigated, fertilizer use is higher on them and whose productivity is also comparatively very high.

1.5.2 Forest

The forest area in the district has been very small. It has been less than 1.0 per cent during most of the years, barring the period 1988-89 to 1991-92.

The area under forest dropped to 0.28 per cent after that and started increasing after 1997-98. It was 1.43 per cent of total reporting area in 2000-01. The area under forest could be brought to around 2.0 per cent to 2.5 per cent of total reporting area, if some part of the land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of fruit trees rather than timber linked growth of forests.

1.5.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been continuously but slowly increasing over the past 40 years. It was around 11.5 per cent during 1960-61 and has risen to around 13.25 per cent by the end of year 2000.

The proportion of land put to non-agricultural uses is already high in present Faizabad district. Increase of land put to non-agricultural uses needs to be restricted severely. Failing which, it would not be possible to convert land available under other uses to bring under plantation.

1.5.4 Barren and Unculturable Land

The area under barren and unculturable land was 2.54 per cent during 1960-61 and declined to 1.98 per cent in 2000-01. Barren and unculturable land could be used for further expansion of residential places, playgrounds and construction of building for common uses such as school or panchayat bhawan. It could also be used as Khalihan if it is nearby fields. And it could be used for cremation ground or graveyard if it is far away from habitation.

Thus, barren and unculturable land could be shifted for use as land put to non-agricultural purposes. Some part of it could also be used for developing as pasture and grazing land.

We hope that through these measures, area under barren and unculturable land could be reduced from 1.98 per cent to 1.0 per cent of reporting area in district Faizabad.

1.5.5 Culturable Waste

Area under this category of land had slowly and haltingly declined from 4.82 per cent in 1960-61 to 1.64 per cent of total reporting area in 2000-01. This is a category showing non-enterprise. To our mind, there should be no such category. If cultivation is not possible then it could be converted into area for social forestry or developed as pasture and other grazing land.

Currently area under culturable waste is 1.64 per cent of total reporting area. A part of it (say around 1.0 per cent) could be converted into social forestry and the area which cannot be converted into forest should be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pasture land and growing fodder.

1.5.6 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had been the first victim of population growth and conversion for other uses. It has reduced from 7.06 per cent of total reporting area in 1960-61 to 3.16 per cent in 2000-01.

Land under this category could be increased by 1.0 per cent to 2.0 per cent of total reporting area by converting 1.0 per cent to 2.0 per cent of total reporting area under other fallow for growing miscellaneous trees and groves.

1.6 District - Jhansi

The total area of Jhansi district reduced from 10069.00 sq.km. in 1971 to 5024.00 sq.km. in 1981 due to carving out of new district.

There had also been obvious changes in the number of residential houses and number of households during the last 40 years.

The number of residential houses have been increasing at the rate of around 25 per cent or more per decade. Though this is an obvious off shoot of increase in population, it will have serious implication for land use planning during the coming decades. These implications would have two aspects. One, more and more land would be brought under the category 'land put to non-agricultural purposes'. Secondly, planning for housing in both urban and rural areas will have to be given serious thought such as:

(i) how land saving devices could be adopted;

(ii) how civic amenities could be provided;

(iii) what kind of infra-structural facilities will be needed to be developed; and

(iv) what kind of common use facilities will be required to be developed.

The area under urban limits have also been increasing. Though Jhansi had been divided, the area under urban limits increased from 91.5 sq.km. in 1961 to 131.4 sq.km. in 1991. i.e. an increase of 43.61 per cent during three decades.

The decennial growth rate of population had been very high during the last four decades. This has resulted in the pressure of population on land.

The density of population of the district was only 285 persons per squire kilometre in 1991.

The pressure on land in Jhansi has not mitigated because a sizable work-force continued to be engaged in agricultural sector.

The low proportion of agricultural labourers shows that wage-workers could get employment either in secondary or in tertiary sector.

However in rural areas workers were predominantly engaged in agricultural activities as cultivators and agricultural labourers constituted 65.29 per cent and 20.72 per cent respectively. This trend was discernible in all the blocks of the district.

1.6.1 Land Use Plan Related to Agricultural Land

In Jhansi district the average size of landholding was 1.74 hectares as per the 1995-96 agricultural census, 73.9 per cent holdings belonged to the small and marginal farmers, while they accounted for only 37.2 per cent of total area under all landholdings.

The net sown area as percentage of total reporting area has hovered around 62.0 per cent since 1975-76.

But the analysis of block-wise net sown area shows that in most of the blocks the proportion of net sown area had almost remained same and fluctuated within the range of two to three per cent during the last twenty years, i.e. Since 1980-81, except few blocks.

The cropping intensity of the Jhansi district had increased little since 1960-61, and has increased from 114 in 1980-81 to 119 in 2000-01.

The most important factor which has effected cropping intensity is irrigation. Cropping intensity had been low because of low irrigation.

The irrigation intensity i.e. net irrigated area as percentage of net sown area has increased from 24.68 per cent in 1975-76 to 56.1 per cent in 1999-2K. This trend was discernible in all the blocks of the district as well.

But the gross irrigated area as percentage of net irrigated area has not increased during the last twenty five years. It has been around or less than 103 during most of the periods.

