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1. EXECUTIVE SUMMARY

Introduction

- 1.1** Bagha Purana with its population of 21596 as per 2001 Census is the second largest town of district Moga and is an important commercial centre of this area. Government of Punjab declared the Bagha Purana, Local Planning Area(LPA Bagha Purana) in May,2010 and subsequently the Government also designated the Chief Town Planner, Punjab as the Planning agency to prepare the Master Plan of LPA, Bagha Purana.

The LPA Bagha Purana comprises one town Bagha Purana and 27 villages. The total area of LPA Bagha Purana is 323.22 sq.kms.out of which 11.38 sq.kms is municipal area and the remaining is rural. According to census 2001 the population of LPA Bagha Purana was 124972 persons

Regional Setting

- 1.2** LPA Bagha Purana is located in Malwa Region of southern parts of Punjab. It extends from 30°-37'-18"N to 30°-46'-34"N latitude and 75°-11'-42"E to 75°-11'-40"E longitude. Its hinterland is fertile and rich agricultural land. It is connected with Moga in north east and Kotkapura in south-west by State Highway. The road connecting Bagha Purana with Bhagata Bhai town of district Bathinda has also recently been upgraded to State highway. Another major district road passes through the town connecting Nihal Singh Wala in South, and Mudki in North, however there is no railway connectivity to the area.

Historical Background

- 1.3** Bagha Purana was a small village till the early 70s primarily consisting of three pattis namely Bagha Patti, Purana Patti and Mughlu Patti. This village is located on the intersection of Moga- Kotkapura road and Mudki-Nihal Singh Wala road; thereafter it became a trade centre of the villages around it and developed into a small town. The village got a status of town when a Nagar Pachayat was formed in 1978 which was upgraded to a Municipal Council a few years ago. In the year 2000 it got the status of a sub-division headquarter which facilitated the establishment of all tehsil level offices of the Government

Legal Frame Work

- 1.4** The Punjab Regional and Town Planning and Development Act, as amended in 2006 provide the legal framework for preparation of Master Plan. The four stage process involves declaration of Local Planning Area, preparation of present land use plan and

preparation and approval of Master Plan. The contents of the master Plan as laid down by the Act are;

- a) Broad indication of the manner in which the land in the area should be used.
- b) Allocation of areas or zones of land for uses for different purposes.
- c) Indication, definition and provision of the existing and proposed highways, roads, major streets and other lines of communication.
- d) Indication of areas covered under heritage site and the manner in which protection, preservation and conservation of such site including its regulation and control of development, which is either affecting the heritage site or its vicinity, shall be carried out.
- e) Regulations to regulate within each zone the location, height, number of storeys and size of buildings and other structures, open spaces and the use of buildings and structures.

Population Growth

- 1.5** The population of LPA Bagha Purana is 124972 persons (2001) growing at a decadal growth rate of 13.16% during 1991-2001. The details are summarized in table below,

Population Growth of LPA, Bagha Purana

	Population			Growth Rate in %	
	1981	1991	2001	1981-91	1991-2001
Total	94863	110430	124972	16.40	13.16
Urban	14289	17287	21596	20.98	24.92
Rural	80574	93143	103376	15.60	10.99

Source: Census of India, 1981, 1991, 2001

The average gross population density of Bagha Purana town is 19 persons (2001) per hectare. However ward wise density varies considerably. The highest and lowest being 374 persons per hectare and 4.44 persons per hectare respectively. The low gross density is due to the large vacant area included in some wards

Employment and Workforce

- 1.6** The workforce participation rate of LPA Bagha Purana is 38.24% and that of Bagha Purana town is 32.81%. The main sectors providing employment in Bagha Purana town are other services (81.00%), agricultural labourers and cultivators (16.31%) and house hold industries (2.69%).

Housing

- 1.7** According to Census 2001 about 94.49% of the houses are of permanent nature, 4.01% are semi-permanent and only 0.05% non-serviceable temporary houses. In terms of availability of rooms 45.64% of the households live in one room dwelling units, 30.60% of two room dwelling units and 22.73% of three dwelling units and more As regards access to service, 21.08% have tap water, and 17.01% have electricity motor

Present Land Use and Transport Network

- 1.8** Preparation of Existing land use map was undertaken with the help of Punjab Remote Sensing (PRSC), Ludhiana. For the core built up area Quick Bird data of 0.6m resolution was used where as for the outer areas Cartosat.I data of 2.5m resolution was used. The maps based on satellite imageries were updated by undertaking field surveys. Out of a total LPA area of 32322 hectare (as calculated by PRSC) maximum proportion is occupied by agricultural use 93.64% followed by residential 4.66%, industrial 0.34%, and transport 0.52%. In case of Bagha Purana town out of a total area of 1138 hectare about 16.64% is occupied by residential use, 1.27% industrial use, 2.04% by public & semi public uses and 3.72% by transport and 73.17% by agriculture.

The regional road network of Bagha Purana comprises two State Highway i.e. S.H.16 from Kotkapura to Moga and SH-16a Bagha Purana to Baghta Bhai respectively. The Right of Way (R.O.W.) of these roads outside municipal areas varies between 16 to 22.6 meters and the effective carriage way ranges between 7 metre to 10 metre. Bagha Purana is deprived off from railway facility.

Physical Infrastructure

- 1.9** The water for Bagha Purana town is mainly explored from the ground water. The water supply to all the villages is handled by the Water Supply and Sanitation Department and almost every village has been covered under piped water supply. Presently Bagha Purana is totally deprived from sewerage facility. There is no permanent site for land fill or solid waste management. The solid waste management in Bagha Purana as well as in rural areas is totally missing. A small bus stand on Kotkapura road measuring an area of 0.2 hectares only is in operation in the town

Traffic and Transportation

- 1.10** The total area under traffic and transportation is 42.40 hectares which is 3.72% are mainly covered under major roads and parking. The major problems related to this aspect is the existence of narrow width of roads missing road hierarchy, lack of parking places, encroachment of roads, lack of traffic signals etc.

Social Infrastructure

- 1.11** There is sufficient number of educational facilities of school level in LPA Bagha Purana. However the higher level and Technical institutions are not up to the mark. The health and medical facilities are not satisfactory. The sports and recreational facilities are almost missing. There is no regional or city level park and no stadium

Population and Workforce Forecast

- 1.12** The population of LPA Bagha Purana is estimated to be about 166693 persons out of which the population of Bagha Purana town is estimated to be about 56000 persons by the year 2031.

Infrastructure Demand

- 1.13** The infrastructure demand of this LPA by 2031 would be as below;

Projected Net and Gross Water Demand for Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Net water demand in MLD	3.93	4.86	6.42
Gross water demand in MLD	4.51	5.56	8.69

Projected Gross Waste Water Flows for Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Net waste water flows in MLD	3.34	4.13	5.45
Gross Waste Water Flows in MLD	3.83	4.72	7.38

Power Requirement for Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Household Number	4860	5999	9344
Power consumption in MW	9.72	12.00	18.68

Vision 2031

- 1.14** A specially constituted Think Tank comprising official and non-official representatives from all walks of life articulated the vision 2031 for Bagha Purana in following terms:

"To project Bagha Purana as a hub of agro-based industries and storage centre for agricultural produce by providing high quality physical and social infrastructure to its citizens in an inclusive and environmentally sustainable manner."

The strategies to attain this vision would require spatial and land use planning, infrastructure planning and financing, enabling private investment in economic growth,

ensuring environmentally sustainable development etc. The role of Master Plan in this regard would be that of facilitating a spatial and land use planning framework conducive to attaining the vision.

Visualizing the future structure of the city involves delicate trade-offs. If urban development is freely permitted anywhere it might lead to urban sprawl and would be difficult to provide infrastructure services and may cause loss of fertile agricultural land. On the other hand if the future structure is visualized as compact city that is easier to service, it may increase the land prices where development is permissible and might cause unauthorized development where it is not. The extent of urbanization visualized is therefore not narrowly linked to land required for accommodating the projected population and economic activities by 2031. The extent of urbanization is defined based on the land requirement for various activities, transport network that would be desirable and the areas that would acquire development potential on account of such transport network.

Proposed Land Use and Road Network

1.15 In light of the above approach proposed land use and road network plans are incorporated in the Master Plan. The land in LPA has been zoned for Residential, Commercial, Industrial, Mixed Land use and Rural and Agricultural purposes. However specific designation for public purposes like schools, hospitals, playground etc has not been earmarked because such facilities will be part of residential use. The proposed land use is shown in DRG No.DTP (Fdk) 370/2010 dated 30/8/2010.

The road network proposed comprises four categories roads viz. R1-(150 feet), R2-(100 feet), R3-(80 feet) and R4-(60 feet), which is shown in proposed Transport Network Plan DRG No.DTP (Fdk) 376/2010 dated 15/12/2010. The road network comprises of Ring Roads, radial roads and other roads as explained above.

Zoning Regulations

1.16 The Punjab Regional Town Planning & Development (Amendment) Act, 2006 provides for the “Control of Development and Use of Land in Area where Master plan is in Operation.” However for control of development through parameters like sub-division of land, ground coverage, FAR, parking requirements, norms for building construction etc. have already been established on a state wide basis by the Government. The zoning

regulations included in the Master Plan are therefore confined to land use. For this purpose the land use class has been taken as patterned in udated supplemented with the land use provisions as provided in various notifications issued by Punjab Government from time to time. A matrix shows the zones in which each use class is permissible. In addition regulation regarding maximum permissible densities and heritage conservation are also proposed.

2. INTRODUCTION

Initial Steps

2.1 The process of preparation of Master Plan of Local Planning Area Bagha Purana was started with the delineation of Local Planning Area of Bagha Purana. The Local Planning Area (LPA) Bagha Purana was notified under section 56 (1) of “The Punjab Regional and Town Planning and Development (Amendment) Act”2006 in the official gazette wide notification no.12/1/10-4HG1/1431 dated 20/5/2010 (refer Annexure- 1). As per this notification LPA Bagha Purana includes Municipal Council of Bagha Purana and 26 villages. All of these villages fall within the administrative boundaries of District Moga. The total Area of LPA Bagha Purana works to be 32322 Hectares as per revenue records. The details of areas and population etc. of LPA Bagha Purana are given in Annexure-1. The Government designated the Chief Town Planner, Punjab as the Planning Agency to prepare Master Plan of LPA Bagha Purana (Refer Annexure-2).

While delineating LPA of Bagha Purana following factors mentioned in rule 22 of the Punjab Regional and Town Planning and Development (General Rules) 1995 have been considered.

- a) Administrative boundary limits of the villages and the district for better identification and management of the LPA.
- b) Geographical features branch of Abohar Branch (Sirhind canal) and other Physical features like roads.
- c) The means of transportation and communication.
- d) The present and future growth trends and distribution of the population.
- e) Economic base and commercial activities of the city/towns and their surrounding areas.
- f) Preservation of historical and cultural heritage of the areas.
- g) Urban expansion trends and management of periphery areas for ecological and environment balance have also been kept in mind.
- h) Dispersal of economic activities to alleviate pressure on Bagha Purana town and balanced development of the area.

Local Planning Area Bagha Purana has a population of 124972 persons as per 2001 census out of which 21596 persons are living in Bagha Purana town whereas remaining 103376 persons are living in rural areas. Local Planning Area Bagha Purana spreads over

an area of 32322 hectares out of which about 1138 hectares is Urban area that of Municipal Council Bagha Purana which is 3.61% of LPA area. The jurisdiction of LPA Bagha Purana extends up to Village Chand Purana in North and Village Ladhai Ke in South whereas Village Gholia Kalan and Rode are the last Villages in east and west respectively. The Physical extent and boundaries of LPA Bagha Purana are shown in Drg.No 356/2010, dated 10-02-2010

Historical Background

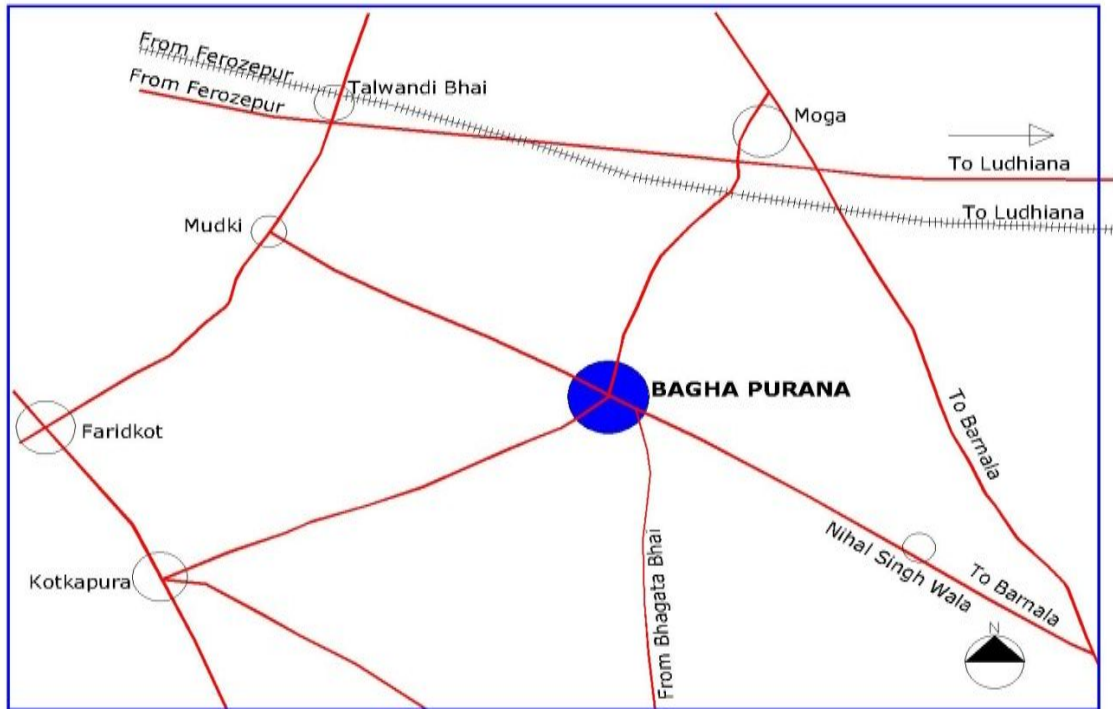
- 2.2** Bagha Purana was a small village till the early 70s primarily consisting of three pattis namely Bagha Patti, Purana Patti and Mughlu Patti. This small village located on the intersection of Moga- Kotkapura road and Mudki-Nihal Singh Wala road Thereafter it became a trade centre of the villages around it and developed into a small town. The village got a status of town when a Nagar Pachayat was formed in 1978 which was upgraded to a Municipal Council, a few years ago. In 2000, it got the status of a sub-division headquarter which facilitated the establishment of all tehsil level offices of the Government.