Canals and other wells have been the major source of irrigation in Jhansi district.

There is another aspect of analysis of sources of irrigation. The role of public sources continues to be very important in increasing irrigation. Because canals and government efforts for harvesting surface water are crucial. That means, public investment in irrigation will continue to play an important role in increasing gross irrigated area, which in turn would help in increasing the cropping intensity in these blocks.

The cropping pattern in the district has vastly changed during the last 30 years.

The main crops are now wheat, gram, peas, urd, masur and groundnut.

We need to make efforts to increase production of more pluses, oilseeds and spices. Cropping rotation also needs to be changed. Following steps are imperative to achieve it.

(a) More thrust be given for developing high yielding varieties for these crops.

(b) Rain fed areas should be encouraged to cultivate these crops.

(c) Orchards, fallow land and land under social forestry could be used for growing such crops.

(d) Processing industries of oilseeds and spices be promoted at local level with support for technology up gradation, packaging and market access facilities.

Use of fertilizer had been increasing in all the blocks. But their balanced and proportionate application has not been reported.

There is need to adopt following strategy to combat this menace:

(a) Circulate guidelines for each gram-panchayat-on the basis of soil-testing – the proportion of fertilizer which is required to be applied.

(b) Farmers meeting be organised at village level before every cropping season to make them aware about such guidelines.

(c) Farmers be also informed about hazardous impact of non-proportionate application of urea.

(d) Government functionaries, specially at the gram-panchayat level be sensitised regarding these aspects.

The extent of mechanisation has increased in the district. The number of tractors, sowing machine, sprayers, threshing machine etc. have increased, while the number of Wood Plough have decreased during the last 20 years.

The trend of increasing mechanisation despite the fact that average size of landholdings has been decreasing indicates a new type of resource sharing in rural area. Those who cannot afford to purchase the machine, hire its services. Be it irrigation water, tractor, thresher or any other machine, their services are being hired by those who cannot

afford to purchase or maintain them. Very poor farmers do not keep draught animals and hire services of new machines because they cannot afford to feed draught animals throughout the year.

Tenancy and share cropping was found in our survey in selected villages of the district. Thus sharing of land resource as well as services of machines indicates emergence of a new type of land-labour-capital relations.

Livestock plays two types of roles in rural economy. One it provides draught animals or for pulling carts. Secondly it generates income through animals products, which has serious implications for diversification of rural economy.

But the size of livestock has also a serious bearing on land use. The increase in livestock would mean that more land under pasture will be required, as well as more fodder will be required.

Another fall-out of growing urbanisation and increase in extent of mechanisation has been drastic decline in the number of livestock in Jhansi district. That number of all animals in the district have declined excepting those of pig and poultry.

Agricultural Production System and Framework for Land Use Plan

It was found that the majority of land owners who leased out their land belonged to medium, small or marginal farmers. The fact that even small and marginal farmers were leasing out their land, revealed two trends - one, in case of uneconomic holdings farmers want to search other opportunities and will be content to get the market rent for their land yet they would prefer to retain the land instead of selling it out right. Moreover, the new generation, if educated seeks jobs in cities, and prefers to lease out the land. The other aspect was in regard to changing relationship. The exploitative relationship between tenant/share cropper and the land lord is fast changing. It is now purely an economic arrangement of mutual interests. Small and marginal farmers also lease-out land to other small and marginal farmers. Thus enterprising farmers are continuing agricultural activities by pooling resources from fellow farmers, while some other farmers are trying to make efforts in non-agricultural activities also.

Thus the new form of economic arrangement under tenancy was giving way to emergence of new enterprising farmers who were seeking ways to pool resources for higher productivity and application of new technology.

Dependency relationship based tenancy was declining because not many cultivators wanted to be tied up for the whole of year with some small parcel of land which they did not own, and further depend on the landlord for resources and credit. Landless or near landless people also now want to keep options open for seeking job elsewhere as well. So they preferred to work as casual agricultural labour during peak periods rather than working as an attached labour or as a tenant.

On the other hand leasing-out by small farmers was on the increase because many small farmers wanted to get job outside agriculture and at the same time wanted some income from their land also. This was possible only by leasing-out land to fellow farmers at

mutually agreed terms. This kind of tenancy was free from both the dependency and exploitative relationship.

Sharing of machines and equipments was also found to be widely prevalent among farmers of this district. It was found that almost all farmers owning agricultural machines and equipments hired out or shared their services with other farmers. Many agricultural tools were also found to be shared among farmers on the exchange basis.

Factors Inhibiting Growth

The immediate factors which inhibited growth among small and marginal farmers were: lack of resources, capital deficiency and lack of facility to sell at remunerative prices. The other factors included the problems of water logging, floods, drying of canals during summer, etc.

Framework for Agricultural Growth

Among small and marginal farmers, agricultural productivity is hampered by poor logistical support and weak infrastructure. If food production is to be increased in a sustainable way, these deficiencies must be corrected and favourable economic framework for agriculture should be evolved. Such actions need to be backed up by practices aimed at maintaining or enhancing fertility and productivity.

The first step is to protect the best land for agriculture. In view of the scarcity of high quality arable land and the rising demand for food and other agricultural products, the land that is most suitable for crops should be reserved for agriculture. Government should map and monitor the more productive areas of farm land and adopt planning and zoning policies to prevent the loss of prime land to urban settlements. Village Land Management Committee and local authorities should be entrusted with responsibility to ensure that these policies are implemented in their areas.

It was also found that the immediate factors which inhibited growth among small and marginal farmers were lack of resources, capital deficiency and lack of facility to sell at remunerative prices. The most important factor which could become basis for future restructuring of agricultural production system related to tenancy. It was found the majority of land owners who leased out their land (without entering into any written or formal contract) belonged to the category of medium, small or marginal farmers. This was for two reasons – one in case of uneconomic holdings, farmers wanted to search other opportunities and would be content to get the market rent for their land. Yet they would prefer to retain the land instead of selling it outright. The other aspect was in regard to non-exploitative nature of relationship between the lessor and the lessess. It is now purely an economic arrangement in which small and marginal farmers are also leasing out land to other small and marginal farmers. Thus enterprising farmers are continuing agricultural activities by pooling resources from fellow farmers, while some other farmers are seeking opportunities in non-agricultural activities also. Thus the new form of economic arrangement was giving way to pooling of resources by enterprising farmers, while other farmers who were leasing out their land were treating their land as a share capital for which they will receive the rent as well as the share in profit. The

process of pooling of resources was further strengthened by a simultaneous process of sharing of machines and equipments. it was found that almost all farmers owning agricultural machines and equipments hired out or shared their services with other farmers.

It seems to us that a limited restructuring of the production process in agriculture can be such that it serves the interests of small and marginal farmers and at the same time protects wider interests of the farming community.

One major step in this direction would be to allow formation of Collective Farming Society and Confederation of Farming Societies. In the collective farming society framework, tenancy to such farming societies could be permitted under specified conditions. In particular such societies may be formed of small and marginal farmers for a complete package of inputs, and it may then be permissible for any member of such a society to lease out land to the society or to any other member of the society.

At the next level, a confederation of such Collective Farming Societies could be formed which will work as service societies. These confederations would provide high cost machinery and equipments to Collective Farming Societies on rent. The idea essentially is that it should be possible to increase number of viable farms by permitting some of the non-viable farmers to go out of agricultural business and seek other jobs and economic opportunities. This should on the one hand, improve productivity of labour on the expanded farms and on the other aid in much needed shift of labour away from agriculture.

Collective Farming Society

1. Collective farming units be allowed to be registered under a separate Collective Farming Society Registration Act.
2. Only small and marginal farmers be allowed to become members of such a society.
3. The number of members of a society should not be above twenty and below five.
4. Those who become members of such a collective farming society will be allowed to lease out their land to the society for a minimum of ten years on a fixed annual rent.
5. A collective farming society will not bring under its purview more than ten hectares of irrigated land.
6. A collective farming society will be allowed to pool its resources on hire or through raising capital from its members.
7. The produce will be shared among members in proportion to the share amount of each member.
8. The share amount of each member will be the weighted sum of (a) money invested under capital raising scheme plus, (b) the amount fixed as annual rent for the land leased out to the society, (c) operational holdings of actual cultivators.

Confederation of Collective Farming Societies

For storage facilities, providing transportation facilities and to work as marketing syndicates of farming societies, a confederation of ten to twenty corporate farming societies be allowed to be formed.

These confederations will work in the following areas:

1. Marketing of agricultural goods at national and international level.

2. Provide transportation and storage facilities to Collective Farming Societies against such stored goods.
3. Function as cushions against speculative prices.
4. The confederation will also act as counselling centre for farmers projecting the production and demands of each agricultural commodity for the next two years.
5. Provide high costing tools and machines to Collective Farming Societies for land levelling, soil testing, land reclamation and other activities related to land and water management on rental basis.
6. Help in technological innovations and in increasing productive efficiency.

District Level Analysis of Land Use Pattern and Land Use Plan (Other than Agricultural Land)

Our focus in preparing land use plan has been four fold –

(i) Agricultural land should not be transferred for use to other purposes.

(ii) Maximum area should not be brought under vegetative cover i.e.

(a) Increase forest

(b) Increase area under miscellaneous trees and groves.

(c) Increase area under pasture and grazing land.

(iii) Use culturable waste and other fallow land for such purposes. Therefore, efforts should be made to convert land under these categories into forest, orchards or grazing land.

(iv) Barren and unculturable land be used for constructing buildings or infra-structural facilities.

1.6.2 Forest

The forest land only marginally increased from around 6.43 per cent of total reporting area in 1973-74 to around 6.74 per cent by 2000-01. Earlier the area under forest was around 10.0 per cent till 1972-73.

The area under forest could be brought to around 2 per cent of total reporting area, if some part of the land under culturable waste is brought under forest. This could be done by forming Joint Forest Management Committees consisting of plant growers from poor peasantry class and representatives of forest department and land use committee. A cell should be formed to provide them the financial support and infra-structural support so that they could get suitable plants, methods to protect them and finally marketing of forest produce.

Secondly, development of such forests should be linked with watershed management in the area. For this purpose an area of 500 hectares to 1000 hectares should be choosen as unit for micro-watershed management.