Regional Setting

- 2.3** Bagha Purana is the second largest town of district Moga and is an important commercial centre of this area. It is situated in the south – western part of Punjab in Malwa region of the State which is known as Cotton belt of this State. Bagha Purana is located at a distance of about 18 kms from Moga and about 30 kms from Kotkapura. It is connected with Moga in north east and Kotkapura in south-west by State Highway. The road connecting Bagha Purana with Bhagata Bhai town of district Bathinda has also recently updated to State highway. Another major district road passes through the town connecting Nihal Singh Wala in South, and Mudhki in North.LPA Bagha Purana extends from 30°-37'-18"N to 30°-46'-34"N latitude and 75°-11'-42"E to 75°-11'-40"E longitude. The location of Bagha Purana is shown in figure No.1.

LPA MAP

Figure No: 1 Regional setting of Bagha Purana



Physiography and Climate

2.4 Local Planning Area Bagha Purana mostly comprises of sandy and sandy loam soils which is considered very fertile. The topography of area experienced a vast change with various ventures connected with green revolution. No river flows through the Local Planning Area however Abohar branch of Sirhind Canal passes through the area providing a good irrigation network.

The district of Moga as well as LPA Bagha Purana lies in the South – Western region of the State and is far away from the SHIVALIK HILL ranges in the North – East. It is away from the major rivers that run through the State. Therefore climatically this area has a very hot summer. During the month of June which is peak of summer season the mercury sometimes touches 47°C. There is very short spell of rainy season with scanty rainfall of about 410 mm per annum. The winter season is dry with minimum temperature touching to 0°C. The prevailing wind direction of this region is north-west to south-east.

Legal Framework for Preparation and Implementation of Master Plan

- 2.5** The principal legislation governing regional and town planning is the “ Punjab Regional and Town Planning and Development Act,1995 (P RTPDA) which was enacted in the year 1995 (Punjab Act No. 11 of 1995) and has been amended in the year 2006 and is now known as “ The Punjab Regional and Town Planning and Development (Amendment) Act 2006” (Punjab Act No.11 of 1995).This is an Act to make provision for better planning and regulating the development and use of land in planning areas delineated for that purpose, for preparation of Regional Plans and Master Plans and implementation thereof, for the constitution of a Regional and Town Planning and Development Board, for guiding and directing the planning and development processes in the State, for the constitution of a State Urban Planning and Development Authority, Special Urban Planning and Development Authorities and new Town Planning and Development Authorities, for the effective and planned development of Planning Areas and for undertaking urban development and housing programmes and schemes for establishing new towns and for matters connected there with or incidental there to.

Prior to the enactment of this Act the town planning activities within urban areas were governed by different legislations such as 'The Punjab Town Improvement Act 1922', 'The Punjab Municipal act 1911', 'The Punjab Municipal Corporation Act 1976', 'The Punjab Urban Estates (Development and Regulation) Act 1964 etc and for areas falling outside Municipal limits in the periphery of urban centres, there was "The Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act 1963 (Now Repealed) but no comprehensive legislation was available for the overall control and development at local and regional level.

The Punjab Regional and Town Planning and Development (Amendment) Act 2006 (Main Provisions of the Law)

- 2.6** This Act provides the framework for preparing Master Plans and Regional Plans and provides for the manner in which the use of land in the area of a planning authority is regulated. The act also prescribes specific time period for various steps in the plan preparation process.

The act intends to achieve the following main objectives:

- a) To consolidate, with suitable modifications, in one place laws dealing with the different aspects of urban development.

- b) To set up a high powered board to advise the State government and to guide and direct planning and development agencies, with respect to matters pertaining to the planning, development and use of urban and rural land.
- c) To set up a state level Urban Planning and Development Authority and to provide for the setting up of a Special Urban Planning and Development Authorities to promote and secure better planning and development of different regions, area and cities.
- d) To create a legal and administrative setup for the preparation and enforcement of Master Plans for regions, areas and for existing and new cities.
- e) To make the whole programme of urban development mainly a self - sustaining and self - paying process.
- f) To interlink land development and house construction permitting full exploitation of the urban land resource to provide a boost to the programme of house construction, especially the Economically Weaker Sections of the Society.
- g) To provide a legal, administrative and financial framework for the preparation and execution of Town Development Schemes aimed at filling the gaps in the required civil infrastructure and securing the renewal and redevelopment of congested and decayed areas in the existing towns.

2.7 The main provisions of the Act related to preparation of Master Plan are described below:

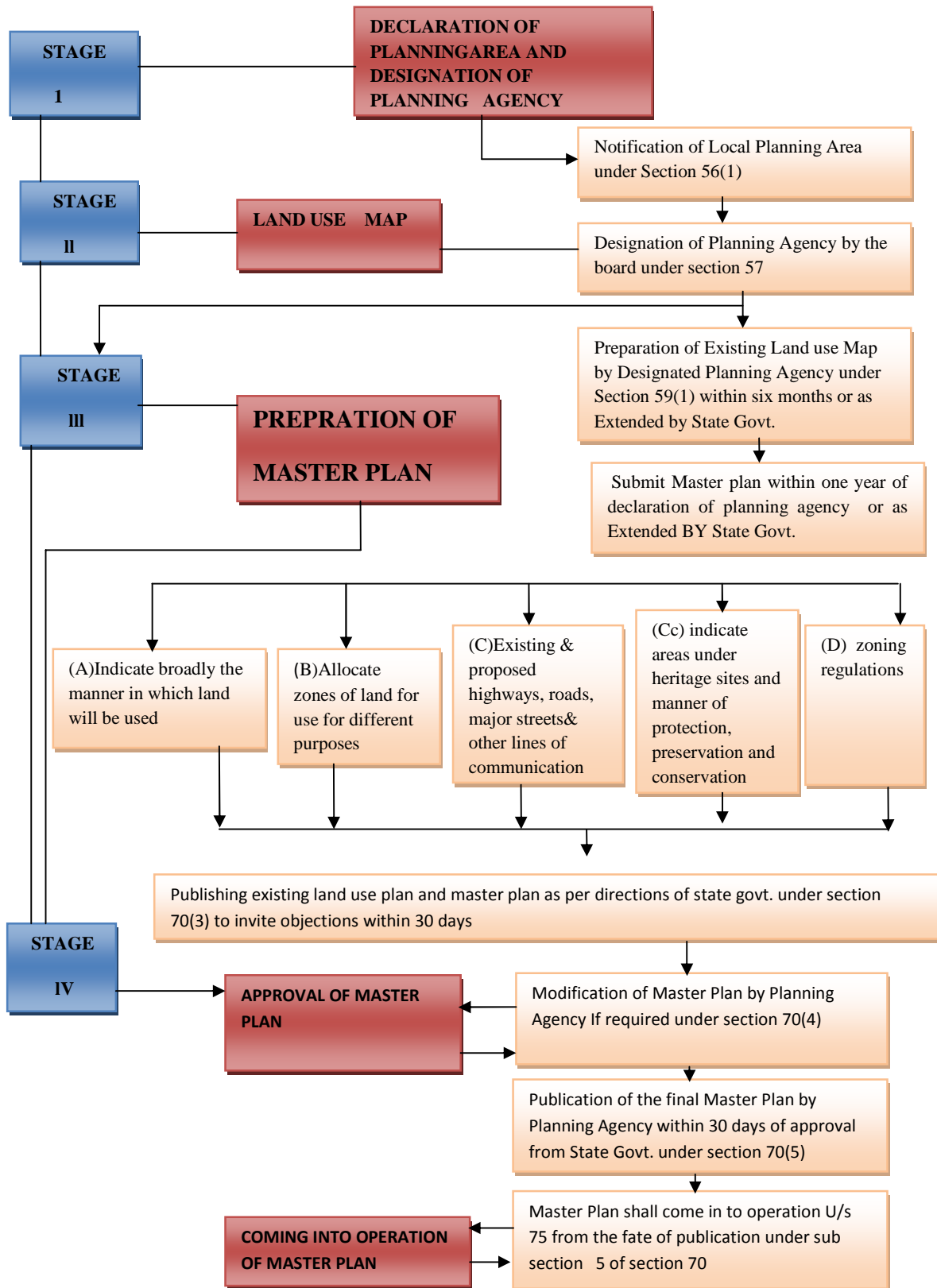
- a) Section 56(1) enables declaration of Local Planning Areas (LPA) in the official gazette for preparing Master Plan. Once an area has been declared under section-56 (1), no person can institute or change the use of land for any purpose or carry out any development in respect of any land without the prior permission of competent authority until the Master Plan comes into operation. However, this prohibition does not apply to any area comprised in abadi deh of any village falling inside its lal lakir or phirmi.

- b) Section 57 provides for the state Government to designate Planning Agency for area declared as Local Planning Area.
- c) Section 58 defines scope of Planning agency and provides that;
- The designated Planning Agency will work under the overall directions and control of the State Government.
 - The State Government may assign any or all of the following functions to the Designated Planning Agency, namely the Chief Town Planner.
 - Carry out survey of the regional planning area, local planning area or a site for new town, as the case may be, and prepare reports on the surveys so carried out;
 - Prepare an existing land use map and such other maps as may be necessary for the purpose of preparing regional plan and outline master plan, a new town development plan or a comprehensive master plan, as the case may be;
 - Prepare a regional plan, an outline master plan, a new town development plan or a comprehensive master plan.
 - Subject to and in accordance with the directions of the Govt., the designated planning agency shall exercise all such powers as may be necessary or expedient for the purposes of carrying out its functions under this act and also perform any other functions which are supplemental, incidental or consequential to any of the functions specified in sub section (2) or as may be prescribed.
- d) Section 59 deals with the preparation of present land use map and fixes six months time for this purpose, which may be extended by the State Govt. from time to time.
- e) Section 70(1) states that the planning agency shall not later than one year after declaration of planning area and after the designation of that agency for that area shall prepare and submit to the state government a master plan for its approval. The Master Plan so prepared shall –
- Indicate broadly the manner in which the land in the area should be used.
 - Allocate areas or zones of land for use for different purposes.
 - Indicate, define and provide the existing and proposed highways, roads, major streets and other lines of communication.

- Indicate areas covered under heritage site and the manner in which protection, preservation and conservation of such site including its regulation and control of development, which is either affecting the heritage site or its vicinity, shall be carried out.
 - Include regulations to regulate within each zone the location, height, number of storeys and size of buildings and other structures, open spaces and the use of buildings, structures and land.
- f) Section 70 (3) has the provision for the state government to direct the designated planning agency to publish the existing land use plan and master plan and the information regarding places where copies of the same may be inspected by the public for inviting objections in writing with respect to existing land use plan and master plan within a period of 30 days from the date of publication.
- g) Under Section 70(4), the state government after considering the objections and in consultation with the Board may direct the designated planning agency to modify the master plan or approve it as such.
- h) Under Section 70 (5), the Designated Planning Agency after approval of the state government shall publish the final master plan in the official gazette after carrying out the modification if any under intimation to the state government within a period of 30 days from the date of according the approval by the state government.
- i) According to Section 75, the Master Plan comes into operation from the date of publication, referred in to sub section 5 of Section 70.

The entire process is shown in the form of flowchart given at figure 2.

Fig. No.2 Stages of Master Plan Preparation



- Chapter XI of the Act also provides for “Control of Development and Use of Land in the area where the Master Plan is in operation.”
- Chapter XII, Section 91 of the Act deals with the preparation of Town Development Schemes that can play a significant role in the implementation of Master Plan by way of planned development and through making land available for the open spaces, recreation, education and health services, transport and communication network, water supply, sewerage, sewage disposal and other public utilities including electricity and gas etc
- Chapter XIV deals with “Control and Development along Scheduled Roads”
- In addition to the "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" there are a few acts that have no direct bearing on preparation of Master Plan but have a definite role to play in the implementation of the proposals of the Master Plan. These are briefly described below;

(A) Punjab Apartment And Property Regulation Act, 1995

The Punjab Apartment and Property Regulation Act, 1995 has been enacted with a view to regulate the promotion of the construction, transfer and management of apartments on ownership basis, to regulate colonies and property transactions and to provide for registration of promoters and estate agents and enforcement of obligations on promoters and estate agents and for matters connected therewith or incidental thereto.

- It provides planned development by checking, controlling and regulating the activities of the private developers.
- It makes funds available for planned development.
- It provides land for social and physical infrastructure through the mechanism of planned development.
- It also has the provision to make social housing available at low prices for Economically Weaker Section of the society.

(B) Punjab Town Improvement Act, 1922

The Punjab Town Improvement Act, 1922 plays a significant role for the implementation of Master Plans in the following manner:

- It helps to provide planned development through the mechanism of Development Schemes.
- It makes land available for the development of social and physical infrastructure like schools, health, parks and playgrounds, and planned road network etc.
- It also provides social housing to Economical Weaker Sections and thus helps to check the growth of slums.

(C) Punjab Municipal Act 1911 and Punjab Municipal Corporation Act 1976.

The Punjab Municipal Act, 1911 and Punjab Municipal Corporation Act 1976 like wise' The Punjab Town Improvement'Act1922 also play an important role to execute the master plan proposals. Under these Acts the regulatory schemes known as Town Planning Schemes (T.P.Schemes) are framed in which planned circulation pattern and spaces for parks are evolved. Since the local bodies are the main agencies to monitor the development activities within the Municipal areas the role of Town Planning Schemes becomes very important. The contribution of Town Planning Schemes for the implementation of Master Plan can be elaborated as follows.