This would include (i) construction of water retention structures (ii) clearing and desilting of natural courses of drainage systems and (iii) restoration/reconstruction of ponds/ tanks in totally barren lands or low lying lands.

Thirdly programmes like Pradhan Mantri Rojgar Yojana etc. should be now utilised for construction of bundhis, management of wild resources including fisheries, drainage maintenance and enhancement etc.

Fourthly, more emphasis will have to be laid on energy plantation which would provide fuel wood besides growing of trees fruit trees rather than timber linked growth of forests.

Private Micro Forests

Private micro forest is different from orchards, as orchards generally comprise fruit bearing plants. The concept of private micro forest envisages that private individuals could also grow various varieties of plants. We have in the past found that eucalyptus had been grown in private land because it was expected to fetch good amount. The private waste land could also be used for growing timber, energy plants, etc. This could also be linked with purification of surroundings. For this purpose plants related to different planets (Navgrah) and different Nakshatra which are 27 in numbers could be planted as per specified arrangement.

Even plants with medicinal value could be grown in such land if people could be informed about their medicinal and commercial value.

1.6.3 Land Put to Non-agricultural Uses

Area under land put to non-agricultural uses has been slowly but continuously increasing over the past 40 years. It was around 5.0 per cent during 1960-61 and has risen to around 8.2 per cent by the end of year 2000.

The proportion of land put to non-agricultural uses is not very high in present Jhansi district. But since barren and uncultivable land is also quite sizable need for further land for non-agricultural uses could be met from this category of land. However, measures to keep such land under limits must be taken in advance.

This could be made possible by adopting following steps.

(a) Discourage migration of people of villages nearby towns. This could be done by increasing transport facility and by improving road networks.

(b) Strengthen household industries of rural areas by providing them institutional support and market facilities.

(c) Develop green belt around city and any construction in the green belt area be strictly prohibited.

One important aspect of land put to non-agricultural uses is increasing number of residential houses. However, since population growth rate is faster, per person living area is decreasing. Even more disturbing factor is that per person open area in houses premises is also declining. This is the trend in even rural areas. Hence space for community uses and common recreation places must be developed even in rural areas. In city planning we leave space for parks, playgrounds and recreation spots. Such planning should also be done for rural areas. Watershed management could then be linked with development of parks and recreation places. Some area could also be reserved for floriculture and horticulture.

The rate of increase of area under the category of land put to non-agricultural uses could then be restricted to around 10.0 per cent of total reporting area by the year 2010.

Regulation of Land Use at Urban Fringes

There is need to regulate land use at urban fringes. This could be done by setting up an Jhansi Urban Fringe Development Authority. The UFDA could decide on the following:

(i) Conservation of green areas such as orchards, agriculture, social forestry and allied activities.

(ii) Development of water management and drainage system. Ponds and other water retention structures be revived. Any encroachment on such land should be identified and legal proceedings against encroachers be initiated.

(iii) The provisions made under Zamindari Abolition and Land Reforms Acts (specially section 143 and 154) and Consolidation of Holdings Act be used effectively to check diversion of agricultural land for non-agricultural purposes.

(iv) Heavy fine should be imposed (say ten times the cost of the land) in case of such diversion on the owner of the land.

(v) In addition to it, if the agricultural land had been sold then capital gain tax should be imposed on purchaser of the land. Because huge capital gain accrues to the builders who develop colonies in such land.

(vi) The first priority be given to development of social services in the fringe area which will include hospitals, educational centres, training centres for farmers and agro-based industries.

(vii) Barren and uncultivable land should be identified for development of micro-industrial estates and then for developing multistoried residential complexes which are land saving as well.

Besides urban fringes, there is need to restrict the rate of increase of area under land put to non-agricultural uses, in rural areas in general.

This could be made possible by adopting following steps.

(a) Discourage migration of people of nearby villages. This could be done by increasing transport facility and by improving road networks.

(b) Strengthen household industries of rural areas by providing them institutional support and market facilities.

(c) Develop green belt around city and any construction in the green belt area be strictly prohibited.

(d) Encourage multi-storey buildings and economic flats to weaker sections.

One important aspect of land put to non-agricultural uses is increasing number of residential houses. However, since population growth rate is faster, per person living area is decreasing. Even more disturbing factor is that per person open area in house premises is also declining. This is the trend in even rural areas. Hence space for community uses and common recreation places must be developed even in rural areas. In city planning we leave space for parks, playgrounds and recreation spots. Such planning should also be done for

rural areas. Watershed management could then be linked with development of parks and recreation places. Some area could also be reserved for floriculture and horticulture.

Regulation of Land Use along Road Side

There has been a tendency to change land use along road side – specially national highways and state highways. Houses and shops are constructed or such land is put to even other non-agricultural uses. As a result of this contiguous effect leads to further expansion of settlements near highways and such places become accident prone. Therefore, there is need to regulate land use along roadside. Following measures could be adopted in this respect:

(i) A green strip be developed on both sides of road. Such green strip on each side should not be less than 10 meter wide.

(ii) Wherever, highways are connected with other roads, construction along side even such connecting roads be prohibited for a length of at least one kilometer.