- The T.P. Schemes provide smooth circulation pattern having different width.
- T.P.Schemes helps to reserve the areas for parks and open spaces within the provisions of respective Acts.
- T.P.Schemes also regulates the development in a planned manner in which the residential plots of various sizes are planned.

3. POPULATION, ECONOMY AND EMPLOYMENT

The chapter involves the statistical study of population size, distribution and composition of human settlements. It requires data on various aspects of population. The data collected for population studies is broadly categorized as time series data and spatial data. In the former, change and transformation of various demographic aspects are measured. In the later distribution pattern is studied. The study of demographic characteristics and employment is required for the assessment and for evaluation of the existing civic and infrastructural facilities. The study of economy is also required for assessing the economic base or potential of a particular area. The economic base is one of the important determinants of proposed land use. This information forms the basis for the formulation of future Master Plan and policies

3.1 Population Growth of LPA, Bagha Purana

LPA, Bagha Purana includes only one urban settlement i.e. Bagha Purana and 28 villages. LPA Bagha Purana experienced growth rate of 16.41 % and 13.17% during the year 1981-91 and 1991-2001 respectively, thus showing a decline in the population growth rate during the last decade which might be attributed to the weakening of the economic base of this area. Bagha Purana is an important town of Moga district and is only urban settlement of its LPA with population of 21596 persons in 2001, whereas the population of rural areas is 103376 persons as per census 2001. The comparative growth trend of population of LPA, Bagha Purana and Punjab State is given in Table 1 below:

Table No .1 Population and growth rate of Punjab state and LPA, Bagha Purana

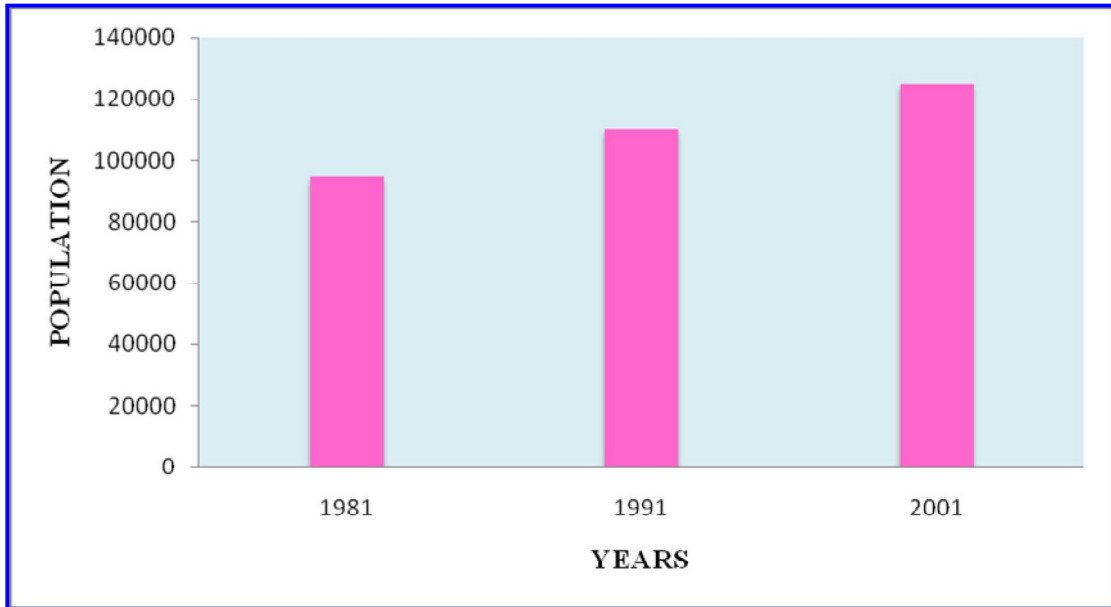
	POPULATION			GROWTH RATE (in %)	
	1981	1991	2001	1981-91	1991-2001
PUNJAB STATE (Population in millions)					
TOTAL	16.79	20.28	24.36	20.79	20.12
URBAN	4.65	5.99	8.25	28.82	37.73
RURAL	12.14	14.29	16.11	17.71	12.74
LPA BAGHA PURANA(Population in actual numbers)					
TOTAL	94861	110430	124972	16.41	13.17
URBAN	14289	17287	21596	20.98	24.92
RURAL	80572	93143	103376	15.60	10.99

Source: District Census Handbook 1981, 1991, 2001, Faridkot

The table No.1 depicts that the growth rate of population of LPA Bagha Purana shown a decreasing trend during 1981-2001, with the growth rate of 16.41% during 1981-1991

and 13.17% during 1991-2001 which is quite lower in comparison to the growth rate of Punjab State during the respective decades. The growth rate of urban population of LPA Bagha Purana was also less than the State Urban during 1981-91. The growth trend of population of LPA Bagha Purana is also shown in figure 3 below:

Figure No.3: Population growth of LPA, Bagha Purana



Besides above, growth trend has also been analysed in terms of share of population LPA, Bagha Purana to the State population. As far as the share of total population LPA Bagha Purana to the total population of State is concerned it has decreased from 0.56% in 1981 to 0.54% in 1991 and 0.51% in 2001. The share of Urban population of LPA, Bagha Purana also showed a decreasing trend from 0.31% in 1981 to 0.29% in 1991 and further declined to 0.26% in 2001 and the share of rural population was 0.66% in 1981 which decreased in 1991 to 0.65% and 0.64% in 2001 as shown in Table No.2.

Population Growth of different settlements in LPA, Bagha Purana

- 3.2** There are 28 settlements falling within the boundaries of LPA, Bagha Purana. Municipal Council Bagha Purana is the only one urban settlement where as 27 settlements are rural including Bagha Purana rural (Dehati). The growth trend of these settlements varied considerably during past two decades as given in below table no.2

Table No.2 Population growth of different settlements in LPA, Bagha Purana

Sr.No	Villages	Population Year Wise			Growth Rate (In Percentage)	
		1981	1991	2001	1981- 1991	1991- 2001
1	Bagha Purana M.C	14289	17287	21596	20.98	24.92
2	Bhagapura (Rural)	2368	2397	2025	1.22	-15.51
3	Chand Purana	1633	2031	2347	24.37	15.55
4	Jai Singh Wala	919	1164	1341	26.65	15.20
5	Langiana Purana	1998	2387	2750	19.46	15.20
6	Gill	1699	1808	2378	6.41	31.52
7	Mandheran Wala	1578	1861	3042	17.93	63.46
8	Kale Ke	3375	3848	4516	14.01	17.35
9	Gholia Kalan	5555	6307	6658	13.53	5.56
10	Phule Wala	1880	2368	2969	25.95	25.38
11	Ugoke	709	827	764	16.64	-7.61
12	Nathoke	1501	1859	2172	23.85	16.83
13	Budh Singh Wala	1858	2125	2466	14.37	16.04
14	Rajiana	6222	6712	8007	7.87	19.29
15	Kotla Mehar Singh	2374	2432	2826	2.44	16.20
16	Chanu Wala	2073	2491	2686	20.16	7.82
17	Rode	8098	8374	8928	3.40	6.61
18	Chand Nawan	2115	3474	3728	64.25	7.31
19	Chotia Toba	646	873	831	35.13	-4.81
20	Langiana Nawan	4096	4628	5511	12.98	19.07
21	Lande	4255	4721	5408	10.95	14.55
22	Smalsar	7502	8823	9971	17.60	13.01
23	Panjgrian	2468	3113	3195	26.13	2.63
24	Weroke	2497	3114	3550	24.70	14.00
25	Ladhaike	1496	1492	1620	-0.26	8.57
26	Chirak	7498	8936	8224	19.17	-7.96
27	Jhande Wala	1878	2021	2421	7.61	19.79
28	Jaimal Wala	2283	2907	3042	27.33	4.64
	Total	94863	110430	c	16.40	13.16

Source: District Census Handbook 1981, 1991, 2001, Faridkot

The growth rate of population of village Ladhaike during 1981-1991 periods has been recorded as low as -0.26 % (negative) which is lowest in LPA and that of village Chand Nawan was 64.25 % during the same period which is highest. The growth rate of population of Bagha Purana (Rural) during 1991-2001 decade has been recorded as low as -15.51 % (negative) and that of highest for the village Mandheran Wala as 63.46% during the same period. The size and growth trend of all the settlements falling in LPA Bagha Purana is given in table no. 2 and categorically shown in fig. no.4

Figure No.4 Population growth and distribution of settlements in LPA

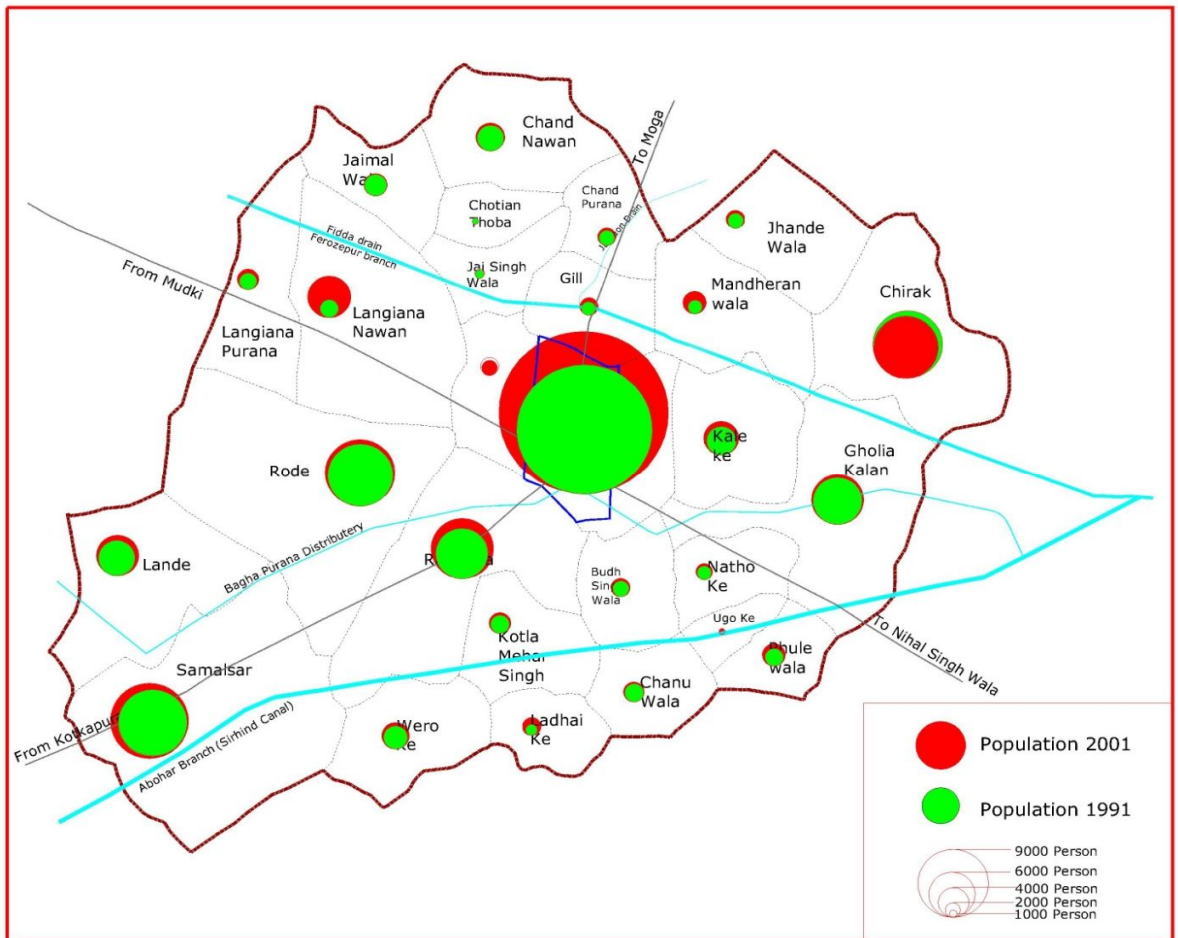


Table No.3 Share of population of LPA to the State

Sr.No.	Year	Share of population to state Punjab		
		1981	1991	2001
1	TOTAL	0.56%	0.54%	0.51%
2	URBAN	0.31%	0.29%	0.26%
3	RURAL	0.66%	0.65%	0.64%

Source: District Census Handbook 1981, 1991, 2001, Faridkot

Population Characteristics

3.3 As already stated Bagha Purana is an important urban settlement of district Moga and is the only urban area of LPA, Bagha Purana. Population growth (table no.3) of Bagha Purana town over the decades from 1961 to 2001 is give in table 3.As intimated by M.C. Bagha Purana was rural settlement up to the year 1978

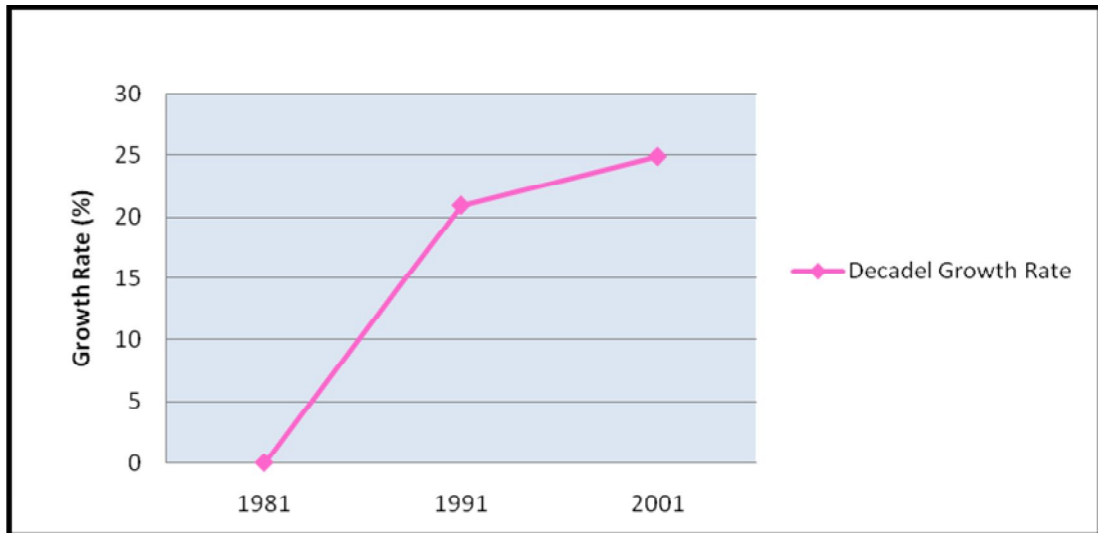
Table No. 4 Decadal growth rate of Town Bagha Purana

Year	Population	Decadal Growth Rate (%)
1961	9010	---
1971	11983	33.00
1981	14289	19.25
1991	17287	20.98
2001	21596	24.92

Source: District Census Handbook 1981, 1991, 2001, Faridkot

While reflecting the figures of above table into a diagrammatical form it gives an immediate impression of variation of growth rate as shown in Figure No.5

Figure No. 5: Decadal growth rate of Town Bagha Purana



3.4 Population Density

The gross population density of Bagha Purana town was about 24 persons per hectare in 1981 which increased to 29 persons per hectare as per the population figure of 1991. Population density of Bagha Purana town during various years is given in Table No.5 below:

Table No.5 Gross population density of Bagha Purana Town

Sr.No.	Year	Population	Area (in hectares)	Population Density in Persons/hectare
1	1981	14289	600	24
2	1991	17287	600	29
3	2001	21596	600	36

Source: District Census Handbook 1981, 1991, 2001, Faridkot

The population density is not the same all over the town. It varies to a large extent when discussed at ward level. The ward wise detail of population density is given in Table No.6

Table No.6 Ward wise gross population density of Bagha Purana Town -2010

Sr. No.	Ward No.	Area in Hectare	Population	Density/ PPH
1	Ward No.-1	212.81	1695	7.96
2	Ward No.-2	13.20	1867	141.44
3	Ward No.-3	10.15	1430	140.89
4	Ward No.-4	11.66	1330	114.07
5	Ward No.-5	16.68	1585	95.02
6	Ward No.-6	11.27	1361	120.76
7	Ward No.-7	10.67	1475	138.24
8	Ward No.-8	95.08	2068	21.75
9	Ward No.-9	81.87	2200	26.87
10	Ward No.-10	195.98	1768	9.02
11	Ward No.-11	95.75	1717	17.93
12	Ward No.-12	21.80	2281	104.63
13	Ward No.-13	4.08	1526	374.02
14	Ward No.-14	9.00	1217	135.22
15	Ward No.-15	348.00	1546	4.44
	Total	1138.00	25066	21.42

Source: The population figure is procured from the Municipal Council, Bagha Purana and area calculated is calculated by P.R.S.C Ludhiana

The census wise comparison of ward density is however not possible as ward boundaries and number of wards have been changing over the years. The density gradient as calculated by the Municipal Council Bagha Purana in the year 2010 shows that ward no 13 has the highest gross population density recording 374 persons per hectare and ward no.1, 8, 9, 10, 11 and 15 have lower slab of density i.e. below 50 persons per hectares with the lowest density of 4 persons per hectares in ward no.15. The wards numbering 2,3,4,6,7,12 and 14 have density between 100 to 200 persons per hectare, ward number 5 having population density 95 persons per hectare (50-100). The density has been classified into four groups as shown in Table No.7

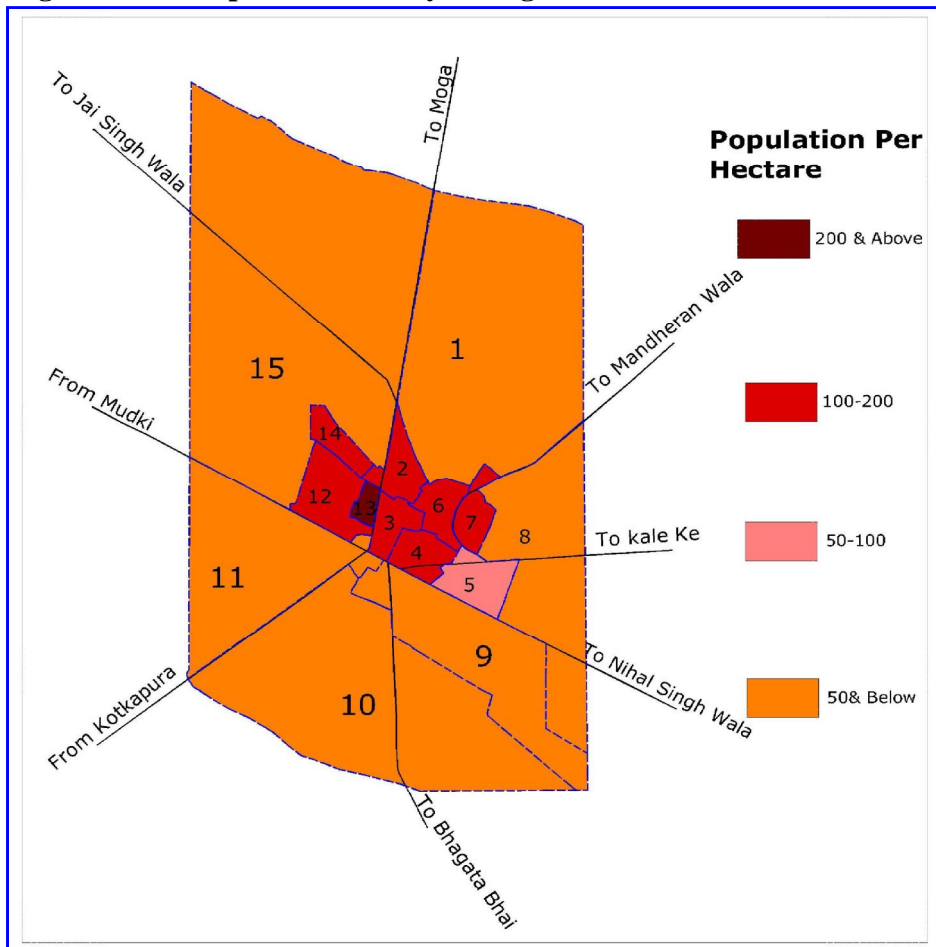
Table No.7 Population density of Bagha Purana Town

Sr. No.	Density Slab (Persons/hectare)	Ward Numbers
1	More than 200	13
2	100-200	2,3,4,6,7,12,14
3	50-100	5
4	50 and below	1,8,9,10,11,15

Source: Municipal Council Bagha Purana

The inner part of the town falls in high density zone as this part is thickly built up area with narrow streets. As per above table ward no. 13 has gross density of more than 200 persons per hectare. The majority of wards are in the category of 100-200 and 50 and below persons per hectare. The exact picture of density gradient of the town has not been depicted in the thematic map of Bagha Purana town. However the ward wise density as per data available has been shown in Figure 6

Figure No. 6: Population density of Bagha Purana Town



Sex ratio LPA, Bagha Purana

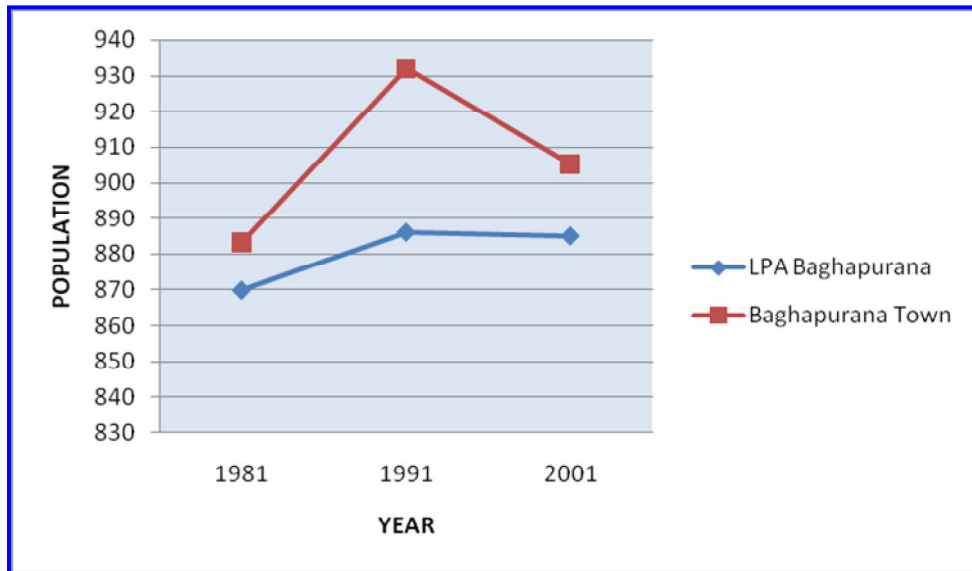
3.5 According to 1981 census, the sex ratio was 870 females per 1000 males in LPA, Bagha Purana which improved to 885 and in 1991 and it further improved to 886 by the year 2001. In case of Bagha Purana town also, the sex ratio increased from 883 females per 1000 population in 1981 to 932 in 1991 but declined to 905 in 2001. The sex ratio of LPA Bagha Purana when compared with the state figure of 876 females per 1000 males seems to be quite positive with the figure of 885 in 2001. The details of sex ratio in LPA Bagha Purana is given in Table no.8 and trend is shown in figure no.7.

Table No.8 Sex Ratio (1981-2001)

Year	LPA BAGHA PURANA				BAGHA PURANA TOWN			
	Total Population	Males	Females	Sex Ratio	Total	Males	Females	Sex Ratio
1981	94861	50728	44133	870	14289	7588	6701	883
1991	110430	58530	51900	886	17287	8946	8341	932
2001	124972	66804	58695	885	21596	11336	10260	905

Source: District Census Handbook 1981, 1991, 2001, Faridkot

Figure No.7: Trend of sex ratio in Bagha Purana



Literacy LPA, Bagha Purana

3.6 Table No. 9 depicts that the literacy rate is increasing in Local Planning Area, Bagha Purana. The literacy rate in 1981 was 32.72%, which increased to 40.18% in 1991 and further rose to 52.61 % in 2001. The percentage of male literates has been recorded 55.95 % whereas in case of females it was 48.85 % in 2001. As per trend, literacy rate of female increased from 27.46% in 1981 to 48.85% in 2001 in Local Planning Area, Bagha Purana, which shows that more and more girls are coming to schools. Similarly, literacy rate of Bagha Purana town also substantially increased from 46.36% in 1981 to 61.39 % in 2001 as shown in Table No.9. and shown in figure no.8

Table No 9.Literacy rate of Local Planning Area, Bagha Purana 1981-2001

Sr. No.	Year	Total Population	Total literates	Total Literacy rate	Males Literacy			Females Literacy		
					Total	Number	%age	Total	No.	%age
1.	1981	94861	31037	32.72	50728	18916	37.20	44133	12121	27.46
2.	1991	110430	44369	40.18	58530	26243	44.83	51900	18126	34.92
3.	2001	124972	65751	52.61	66277	37082	55.95	58695	28669	48.85

Source: District Census Handbook 1981, 1991, 2001, Faridkot

3.7 Literacy in Bagha Purana Town

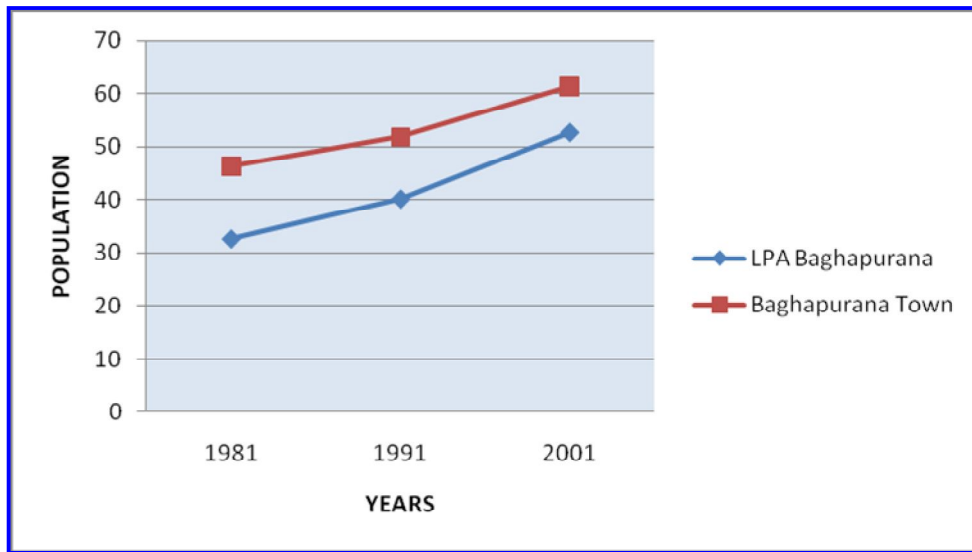
Literacy is one of the important indicators of social development. The literacy of Bagha Purana town is assessed for the last three consecutive census decades. The following table gives the detail of literacy rate composition wise.

Table No.10. Literacy rate of Bagha Purana Town; 1981-2001

Sr. No.	Year	Total	Total literates	Literacy rate (%)	Males		Females	
					Number	%age	Number	%age
1.	1981	14289	6625	46.36	3915	51.59	2710	40.44
2.	1991	17287	8974	51.91	4999	55.87	3975	47.65
3.	2001	21596	13258	61.39	7305	64.44	5953	58.02

The table 10 depicts that the level of literacy rate of Bagha Purana town is higher than that of LPA, Bagha Purana. The overall literacy rate of town increased from 46.36 to 52 percentage for the period of 1981-1991. This further increased to 61.39 percentage in 2001.

Figure No.8: Trend of literacy LPA Bagha Purana 1981-2001



The composition wise percentage of literacy rate shows variation of literacy rate between males and females. The male literacy is higher than the female literacy in all the three consecutive decades. The percent of male literacy rose from 51.59 to 64.64 percent and that of females increased from 40.44 to 58.02 percentages for the period of 1981- 2001. Therefore, the literacy registered a positive growth rate in the Bagha Purana town.