(iii) Those who construct houses or buildings on agricultural lands along side road should be fined heavily (say ten times the cost of the land).

The rate of increase of area under the category of land put to non-agricultural uses could then be restricted to around 13.5 per cent of total reporting area by the year 2010.

1.6.4 Barren and Unculturable Land

Barren and unculturable land be used for further expansion of residential places, playgrounds and construction of building for common uses such as school or panchayat bhawan. It could also be used as Khalihan if it is nearby fields. And it could be used for cremation ground or graveyard if it is far away from habitation.

Thus, barren and unculturable land could be shifted for use as land put to non-agricultural purposes. Some part of it could also be used for developing as pasture and grazing land.

We hope that through these measures, area under barren and unculturable land could be reduced from 2.11 per cent to 1.0 per cent of reporting area in district Jhansi.

1.6.5 Culturable Waste

This is a category showing non-enterprise. To our mind, there should be no such category. If cultivation is not possible then it could be converted into area for social forestry or developed as pasture and other grazing land.

Currently area under culturable waste is 1.65 per cent of total reporting area. A part of it (say around 0.65 per cent) could be converted into social forestry and the rest i.e. around 1.0 per cent could be developed as pasture and other grazing land. At some places, such land could also be used for fodder cultivation – specially those areas, which are owned by private individuals.

Support should be provided for developing pasture land and growing fodder.

Culturable Waste along River Side

Jhansi had two major rivers and many tributories flowing through it. The patches of land along side these rivers are undulating and at some places with high mounds. These

areas could be developed as reserved forest strips with one to two kilometers' width. Plant varieties which suit the local soils could be grown in these reserved forest strips.

Development of these reserved forest strips should also be linked with river water pollution control systems. It means that water which goes through drainage courses and which meets these rivers should be treated before it reaches the river. The management of reserved strip forest should be entrusted with the responsibility to operate the treatment plants.

Besides reserved forest strips, parks and picnic spots could be developed at various points along the river route. Such parks/picnic spots could become centres of sight seeing and attraction for tourists as well.

1.6.5 Land under Miscellaneous Trees, Crops, and Groves not included in Net Sown Area

Land use under this category had been the first victim of population growth and conversion for other uses.

Land under this category could be increased by 1.0 per cent of total reporting area by converting 1.0 per cent of total reporting area under other fallow for growing miscellaneous trees and groves.

Reduction of such area increases run off of rain water. Such areas are best suited for agro-forestry. The main types of agro-forestry system are:

(a) alley cropping – where annual crops are grown between lines of trees that produce valuable mulching material.

(b) orchard systems – where the trees provide edible fruits, medicines and fuel wood, while the ground layer is cropped or grazed.

(c) growth of scattered trees with pasture at the ground or grazing land.

(d) Conserve genetic resources

- Support grassroots associations of farmers and gardeners for the maintenance of traditional and local cultivars and breeds. Involve women's groups, Record farmers knowledge of traditional and local cultivars and breeds,
- Develop a common information service for exchange in information and germplasm among grassroots, state and national agencies.

Some General Suggestions

District Level

(i) District Land Use Committee should be strengthened. The Committee must meet at least once in a year and take stock of changes which have occurred during past one year. It should also be informed about up-dating of records and changes which have taken place during the year.

(ii) As regards its constitution, it should also include District Panchayat Adyaksha, BDOs and some more representatives of farmers.

(iii) Each line department and BDO should be asked to furnish informations in a pre-structured proforma.

(iv) The annual proceedings be documented and action plans drawn in the meeting be circulated to all concerned departments and functionaries.

Block Level

(i) Need for Block Level Land Use Committee (BLUC)

There is Land Use Committee at district level. There are Land Management Committees at the village level. But there are no land use committees at the block level.

Land records were maintained with a view to fix land revenue by the revenue department. There had been no systematic effort to maintain land records to identify land use categories on the basis of their potential development and quality.

The development perspective requires that unit for land use planning be made at block level. Because at district level it remains too generalised, while at village level, it would create operational problems in coordinating various line departments who have bearing on the land use. Therefore, there is need to create a planning cum implementing agency at the block level.

The Block level Land Use Committee may be formed with following as their members:

Block Pramukh	-	President
B.D.O.	-	Convenor
A.D.O. (Stat.)	-	Secretary

Other Members will include representatives from concerned line departments and some specialists, and

Three B.D.C. Members (to be selected by Kshetra Panchayat Members)

Block level Land Use Committee may take up the following issues for planning and implementation in the block:

(ii) Salinity and Alkalinity

The problem of alkalinity arises when infiltration rate of water in soil is low. This results in higher run off of surface water and creates problems of water logging in adjoining areas. As the water gets muddy, it also creates pollution of water streams. Reclamation of such land will have multiple effect. Such as increase in the infiltration

rate, increase in recharge of ground water, reduction in water logging and control on water polluation.

Following steps should be encouraged for reclamation of such land:

(a) Construction of field bunds – through boundary mounds,

(b) Levelling of fields,

(c) Use of gypsum/pyrites, depending upon the degree of alkalinity,

(d) Rotation of crops.