3.8 Employment in LPA Bagha Purana

Economic data as available for the state is not available for district or the town. The trends of economic growth have therefore to be judged on the basis of employment data as discussed ahead. The data depicts that the number of workers has increased in LPA, Bagha Purana as the percentage of workers to the total population increased from 33.82 % in 1981 to 38.24% in 2001. There are 61.76 percentage non-workers in LPA and 67.20 % non-workers in Bagha Purana town as per census 2001. The detail of workers and non-workers is given Table No.12.

Table No 11. Occupational structure of LPA, Bagha Purana

Year	Total Main workers	Cultivators		Agricultural laborers		Household industries		Others	
		No	%age	No	%age	No	%age	No	%age
1981	29593	13701	46.30	8372	28.29	534	1.80	6986	23.61
1991	34554	15318	44.33	11752	34.01	338	0.98	7146	20.68
2001	40899	14217	34.76	9548	23.35	2286	5.59	14848	36.30

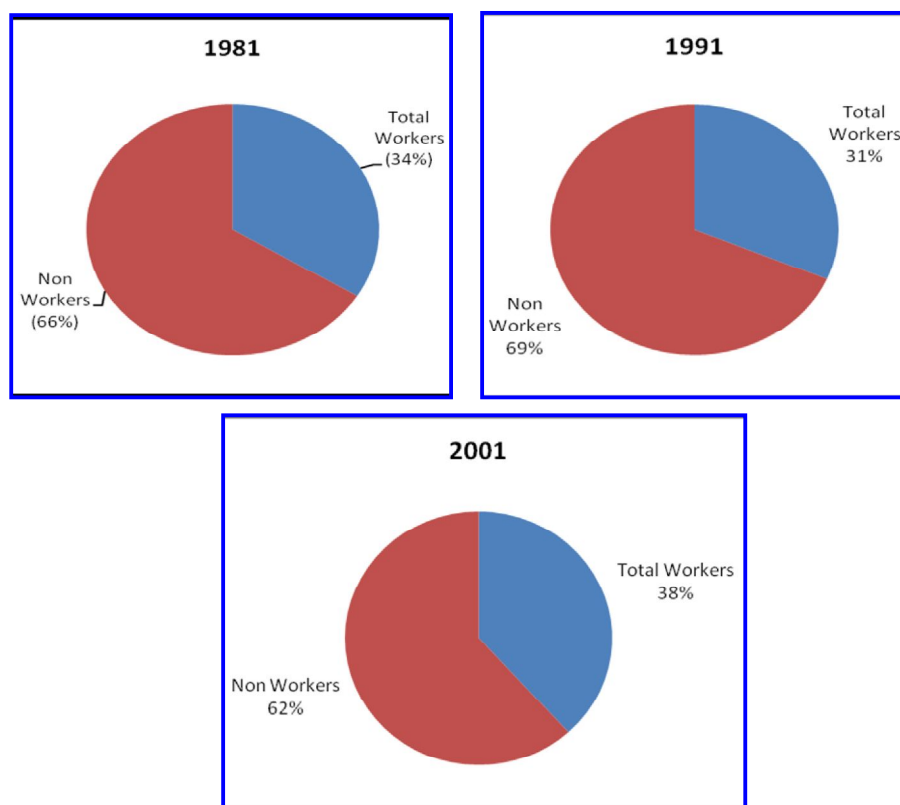
Source: District Census Handbook 1981, 1991, 2001, Faridkot and Moga

Table No 12. Workers and non workers in LPA, Bagha Purana and Town

Year	Total Population	LPA Bagha Purana			Total Population	Bagha Purana Town		
		Total workers	%age	Non workers		Total workers	%age	Non workers
1981	94861	32079	33.82	62782	14289	4343	30.39	9946
1991	110430	34676	31.40	75754	17287	5115	29.58	12172
2001	124972	47786	38.24	77186	21596	7085	32.81	14511

Source: District Census Handbook 1981, 1991, 2001

Figure No. 9: Workers and Non Workers in LPA, Bagha Purana(1981-2001)

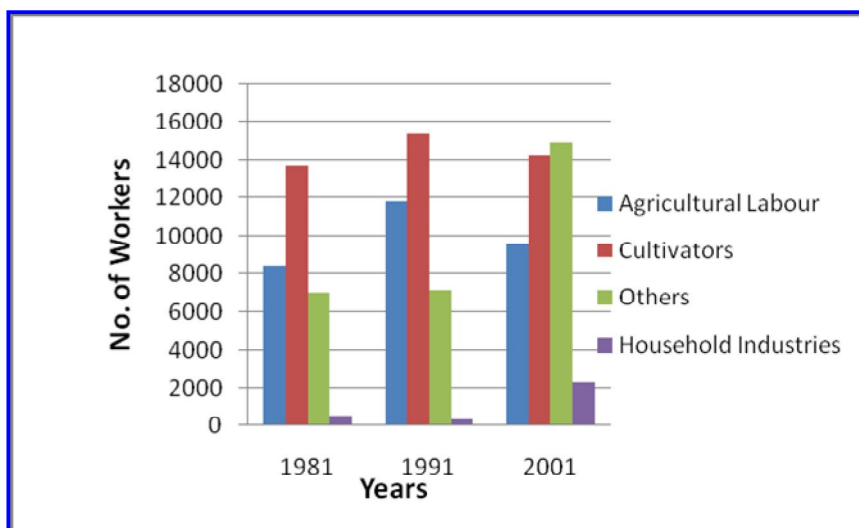


The above figures show that the share of workers and non workers to the total population during the last three decades. The share of workers reduced from 34 percent to 31 percent in 1981 and 1991 respectively. But again it increases to 38 percent in 2001.

3.8 Occupational structure

The change in occupational structure has been noticed in LPA Bagha Purana as persons engaged in primary activities i.e. cultivators and agricultural laborers decreased from 46.30 to 34.76% and 28.39 to 23.35% percent respectively during 1981-2001 whereas an increase is recorded in percentage of workers in household industries from 1.80% to 5.59% in 1981 and 2001 respectively. The most notable change during 1991-2001 is seen in the percentage of workers engaged in other activities, which jumped from 20.68% to 36.30% during this period. The detail of occupational structure is given in Table No.13 below:

Figure No.10: Occupational structure of LPA, Bagha Purana



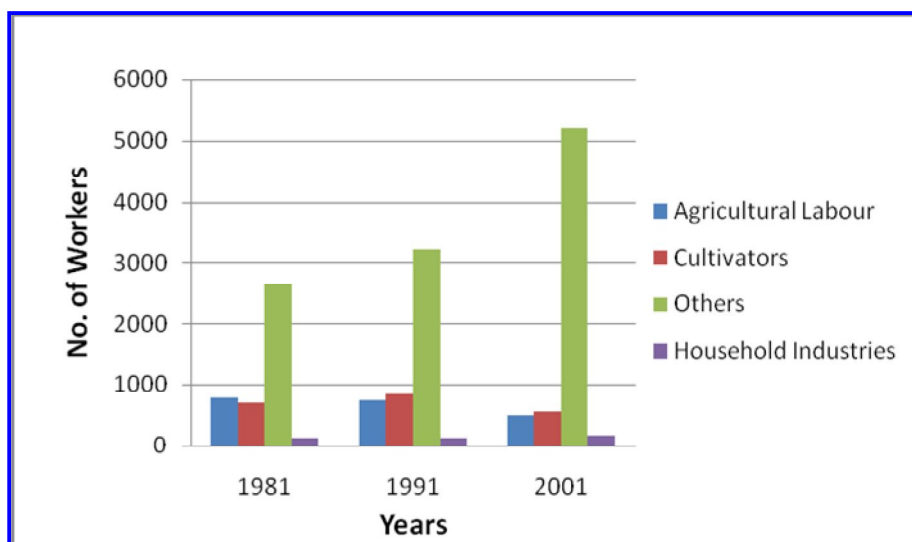
In case of Bagha Purana town the number of workers engaged in primary activities i.e. cultivators and agricultural laborers decreased from 16.46% in 1981 to 8.68 % in 2001 and from 18.22% to 7.63% in 2001 respectively. The house hold industry after showing a decreasing trend during 1981 to 1991 again recorded an increase from 2.38% to 2.69% during 1991 to 2001. Similarly the share of workers engaged in other activities recorded an increase from 62.21% to 81.0% in the year 1981 to 2001. These figures show that the scenario of development of Bagha Purana has changed as the trade and commerce flourished in this town during 1981-2001. Many activities concentrated here because of up gradation of its administrative status as Municipal Town and then sub divisional headquarter of district Moga. The detail of data is given in table no.13 and shown in figure no.11

Table No 13. Occupational structure of Bagha Purana Town, 1981-2001

Year	Total Main workers	Cultivators		Agricultural laborers		Household industries		Others	
		Nos.	%age	Nos.	%age	Nos.	%age	No.	%age
1981	4242	698	16.46	773	18.22	132	3.11	2639	62.21
1991	4907	836	17.04	729	14.86	117	2.38	3225	65.72
2001	6432	558	8.68	491	7.63	173	2.69	5210	81.00

Source: District Census Handbook 1981, 1991, 2001, Faridkot

Figure No. 11: Occupational structure of Bagha Purana Town, 1981-2001



4. HOUSING AND SLUMS

Housing is one of the basic needs and it ranks after food and clothing in terms of priority. Housing constitutes one of the most important parts of the social environment where an individual is nurtured, grows and matures as a human being, part of the society and as a citizen. Housing, in addition to making contribution to the quality of living, also plays a significant role in improving the national economy and generation of employment. Housing has multiplier effect on the economy and industry of the country. It does not provide merely a shelter but gives an identity to the human being besides making him better human being. Poor quality of housing or absence of appropriate shelter has considerable impact on the economy and productivity of human beings besides health and social environment. Housing is not merely confined to the four walls which make a house but also all supporting infrastructure which is required to sustain the human beings in terms of physical and social infrastructure. Accordingly, National Housing Urban Policy laid emphasis not only on providing affordable shelter but also creation of appropriate quantity and quality of essential services etc.

Growth of Housing in Bagha Purana

- 4.1 Housing is an activity, which is mainly driven by individuals to provide them with an appropriate shelter. With the rapid increase in population, number of houses has also recorded an increase. PUDA has framed many residential schemes in case of major cities of Punjab but in case of Bagha Purana not much work in this sector is done. The other Govt, agency like Municipal Council has not done any job towards this sector. Most of the residential area has taken place at its own with the efforts of individuals.

Table No 14. Growth of houses and households in Bagha Purana Town

Year	Occupied Residential House	%age growth rate of Residential houses	No. of Households	%age growth rate of Households	Population	Household Size
1981	2273	-	2326	-	14289	6.1
1991	2702	18.87	2761	18.70	17287	6.0
2001	--	--	3433	24.33	21596	5.59

The above table depicts that the number of occupied residential houses and households increased with the increase in population of the town during the year 1981-2001 but the occupied residential houses increased at a lower rate than the increase in number of households. During 1981-1991 the growth rate of occupied residential houses was more

than the growth rate of households but during latest decade of 1991-2001 the position of housing stock became little bit tight which was comparatively better during 1981-1991. During this time it has been found that the household size has recorded a decrease as it was 6.1 persons per family in 1981 which has been recorded as 5.59 persons per family in 2001.

Type of Housing Structure

4.2 As per figures of 2001 census a major portion of town population was living in permanent houses which constitute 94.49% of the total population and 4.01% share goes to semi permanent structures. Only 1.48% population was living in temporary structures. The figures of Table No.15 expresses that a majority of population of Bagha Purana live in permanent structure.

Table No 15. Residential houses by their type of structure in Bagha Purana Town

Type of Structure	Permanent	Semi-Permanent	Temporary			
			Total	Serviceable	Non-Serviceable	Unidentified
No. of houses	3244	138	51	49	2	0
%age of total	94.49	4.01	1.48	1.42	0.05	0

Source: Census of India, 2001

Households by number of dwelling rooms

4.3 There is no separate data available regarding households by number of dwelling room for Bagha Purana town, therefore the data relating to Moga district Urban has been taken for the purpose of making an assessment of housing stock available by type of rooms. The figures of 2001 census indicated that out of the total households of the Moga district urban about 45.64 % live in the houses having one room, about 30.64% live in two room set and 13.43% in three room accommodation there are only a few households who live in no exclusive room. Thus maximum number of households i.e. 45.64% has at least minimum one dwelling room and this number when compared to all India urban proportion of only 35 % households living in one room or more, shows that the town has relatively better housing condition and the houseless households are 80 which is 0.99% only. This data shows the overall assessment of housing stock in Moga District urban and the median works to 2 rooms per households. The detail of households by number of rooms is given in Table No.16

Table No 16. Households by number of dwelling rooms in Moga District Urban: 2001

Number of rooms	No exclusive Room	One Room	Two Room	Three Room	Four Room	Five Room	Six Rooms and above	Total
Households	198	3657	2452	1076	479	142	125	8011
%age	0.99	45.64	30.60	13.43	5.97	1.77	1.56	100

Services to households

Households by Source of Drinking Water

- 4.4 As per the census 2001 about 21.08% of the total households have source of the drinking water from tap and 61.11% are dependent on hand pump in case of Bagha Purana town. In category other than tap and hand pump about 17.01% of the total households are dependent on tube well and only 0.78% are dependent upon other water sources.

Table No 17. Houses by Source of Drinking Water in Bagha Purana town: 2001

Source of Drinking water	Tap	Hand Pump	Tube Well	Any Other	Total
Households	724	2098	584	27	3433
%Age of the total	21.08	61.11	17.01	0.78	100

Source: Census of India 2001

The above table depicts that still a number of households of Bagha Purana town are using water from other than piped & hand pump supply system.