Group of farmers be formed for their collective action. Then such groups could be provided financial, technical and infra-structural support for reclamation of alkaline land.

(iii) Water Managment

Reforms are needed to facilitate water management systems for various reasons:

(a) rain and surface water needs to be preserved instead of being allowed to go waste via drain courses;

(b) natural drain courses should not be allowed to be obstructed otherwise it leads to avoidable water-logging

Increase in the number of private tubewells results in the lowering of level of ground water, therefore water management should include recharging by using rain/surface water.

By reducing run off we can check removal of top fertile soil on the one hand and maintain infiltration on the other. the catchment area of each water route should be mapped out and the programme to manage rain water should start from the highest land and end at the drainage basin.

Water harvesting will involve shaping farm land and sometimes also the catchment area of water course to slow the flow of water and thereby increase infiltration into soil. There are several cheap ways to make contours, if this is taken up collectively.

The sloppy areas and those along the drainage or field boundary which otherwise are not suitable for agriculture needs conservation efforts with optimum plant productivity. The strip plantations of multipurpose trees or shelter belts for crop lands will provide wood/leaf fodder and also ameliorate environment.

Water reservoir tanks/ponds/bundhis be constructed at places where main drain routes meet. Such land should be mapped and brought under community/panchayat ownership. No other construction be allowed to take place on such land through suitable modification in laws.

Drain network-allowing disposal of waste household water as well as community water using posts should be linked with natural drainage (by gravity flow) courses. Thus there should be micro drains (for disposal of household waste water), which will have to be connected to a community drain and finally the entire waste water has to be drained to other reservoir sites after proper treatment.

Area along the drainage route should be allowed for fodder cultivation and if possible for farm forestry. Fodder cultivation and farm forestry needs to be developed in chronically water-logged areas. To facilitate this, land along drain routes and water-logged land be kept outside the purview of tenancy provisions. Secondly, land owners of such land be permitted to form fodder or farm forest production units and lease out their land to such collective production units.

(iv) Protection of Communal Land

Common resource property has been one of the most important source of sustenance of livelihood of less privileged communities in many backward and remote areas.

A support system for maintenance and quality improvement in land use is needed to protect grazing land, land under trees, bushes etc. as well as protection of land for chak road and drainage system is also necessary. Through detailed mapping of each village, community management and these (water recharging, drainage, trees) etc. should be brought under communal ownership which should become non transferable and any activity that leads to their destruction should become unlawful.

The role of common resource property and its allocation systems becomes crucial in management of these natural resources. It must be emphasized that management of such resources be vested with the local communities who will take a longer view. Outside commercial interest will come and go with narrow economic interest only.

Effective communal property rights and resource management systems could be developed by empowering panchayats to develop modes of their use in their respective panchayats and by providing them technical and managerial skill as well as the needed capital resources.

(v) Culturable Waste Lands and Fallow Land

Culturable waste land could be brought under vegetative cover by providing necessary institutional and infra-structural support.

We suggest following measures to facilitate their proper use.

(a) Identification of Records: Presently such lands are identified and delineated through revenue records. Block Level Land Use Committee (BLUC) be entrusted with the responsibility to identify and delineate such land in each block. Land Management Committees of each Gram Panchayat should be involved in the process.

(b) Preparation of Land Use Maps: Land use maps for all the villages be prepared by the proposed BLUC.

(c) Put Such Land outside the Purview of Tenancy Clause: These types of land require huge investment and long waitings for their reclamation. If they remain within the purview of Tenancy Clause, it would be difficult for farmers to pool such

land and invest on them, because farmers generally prefer to invest on prime land rather than on degraded land.

(d) Lease Out Such Land to Landless Peasants' Societies: Most of such land is under *State* or *Gram Samaj* ownership. Distribution of small parcel of such land to individual small farmers or land less peasants will not work. Because individual peasants in these categories have neither the sufficient capital to invest nor they could wait for longer periods to reap the profits of their investments. Landless Peasants' Societies could be expected to make long term heavy investments provided such land are leased out to them for sufficiently a longer duration, and they are provided cheaper loans for this purpose.

(vi) A New Model for Culturable Waste and Degraded Land

For taking up regeneration activities of culturable waste and degraded land we will have to keep the following factors in mind:

(a) Size of such land in contiguity;
(b) Nature of regeneration programme;
(c) Raising of capital and acquisition of technical support
(d) Incentive for participation of interested landless peasants and capacity building;
(e) Changes in the tenural rights over such land; and
(f) Distribution of benefits.

Keeping these in view we suggest another model in which local people could be involved, and its economic viability could be ensured.

We suggest that a joint venture of state sector with local organisation be formed for this purpose.

As a first step a Collective Land Development Society (or Self Help Group for Land Development) be formed at local level. This Collective Land Development Society or SHG should enter into a contract with any state department, which has been approved for the purpose by the government.

(vii) Land Development Society/SHG for Land Development

(a) A Land Development Society or SHG shall be formed for a land chunk of 10 to 25 acres.
(b) The chunk of land be divided into 10-20 equal size sub-chunks.
(c) Lease out around 1 acre of such sub-chunk land piece to one landless family each.
(d) The tenure holder, in turn, will have to become member of the Land Development Society or SHG.

(viii) Joint Venture

A Public Corporate Organisation (approved by the government for the purpose) will then enter into an agreement with Land Development Society or SHG for a minimum of ten years for jointly developing the land and for its utilization.

(a) Members of Land Development Society or SHG would provide land and labour;

(b) Public Corporate Organisation will provide capital, technology and technical know-how;

(c) A joint management system will be evolved;

(d) One-third of the profit shall be ploughed back for further raising the capital stock of the joint venture.

(e) The rest of the profit shall be shared on 50:50 basis between the state unit and Land Development Society.

Village Level

(i) The land use plan is almost finalized after consolidation of holdings is implemented in a village. It provides land for various purposes in the village besides consolidating holdings. These include -

(a) provision of roads and public irrigation channels,

(b) provision of land for house sites for scheduled castes and other weaker sections,

(c) provision of sector roads, inter village roads and link roads,

(d) provision of land for community purposes namely – schools, playgrounds, panchayat ghar, hospital, cremation ground, graveyards, threshing floor, manure pits, pasture land, plantation trees, flaying sites etc.

(e) solving of common disputes in the village regarding roads/naalis for irrigation for each field through chak roads and chak naalis.

The problem is that powerful persons in the village influence functionaries of the consolidation work and get some of government and community land located near their farms. And once consolidation work is over, they easily encroach upon such community land.

Therefore effort should be made that **Bachat** and Gram Sabha land is not left scattered at many places. The consolidation process should also consolidate government and gram sabha land in one or two large consolidated chaks.

The land which had been carved out as orchard, grazing land or pond/tank in the past, should not be allowed to be transferred for other purposes by new rounds of consolidation –neither through chak carvation nor through readjustment of gram sabha land.

(ii) Whenever chakbandi is declared, illegal felling of trees takes place, land under orchards or pasture or such other uses is sought to be shown as land under cultivation. This happens on a large scale specially on Gaon Sabha and government land. In order to check such changes in land use on the eve of consolidation, revenue

officials and consolidation officials should jointly prepare reports and send report to concerned courts for quick action. The power to decide such cases should be assigned to concerned SDM.

Similarly provisions of Consolidation of Holdings Act and Manual regarding provision of inter-village link road, bachat land, Gaon Sabha and Government land and other common property resources should be widely made known to people so that its strict implementation is done with peoples participation.

(iii) After consolidation is over land use for each plot of the villages is well defined.

It should be the responsibility of LMC to see that land use is not alterned. There should be training of LMC members to make them aware of their roles and responsibilities.

(iv) Land Management Committee should be treated as Chakbandi Committee during the period of consolidation. Formation of separate committee does not prove helpful as it is at the mercy of consolidation department and Pradhan only and ceases to exist after consolidation work is over.

(v) All members of Chakbandi Committee should sign the final land use map prepared after consolidation work is over.

(vi) The map of the village should be made available to all the members of Land Management Committee, free of cost.

(vii) Encroachers of government and/or gram sabha land should be severely penalised and eviction proceedings against them should be made more stringent.

(viii) Land capability maps be prepared for each village. The land use of each type of land could then be planned for effective, efficient, sustainable and profitable use.

The land capability map will indicate about the texture and quality of soil. It will also give information about limitations of the land such as erosion, water logging, degree of alkalinity or salinity etc.

Thus land capability maps would provide necessary inputs for land use planning i.e. suitability of land for agriculture, horticulture, forestry etc. It will also indicate as to what measures would be needed for improving land for its optimum utilisation.

(ix) The Land Management Committee at the village level be revamped. And there should be fair representation of weaker sections, beneficiaries of land allottees, self help groups and all the hamlets/communities of the village.

The committee should meet once every six months, develop plans for water conservation, drainage channels, regeneration of degraded land, effective use of lands in the category of (a) barren and uncultivable land, (b) pastures, (c) orchards groves and land under trees and (d) fallow land.

(x) There are already legal provisions under consolidation of Holdings Act and Supreme Court Judgements in regard to protection of land uses. These should be widely circulated among members of Land Management Committee. Proceedings for eviction of encroachers should be launched in right earnest. The provision should be

made in law for eviction of unauthorised occupation of Gram Sabha land by summary proceedings.

(xi) The gaon sabha land or pond or forest land should be given on lease to self help groups or tree growers society or such other collective groups rather than to individuals.

Proposal for New Format to Collect Land Use Data

Land Use data is collected by the revenue department on Form P-4 (Hkyk[k çi= lk ;k i&4) as laid down under clause 108 of Land Records Manual. The data on land use is collected by Lekhpal and is known as Milan Khasara. Revenue village wise land use data is collected under 87 heads in Milan Khasara for each Fasli Year (Annexure-A).

The land use data should be collected in such a format, which could help in planning. There are three major stakeholders in development of land. These are (i) government/government department; (ii) Gram Sabha; and (iii) Private owners.

We propose format of land categories, which will help only planning in respect of categories, but also it will enable us to identify stakeholders through whom such planning could be operationalsed. The categories are as follows:

Proposed Classification of Land Use Categories

1. Uncultivable Land

This category can be divided into three sub-categories:

1.1 Water Bodies (Column 3)

1.2 Land Put to other uses (Column 4 & 5)

1.3 Waste Land (Column 6 & 7)

2. Area Under Forest

Area under forest can also be divided into following sub-categories.