5 EXISTING LAND USE AND TRANSPORT NETWORK

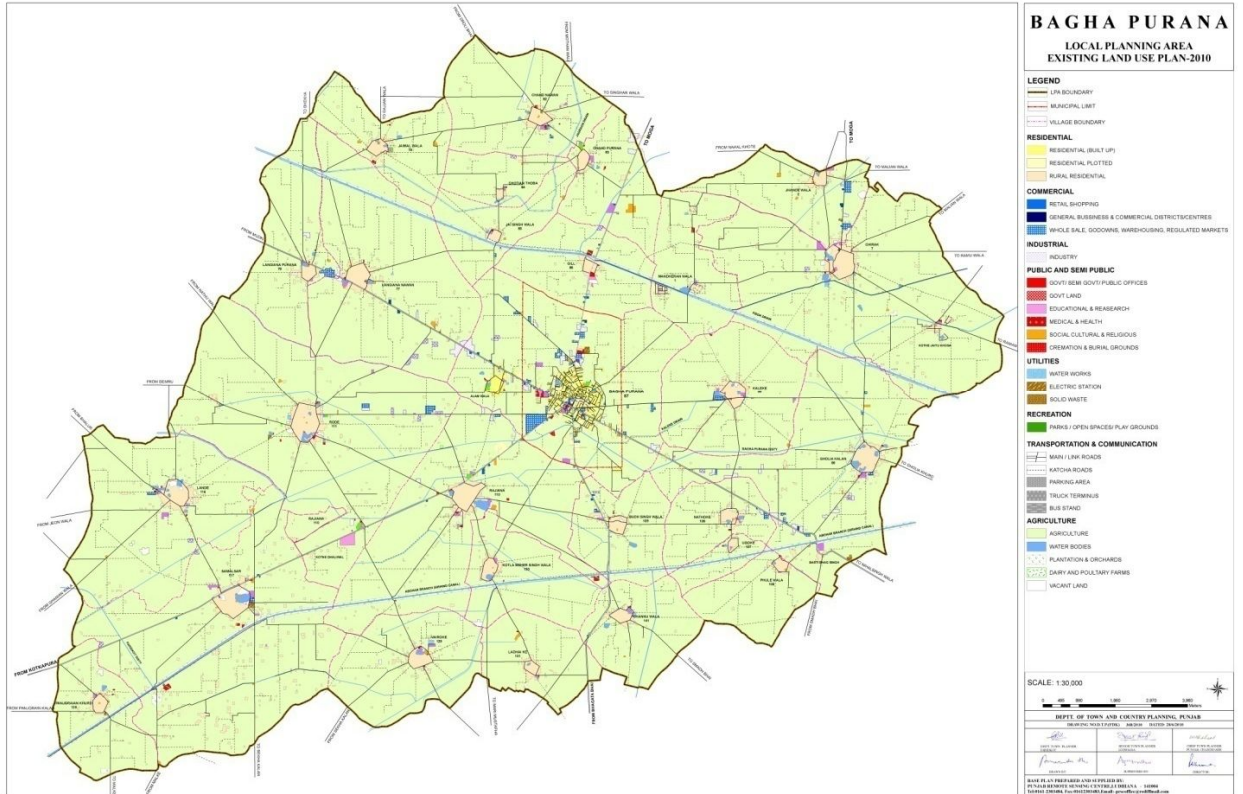
Preparation of Base Map:

- 5.1** The work of preparation of base map for the Local Planning Area, Bagha Purana was assigned to Punjab Remote Sensing Centre, P.A.U., Ludhiana vide memo no.4827 CTP (Pb)/SP 480 dated 22-10-2007 of Chief town Planner, Punjab. The Base Map of LPA Bagha Purana is generated on 1:10,000 scale using Cartosat I data of 2.5 mtr spatial resolutions. The Cadastral maps of the villages falling in LPA were procured from the state Revenue department by the office of District Town Planner, Faridkot and these maps have been scanned in the office of PRSC, Ludhiana and registered with Cartosat I data to demarcate village boundaries. The features like roads, rails, high and low lands, drains etc. have also been delineated from Cartosat I data, by the concerned agency and shown on the Draft Base Map prepared on basis of satellite imagery. After editing the map details, the attributes to different features were assigned. After the preparation of base map of LPA on 1:10,000 scale using Cartosat I data, the Draft Base Map for densely populated built up areas of Bagha Purana town (core area) was prepared on 1:2000 scale using quick bird satellite data of 0.5 mtr. spatial resolution. The quick bird data (satellite imagery) has been received by the PRSC, Ludhiana from National Remote Sensing Agency, Hyderabad.

Enhancement through field surveys – Land use and Road network

- 5.2** The Draft Base Map for the LPA, Bagha Purana and Bagha Purana town (i.e. core area) was received from Punjab Remote Sensing Centre, Ludhiana. The Draft Base Map was then updated through ground truthing by conducting field survey by the office of DTP, Faridkot. The various land uses were identified at the site and earmarked accordingly. Similarly the road network, drains, distributaries and other communication zones have been verified and checked on the ground. After conducting field surveys, the necessary feedback was supplied to P.R.S.C Ludhiana, which were ultimately incorporated and the updated Base Map was prepared by P.R.S.C, P.A.U Ludhiana. The office of DTP Faridkot again conducted second round of field verifications (ground truthing) and the updated (corrected) plans were then supplied to P.R.S.C, this exercise was repeated several times and the field staff of DTP Faridkot office personally assisted the concerned staff of PRSC and a final Existing Land Use map thus was prepared as shown in Drg.No. DTP (FDK) 368/2010 dated 28/6/2010.

Drawing 2: Existing Land use, LPA Bagha Purana



The LPA Bagha Purana comprises an area of 32322 hectares as per revenue record and as per calculations of P.R.S.C. Ludhiana it works out to 32303 hectares with a variation of 0.06% only which is very negligible thus ignored. The existing land use pattern has been divided into eight broad categories prominent of these are residential, commercial, industrial, public & semi public, utilities, transportation & communication, agricultural etc. The detail of Existing Land Use of LPA Bagha Purana is given in table No.18 below;

Table No 18. Existing Land Use, Local Planning Area, Bagha Purana-2010

Sr. No.	LAND USE	Area in hect.	Percentage of total area
1	RESIDENTIAL	1507.1	4.66
	Residential (Urban) Built up	137.20	0.42
	Residential Plotted	63.30	0.20
	Rural Residential	1306.60	4.04
2	COMMERCIAL	73.58	0.23
	Retail Shopping	19.92	0.06
	General bussiness and Commercial	4.12	0.02
	Whole Sale, Godown, Ware Housing Regulated Market	49.54	0.15
3	INDUSTRIAL	108.53	0.34
	Service light Industry	84.63	0.26
	Planned(Medium)	23.90	0.08
	Heavy		
4	PUBLIC & SEMI PUBLIC	164.65	0.51
	Govt / Semi Govt / Public Offices	13.5	0.05
	Educational & research	81.00	0.25
	Medical & Health	9.02	0.03
	Social, Cultural & Religious	46.92	0.14
	Cremation & Burial Grounds	14.21	0.04
5	UTILITIES	21.32	0.07
	Water works	13.62	0.05
	Electric Grid Station	7.70	0.02
	Solid Waste Disposal	---	
6	RECREATION	8.2	0.03
	Parks & Gardens, Playground (Public Open Spaces)	8.2	0.03
7	TRANSPORTATON & COMMUNICATION	168.33	0.52
	Main Roads \$ Parking	154.13	0.48
	Bus & Truck Stand	0.7	0.002
	Katcha Roads	13.5	0.04
8	AGRICULTURE & RURAL	30270.29	93.64
	Agriculture	29432.84	91.04
	Water Bodies	315.18	0.97
	Plantation & Orchards	402.61	1.25
	Dairy & Poultry Farm	0.83	0.01
	Vacant Land	118.82	0.37
	TOTAL	32322.00	100.00%

LPA Bagha Purana covers the revenue estates of 26 villages which also includes the areas of one urban centre i.e. Bagha Purana, as given in Annexure II. Out of the total area of LPA Bagha Purana about 30270.29 hectares is under agricultural use which is 93.65% of the total area. The second largest share goes to residential use which occupies 1507.1 hectares in various settlements such as Bagha Purana town and 26 rural settlements. The detail of breakup of major existing land uses is given in Table 21 above. The spatial distribution of existing Land Use of LPA Bagha Purana is shown in Drg.No.DTP (FDK) 368/2010 dated 28/6/2010

The total area of Municipal Council of Bagha Purana is 1138 hectares as per PRSC which includes residential, industrial, commercial, public amenities and agricultural etc. Most of the area falling within municipal limits is either agricultural or lying vacant which is about 75% of total area. Out of the developed area of the town about 190 hectares is covered under residential use, about 42 hectares under transportation and communication and about 23 hectares under public & semi- public use whereas only 14.5 hectares area is under industrial use. The detail of major existing land uses within the M.C. Limits is given in Table No.19 below.

Table No 19. Existing land use, Bagha Purana Town-2010

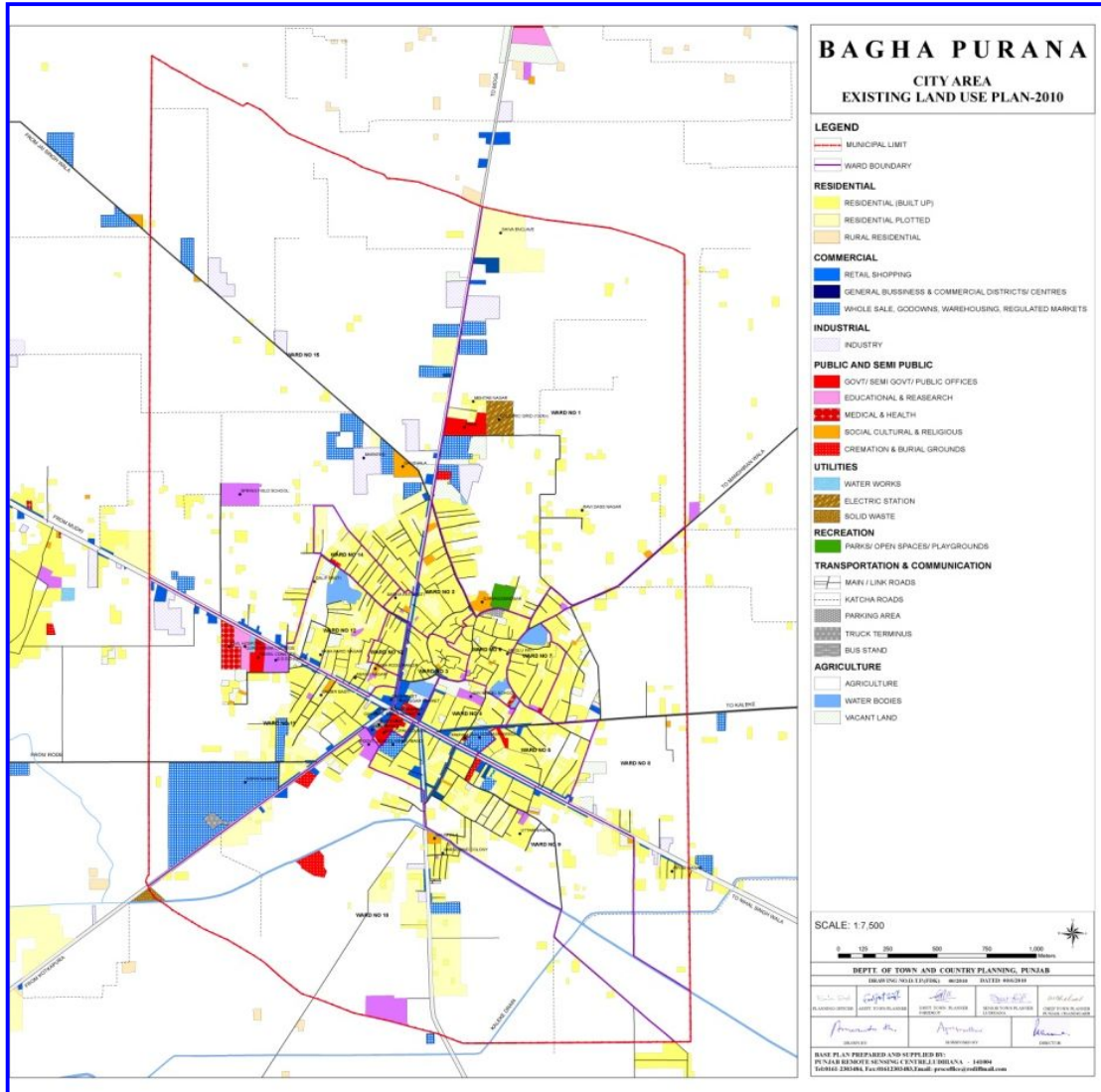
Sr. No.	LAND USE	Area in hect.	Percentage of total area
1	RESIDENTIAL	189.52	16.64
	Residential (Urban) Built up	137.17	12.04
	Residential Plotted	52.35	4.60
2	COMMERCIAL	31.88	2.81
	Retail Shopping	9.03	0.79
	General Business & Commercial	0.95	0.08
	Whole Sales, Godowns, Warehousing	21.90	1.94
3	INDUSTRIAL	14.5	1.27
	Service light Industry	14.5	1.27
	Planned Industries (Medium)	----	
	Heavy Industry	---	
4	PUBLIC & SEMI PUBLIC	23.18	2.04
	Govt / Semi Govt / Public Offices	5.43	0.48
	Educational & research	9.15	0.80
	Medical & Health	2.1	0.19
	Social, Cultural & Religious	4.03	0.35
	Cremation & Burial Grounds	2.47	0.22
5	UTILITIES	2.73	0.24
	Water works	0.33	0.03
	Electric Grid Station	2.4	0.21
	Solid Waste Disposal	--	

Sr. No	LAND USE	Area in hect.	Percentage of total area
6	RECREATION Parks & Gardens (Public Open Spaces)		0.11
7	TRANSPORTATION & COMMUNICATION	42.40	3.72
	Main Roads & Parking	42.2	3.70
	Bus & Truck Stand	0.2	0.02
8	AGRICULTURE	833.19	73.17
	Agriculture	810.53	71.18
	Water Bodies	8.25	0.72
	Vacant Land	14.41	1.27
	TOTAL	1138.62	100

Residential

5.3 Residential use covers a large share of total area of our towns and cities; same is the case with Bagha Purana town. Out of total Municipal area of 1138.62 hectares about 189.52 hectares are under residential use which is 16.64 % of total area. The residential area of the town is divided into three Pattis (Segments) namely Bagha Patti, Purana Patti and Muglu Patti. Baba Rodo Basti is the oldest residential settlement in the town. There is no planned residential colony in Bagha Purana developed by any Govt. or Semi-Govt. agency. Recently one planned colony in private sector on the Moga road has been approved by PUDA. Which is yet under the process of development, almost whole of the town can be said to be developed in an unplanned manner having zigzag street pattern. Existing Land use Plan Drg.No.DTP (FDK) 368/2010 dated 28/6/2010 clearly shows the existing land use pattern of Bagha Purana and road pattern of the town.

Figure no: 12 Existing Land use, Bagha Purana Town



Commercial

5.4 The Bagha Purana is an important commercial centre of Moga district because of its nodal location at the inter-section of Kotkapura-Moga State highway and Mudki- Nihal Singh Wala major district road. The total area covered under commercial use is 31.88 hectares which is 2.81 % of the total municipal area. Out of total commercial area only 21.90 hectares are under wholesale trade and remaining is under retail trade. The oldest commercial area is the Jadugar market near Bhagat Singh Chowk .The other important commercial areas are Giani Jail Singh market, New market, DM market and etc. There are the wholesale/commercial areas in Bagha Purana such as Subash market, Nehru market and New Grain market on Kotkapura road which are handling the agricultural

produce particularly Wheat, Paddy, cotton etc. The general commercial is also concentrated along the main corridor in the form of ribbon development particularly along Moga road, Kotkapura road Nihal Singh Wala road and Mudki road. The godowns/warehousing particularly the Govt. (FCI) godowns are seen to be developed along the Moga road and Jai Singh Wala road. The location of different commercial activities and Godowns/warehousing is shown in the Drg.No.DTP (FDK) 368/2010 dated 28/6/2010

Industry

- 5.5** As table depicts that the total area under industrial use is about 14.5 hectare which is 1.27% of the total municipal area. The town of Bagha Purana does not have good number of industries. The growth of industries is slow and limited to Agro based industries particularly rice shellers. The location of different industrial areas/sites is shown on Existing Land use plan of Bagha Purana Town Drg.No.DTP (FDK) 368/2010 dated 28/6/2010

Traffic & Transportation

- 5.6** The total area under traffic and transportation is 42.40 hectares which is 3.72% of the total municipal area. However the percentage of area under this use is low as compared to norms and standards required for this size of town. The major problems related to this aspect is the existence of narrow width of roads missing road hierarchy, lack of parking places, encroachment of roads, lack of traffic signals etc. Table 22 depicts that out of this use major share of 42.2 hectares is covered under main roads and parking. A small bus stand on Kotkapura road measuring an area of 0.2 hectares is in operation in the town where 168 mini and 554 main buses operate per day. There is a small size organized Truck Stand. The spatial distribution of existing road network and other uses relating to traffic transportation are shown in Existing Land Use Plan, Bagha Purana town Drg.No.DTP (FDK) 368/2010 dated 28/6/2010

Public & Semi-Public

- 5.7** This Use comprises the areas covered under Govt. / Semi Govt. offices, Govt. Lands, Education, Health, Socio-Cultural, cremation grounds etc. The total area covered by this use is about 23.18 hectares which is 2.04 % of total Municipal area. The most Public and Semi-Public uses are concentrated in the central part of the town whereas

few uses of this category are seen in the outer parts of the town particularly on Mudki road as shown in existing land use plan.

Utilities

- 5.8** Utilities include uses like Water Works, Electric Grid station, (E.G.S.) Sewage Disposal, Solid Waste Dumping site etc. Total area under this use measures about 2.73 hectares which is only 0.24% of total Municipal Area. In Bagha Purana main source of drinking water is ground water which has been extracted at three places i.e. on Mudki road, Kotkapura road, and Kale Ke road have over head reservoir where as the third one is only pumping station. Besides this the grain market has its own water works. There is only one Electric Grid Station of 220 KV on Moga road .There is no solid waste management site or land fill site in the Municipal area because a site on Kotkapura has been taken on rent by M.C. for this purpose.

Agricultural

- 5.9** There are some large chunks of agricultural use within the Municipal limits of Bagha Purana. The north eastern part and north western part towards jai singh wala road have bigger chunks of agriculture land. Besides the some area towards south of the town beyond Bagha Purana distributary upto M.C limits are also under agricultural use. About 833.19 hectares of land is under agricultural use within Municipal limits which is 73.17% of total town area out of this about 14.41 hectares and 8.25 hectares of land is under vacant area and water bodies respectively. The existing Land Use Plan Drg.No.DTP (FDK) 368/2010 dated 28/6/2010 shows the spatial distribution of all these uses within the municipal limits of Bagha Purana.

Existing Road –Network

- 5.10** The road network of towns and cities plays an important role in the growth of urban areas. Urban transport has also been considered as an integral part of urban planning. The objective of studying the transport sector is to analyze and understand the role of transport in the present scenario of the town and the surroundings and to understand the existing potentials, strengths, weakness and constraints of the transport sector and consequently arrive at strategies and projects which will form an integral part of the town development strategy. The road network is studied in terms of classification of roads, length of roads, cross section of roads (divided and undivided carriageway,

footpath, shoulders etc.), area of road network and major road intersections. Similar data regarding rail network is also studied.

Road Network LPA Level

5.11 Local Planning area of Bagha Purana has significant road network. Moga-Kotkapura State Highway No.16 passes through it providing connectivity with Moga on one side and Kotkapura on other side. State highway No.16A provides the linkages with Bhagata Bhai. This further connects with NH 64 near Bhuchu Mandi. LPA, Bagha Purana has the location advantages as far as the road networks is concerned. The detail of existing width of Right of way, carriage way and length of major roads falling in LPA, Bagha Purana is given in Table No.20.

Table No 20. Detail of road cross sections and length of major roads

Name of Road	Total Length in Kms	Within MC			M.C.to LPA		
		Road Length in Kms	Right way (mts)	Carriage way(mts)	Road Length in Kms	Right of Way(mts)	Carriage Way (mts)
State Highways							
Bagha Purana-Moga(SH-16)	7.35	2.6	16	10	4.75	16	10
Bagha Purana – Kotkapura(SH-16)	15.7	2.80	20	10	12.9	20	10
Bagha Purana – Bhagata Bhai(SH-16A)	7.93	1.6	22.6	7.0	6.33	22.6	7.0
Sub Total	30.98	7			23.98		
Other major roads							
Bagha Purana – Nihal Singh Wala	9.17	1.7	33	7.0	7.47	33	7
Bagha Purana – Mudki	7.63	1.4	33	5.5	6.23	33	5.5
Bagha Purana – Jai Sigh Wala	9.76	1.38	8.4	3.0	8.38	8.4	3.0
Bagha Purana – Kale Ke	9.29	1.27	8.4	3.0	8.02	8.4	3.0
Total	66.83	12.75			54.08		

Field Survey by DTP office Faridkot

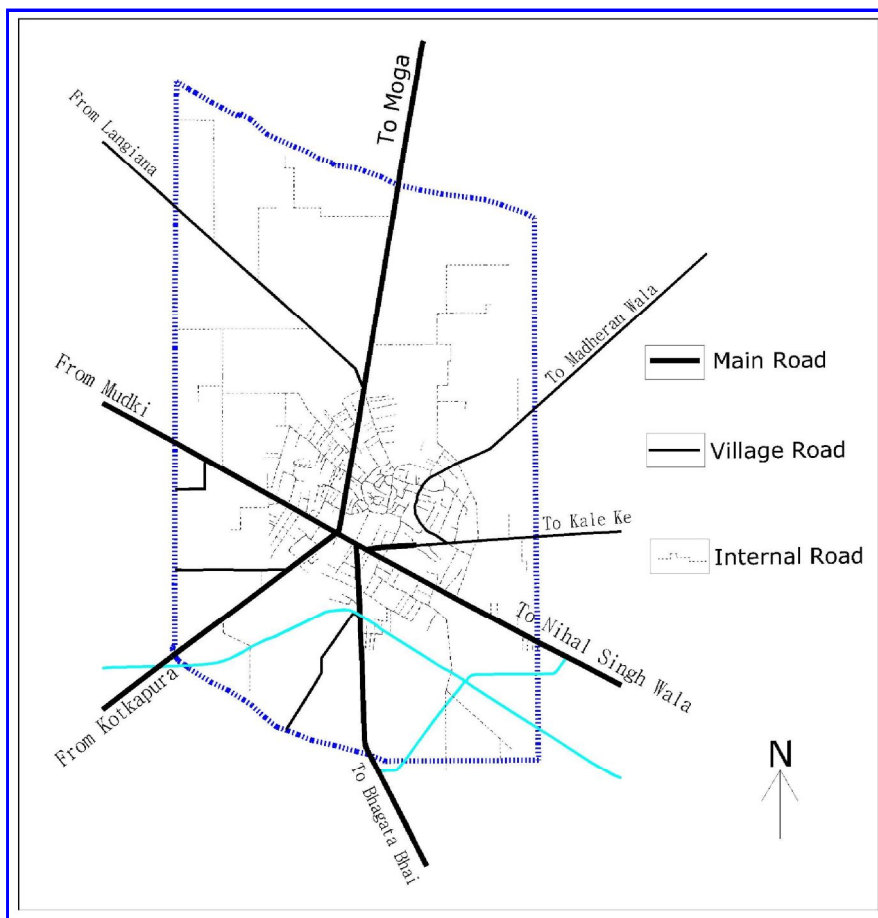
The existence of main roads in LPA, Bagha Purana shows that this area is well served by the regional roads as well as link roads which provide high level of connectivity with the various towns and cities and other parts of the state. The total length of mains roads has been measured to 66.83 kms within LPA boundaries out of which about 12.75 kms fall within the limits of municipal council of Bagha Purana. All these roads have black

top as material of construction. Besides this there is very good road network of other rural link roads in LPA Bagha Purana. The location and alignment of these roads is shown at Drg.No.DTP (FDK) 368/2010 dated 28/6/2010

Road Network at Town Level

5.12 The existing road network in the town is radial in pattern. The main roads making connectivity with two major urban settlements i.e. Moga in the north east direction and Kotkapura in the south west. The other important roads integrate the town with Mudki in the North West direction. The town is well connected with Bhagata Bhai and Nihal Singh Wala. Similarly other link roads leading towards surrounding villages like Kale Ke road, Jai Singh Wala road and Mandheran Wala All these roads play an important role in providing the shape to town’s morphology. These roads provide access to various localities of the town. The existing road network of Bagha Purana has a potential for well conceived planned Development of the town. The road network of Bagha Purana town has been shown in Figure No.13.

Figure No 13: Existing Road Network Bagha Purana Town



The existing width of S.H.-16 is 16 meter and that of S.H.16A is about 22-23 meter whereas The Mudki-Barnala road has 33 meter road width. The internal roads of the town are mostly less than (26 feet) wide some of which are even less that 10 feet wide. The main roads such as the inner road network of Bagha Purana town have irregular alignments, inadequate width and frequent intersections. There is no central divider, all other roads are undivided. There is no planned or organized parking place in the town. The vehicles are seen parked along road sides everywhere in bazaars.

Environmental Status

- 5.13** The intensity of the pollution in terms of air, water and noise is evaluated in order to clearly understand the level and causes of pollution existing within the town so that appropriate strategies are put in place to tackle the problem of pollution. There is no observatory installed in the town to check the air pollution, but on the whole the problem of air pollution in Bagha Purana is not so serious to be taken care of, however the air pollution created by vehicles cannot be ignored.

Heritage & Conservation

- 5.14** The basic objectives of urban and regional planning are very clearly related to those of conservation of historic towns, area and monuments. Land use plans, Master Plan, Zoning Regulations and building bye-laws etc. help in achieving these objectives. The existing old areas in cities need care of the architectural fabric in urban areas. Therefore conservation needs to be an integral part of the town planning process, i.e. land use plans, building regulations and development policies. The perspective plan of a city must be reviewed to assess its effect on the conservation needs of the city. It must reflect and respect the form of all areas and buildings and precincts must recognize the social needs of community in old days. So for as Bagha Purana town is concerned there is no heritage or historical building declared under any relevant Act.

Acts/laws

- 5.15** A few of the Central and State Government Acts which mention conservation of built heritage monuments and natural and environmental protection are enumerated as under:-

Central Level Acts

- 5.16** Ancient Monuments and Archaeological Sites and Remains Act, 1958 is the principal Act.

State Level Acts

- 5.17** The Punjab Ancient Monuments and Historical Remains Act, 1964 Provisions contained in "The Punjab Regional and Town Planning and Development Act, (Amended) 2006.