2.1 All land under forest department (Column 10)

2.2 Timber forest under Gram Sabha (Column 11)

2.3 Timber forest under Private Land (Column 12)

3. Area under Miscellaneous Trees/Bushes etc.

Such Area can also be divided into following two sub-categories:

3.1 Under Gram Sabha (Column 13)

3.2 Under Private Ownership (Column 14).

4. Pastures and Other Grazing Land (Column 15)

5. Culturable Waste (Column 17)

6. Old Fallow (Column 19)

7. New Fallow (Column 20, 21, 22, & 23)

8. Net Sown Area

8.1 Irrigated (Column 44)

8.2 Unirrigated (Column 45)

8.3 Total (Column 46)

9. Gross Sown Area

9.1 Irrigated (Column 38)

9.2 Unirrigated (Column 39)

9.3 Total (Column 40)

10. Orchard which is included in net sown area (Column 84)

11. Ponds, Lakes and Tanks which are included in cultivated area (Column 86)

12. Forest included in landholding (Column 85).

Annexure-A

QkeZ i&4 ¼yS.M fjdkM~Zl eSuwvy dh /kkjk 108 ds vuqlkj½

[klj dh i"B l[;k	lEi.k {k=Qy	Ñf"k v;kX; {k=Qy								Ñf"k ;kX; {k=Q							
		Hkfe] ftl ij ikuh gk	cLrh] lMd jyo xg rFkk vU; Hkfe] tk Ñf"k d dk; e u ykb tkrh gk	dfcLrku rFkk ej?kV	Hkfe] ftl ij jg g	vU; dkj.ko'k Ñf"k d v;kX; {k=Qy	Ñf"k v;kX; {k=Qy dk ;kx	ou foHkkx d v/khu bekjrh ydMh d ckx	ou foHkkx d v/khu leLr Hkfe rFkk txy	Ñf"k ;ksX; Hkwfe							
										ou foHkkx d vfrfjDr vU; txy ¼jktLo vfHky[k] vUrxr½				LFkk;h pkjkxkg rFkk vU; pjkb dh Hkfe	Nlij Nku okyh ckl rFkk ckl k dh dkB;k	vU; Ñf"k ;kX; Hkfe	Ñf"k ;kX; Hkfe dk ;kx ¼ftu ij Ø krh uah ak rh½
										bekjrh ydMh d		vU; o{kk] >kfM;k vkfn d					
										xko lHkk d	futh	xko lHkk d	futh				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Ñf"k fd;k x;k {ks=Qy																		nk Qlyh {k=Q
flpk gvk {k=																		
ugjk l				V;ccy l		vU; dik l												
ljdkjh		futh				ljdkjh		futh										
rkM	Mky	rkM	Mky	ljdkjh	futh	iDdk	dPpk	iDdk	dPpk	lkxjk l	r[kyk] >hyk] ik[kjk l	vU; lk/kuk l	flp g; {k=Qy dk ;kx	vuflpk {k=Qy	Ñf"k fd; g; {k=Qy dk ;kx	flfpr	vflfpr	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	4

uydik dh l[;k						mu uydik dh l[;k tk o"k d Hkhrj flpkb d dke e yk; x;											
ugj ugj dh flpkb d {k= dk lg;kx u nu oky			ugj ugj dh flpkb d {k= dk lg;kx nu oky			ljdkjh				futh				;kx			
	futh					ugj ugj dh flpkb d {k= dk lg;kx u nu oky		ugj ugj dh flpkb d {k= dk lg;kx nu oky		ugj ugj dh flpkb d {k= dk lg;kx u nu oky		ugj ugj dh flpkb d {k= dk lg;kx nu oky		ugj ugj dh flpkb d {k= dk lg;kx u nu oky		ugj ugj dh flpkb d {k= dk lg;kx nu oky	
jk[tdh;	fo|r pfyr	Mhtv pfvr	jk[tdh;	fo|r pfyr	Mhtv pfvr	iDd	dPp	iDd	dPp	iDd	dPp	iDd	dPp	iDd	dPp	iDd	dPp
47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64

mu uydik rFkk iDd dvk dh l[;k ftul o"k d Hkhrj flpkb ugh gb				mu uydik rFkk iDd dvk dh l[;k tk o"k d Hkhrj doy ikuh ihu d dke e yk; x;				lkxjksa dh la[;k	rkyk] >hyk o ik[kjk dh l[;k		o"k e u"V ;k cdkj gk tku oky uydik rFkk iDd dvk dh l[;k				o"k e fufer uy rFkk iDd dvk l[;k		
uydi		iDd d;		uydi		iDd d;			tk 100 ,dM ;k vf/kd Hkfe lhp ldr g	tk 100 ,dM l de Hkfe lhp ldr g	uydi		iDd d;		uydi		iDd
ljdkjh	futh	ljdkjh	futh	ljdkjh	futh	ljdkjh	futh				ljdkjh	futh	ljdkjh	futh	ljdkjh	futh	ljdkjh
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82