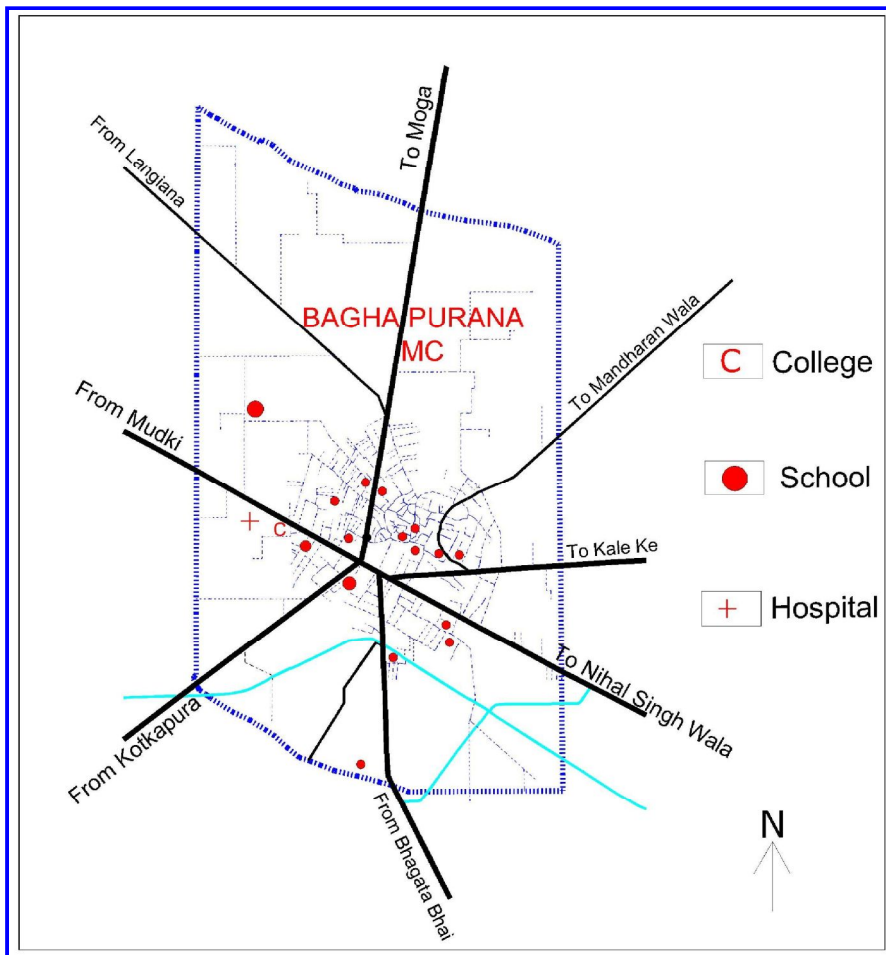
Heritage & Conservation in Bagha Purana

- 5.18** As per the records and information collected from various departments there is no building of archeological, historical, or artistic importance in Bagha Purana LPA which has been declared as heritage building under any Act, however there are some old buildings existing in the town which do have some historical importance and can be considered for conservation after conducting requisite studies. There are some historic Gurudwara and Temples which need special attention.

6. Social Infrastructure Education

6.1 Educational facilities certainly improve the quality of manpower available in urban area. In addition, these facilities have been found to be leverage the economic development and employment. There are some education institutions located in LPA, Bagha Purana out of which some are located in Bagha Purana town like Guru Nanak College on Mudki road, Punjab Co-education School, Govt. Girl School and etc. There are several private schools operating in this area, but there is totally absence of Technical institutions like Engineering Colleges. (refer figure no.14)

Figure no14: Existing Social Infrastructure



At present there are 47 Primary and Elementary schools and 29 high/higher/secondary level schools in LPA, Bagha Purana, out of which 5 primary and 6 High/Higher secondary schools are working in Bagha Purana town. Considering the existing

population and norms defined for educational institutions, quantitatively the number of lower order educational institutions is adequate to cater the needs of the people of the LPA but qualitatively most of the institutions have been found to be deficient in the basic amenities and facilities. Some of schools do not have adequate open spaces in the vicinity of such institutions. Space occupied by these institutions is also on the lower side when compared with the norms prescribed by various agencies. The availability of educational institutions at various categories like technical and non-technical education has been detailed below in Table No.21

Table No 21. Educational facilities in Local Planning Area and Bagha Purana Town

Sr. No.	Name of Facility	Existing in Numbers	
		Bagha Purana Town	LPA Bagha Purana
1	Primary and Elementary Schools	5	47
2	High / Secondary Schools and Senior Secondary Schools	6	29
3	Colleges (Degree)	1	2
4.	Polytechnic College	-	1
	Total	12	79

Source: DEO, Moga, Authorities of Different Colleges

Health

- 6.2 As per information supplied by Civil Surgeon Moga there are 41 units of medical facilities of different types providing health services to the residents of LPA as well to the persons from outside the LPA. Out of these units there is one hospital with a total bed available in Bagha Purana town and one Primary Health Center in village Rajian, Lande and Chand Nawan. Total number of Sub Health Centre and Dispensaries has been counted to be 16 in LPA of Bagha Purana. In order to take care of animals and pets there are 18 Veterinary hospitals functioning in Local Planning Area Bagha Purana. Besides this there are three prominent Eye Hospitals being run in private sector. The detail of medical facilities available in Local Planning Area Bagha Purana is given in Table below.

Table No 22. Medical facilities in LPA Bagha Purana

Sr. No.	Name of Facility	Existing number
1.	Hospital	1
2.	Primary Health Center	3
3.	Dispensary/Sub Center	16
4.	Veterinary Hospital	18
5.	Eye Hospital(Private)	3
	Total	41

Source: Census 2001 & CMO, Bagha Purana, Deputy Director Animal Husbandry.

The spatial distribution of education and Health facilities available in Bagha Purana town is shown in Figure no.

Police stations

- 6.3** In order to maintain law and order in Bagha Purana town and surrounding villages there are one police station in Bagha Purana. It serves 65 villages and it is the biggest Police station of India. This deals with the rural area around Bagha Purana. The higher order offices like S.S.P. office and Police line etc. are situated in Moga which is 17 kilometers from here.

Post and Telegraph

- 6.4** In spite of rapid advancement in technology relating to telecommunication during recent past, the post and telegraph department has still maintained its leading role in this field. At present there are 23 sub-post offices in LPA Bagha Purana,

7. VISUALIZING THE FUTURE

7.1 Population Projections 2031

The population is the basic human factor for which planning is done. The requirements of different types of infrastructure for Bagha Purana town and for villages of LPA, for the year 2031 would be based on the projected population for that year and also migrated population that seeks livelihood in the town. For the purpose of population projections following two methods have been applied:

- Ratio method or sharing pattern method.
- Extrapolation method: Extrapolation of the past trends and assuming that the trend will continue in future.
- In addition to this, the government policies and the opportunities affecting the growth of Bagha Purana town and rural areas of LPA, Bagha Purana have also been kept in mind.

The following table gives the detail of decadal growth rate of population of Bagha Purana town, population of rural areas and total population of LPA, Bagha Purana.

Table No 23. Growth rate of population of Bagha Purana LPA, total, urban and rural (1981-2001)

Year	LPA Total		Urban		Rural	
	Population Growth		Population Growth		Population Growth	
	Total	Percentage	Total	Percentage	Total	Percentage
1981	94861	-	14289	-	80572	-
1991	110430	16.41	17287	20.98	93143	15.60
2001	124972	13.17	21596	24.92	103376	10.99

Source: Census of India, 1981, 1991, 2001

Method I: Ratio Method or Sharing Pattern Method

7.2 In order to achieve more realistic picture of projected population it has been decided to follow the share of Urban and Rural population of LPA, Bagha Purana to the total Urban and Rural population of Punjab state. Report of the technical group on Population projections constituted by the National Commission on Population entitled “POPULATION PROJECTIONS FOR INDIA AND STATES 2026” has provided

projection of Punjab Urban, Punjab rural and their share in the total population of the state up to year 2026 as represented in Table 24.

Table No 24. Projected population of Punjab total, urban and rural (2006- 2026)

Year	2001	2006	2011	2016	2021	2026
Punjab Total	24359	26059	27678	29112	30323	31345
Punjab Urban	8263	9439	10681	11940	13185	16456
Percentage Urban	33.92	36.22	38.59	41.01	43.48	52.50
Growth rate of Punjab Urban in %	-	14.23	13.16	11.79	10.43	24.81
Punjab Rural	16096	16620	16997	17172	17138	14889
Percentage Rural	66.08	63.78	61.41	58.99	56.52	47.50
Growth rate of Punjab rural in %	-	3.28	2.26	1.03	-0.20	-13.14

Source: National Commission on Population

The percentage share of Bagha Purana town and rural population of LPA, Bagha Purana to total urban and rural population respectively of Punjab for the year 1981, 1991 and 2001 is calculated and is given Table 25.

Table No 25. Share of population of LPA, Bagha Purana, total urban and rural

Percentage share of Bagha Purana town to the Total Urban Population of Punjab			Percentage share of Rural Population of LPA, Bagha Purana to Total Rural Population of Punjab		
1981	1991	2001	1981	1991	2001
0.31%	0.29%	0.26%	0.66%	0.65%	0.64%

(Source: Census of India 1981, 1991, 2001)

For projecting the urban population i.e. of Bagha Purana town, the percentage of urban population (Bagha Purana town) is derived from the total urban population of Punjab in year 2001 which comes out as 0.26%. This figure of 0.26% has been used constantly for projecting the urban population for Bagha Purana town for the year 2006, 2011, 2016, 2021, and 2026. For calculating the projected population of 2031, the growth rate of previous five years is taken. Besides this, the floating population of about 5% has also been added to the projected population.

Similarly, for projecting the rural population of LPA, Bagha Purana, the percentage share of rural population of LPA, Bagha Purana of has been derived from total rural population of Punjab in the year 2001 which comes out as 0.64% and the same has been used constantly for projecting rural population up to the year 2016. Thereafter growth rate of 2011-16 i.e. 1.02% has been taken for calculating the projected population of LPA, Bagha

Purana rural for the year 2021, 2026 and 2031 because the growth rate of Punjab rural during the year 2016 - 2021 and 2021 - 2026 is given negative. The Projected population of Bagha Purana town and LPA, Bagha Purana rural is given in the Table 26.

Table No26. Projected Population LPA Bagha Purana by sharing method (2006-2031)

Sr. No.	Total	Urban		Rural
		Projected Population (in persons)	Total Projected Population including 5% of total as floating Population (in persons)	
2006	130909	24541	25768	106368
2011	136550	27770	29158	108780
2016	140944	31044	32596	109900
2021	145302	34281	35995	111021
2026	154938	42785	44924	112153
2031	166693	53396	56065	113297

METHOD II: Population Projection by Extrapolation Method:

7.3 Apart from above method, another method adopted for population projection is based on the trend of growth rate of population of urban and rural areas. The following facts and assumption have been taken into account for population projection by this method;

- The trend of growth of last two decades has been taken into account
- The average growth rate for urban (23%) and rural population (13.3%) of last decades has taken as base.
- The town is expected to grow at higher rate due to new development opportunities.
- The town has been made a sub divisional headquarter this will attract more activities.

Because of its nodal location, concentration of activities related to trade and commerce establishment of agro based industries and fertile agricultural land of LPA the town will continue to perform commercial, industrial and educational function for its hinterland. Besides this the administrative activities to be performed as sub divisional headquarters will also work as catalyst towards growth rate. Thus it is anticipated that these would be an increase in the growth rate of the town, however the rural growth rate is supposed to be remains the same as was in the past decades. the projected population of LPA Bagha Purana total, urban and rural for the year 2001,2021 and 2031 is given in table 27.

TableNo27. Projected population of LPA Bagha Purana by extrapolation method (2011– 2031)

Year	LPA Bagha Purana	Bagha Purana Town		Rural Areas	
		Population (in persons)	Growth Rate in % age	Population (in persons)	Growth rate in %age
2001	124972	21596	---	103376	----
2011	146479	28074	30	117125	13.3
2021	169198	36496	30	132702	13.3
2031	197795	47444	30	150351	13.3

The following table gives the comparative picture of projected population for Bagha Purana town, rural areas, and LPA, Bagha Purana for 2031 by two methods:

Table No 28. Comparison of projected population by two methods for horizon 2031

Method	LPA, Bagha Purana (Total person)	Bagha Purana town (Total person)	Rural Areas (Total person)
Method 1	166693	53396	113297
Method 2	201544	47444	150351

Out of the above two methods, Population Projected by Method No.1 is adopted for the plan formulation, because of taking into account the assumptions like, population characteristics, economy of the town, also taking into account the strength weaknesses opportunities and threats (SWOT), thus the population projected by this method no 1 is more realistic. Despite general trend of reduced population growth rate, Bagha Purana town is likely to retain its share of urban population. The Projected Population of Bagha Purana town therefore has been taken as 53396 (say 54000 persons) for the year 2031. After including 5% floating population this figure becomes 56065.

Workforce Projections

- 7.4** The category wise employment data is not available in detail for Bagha Purana town. The classification of workforce is available for agriculture labourers, cultivators, household industry and others. Therefore the estimate of employment for the year 2031 will not be meaningful however the projected workforce has been worked out. It has been assumed that the workforce participation rate will almost remain the same as it was in 2001 with a slight upward trend, thus 32.81% participation rate in case of Bagha Purana town and 38.24% in case of LPA as a whole has been taken. The

workforce of Bagha Purana town for the year 2031 works to 17519 workers and LPA Bagha Purana will be 43324 workers.

7.5 Infrastructure requirements

Water Requirements

In true sense the term water demand refer to the estimated quantity of water required for a city to fulfill water needs of the people residing in the city. The estimated water demand includes per capita consumption, system losses, industrial and commercial consumption, fire fighting demand etc. The water demand is broadly classified as domestic and non-domestic water demand.

Rate of water supply

Domestic water demand:

The Indian codal precisions recommended a minimum water supply of 135 lpcd for cities and Bagha Purana adopts the same. The residential area in Bagha Purana is expected to have a much higher demand due to better life style adopted by the residents. However considering the availability of water and the norms followed by the PWSSB, a rate of supply of 135 lpcd for domestic purpose will be adopted for requirement purpose.

Industrial water demand

Bulk supply of water to large to industrial establishments will be considered as per specific requirement of each industry. However the figures of 135 lpcd include water requirements for commercial, institutional and minor industries.

Unaccounted for water (UFW):

As per Central Public Health and Environmental Engineering Organization(CPHEEO) manual a maximum provision of 15% towards losses, unaccounted for water shall be made.

Fire Demand:

As per CPHEEO recommendations a provision of 100 kilo liter per day based on formula of $100P$ where P = population in thousands shall be kept in mind.

Estimation of Water Demand:

The water demand has been projected based on water requirements calculated on the basis of above norms as being adopted by Punjab Water Supply and Sewerage Board.

The net water demand for Bagha Purana Town thus works to 8.69 MLD by the year 2031. This demand comprises consumption of domestic and non domestic purposes. Non domestic user includes consumption by Institutions (Colleges, School and Hospital), Commercial Establishment, Industries, Public Parks, Hotels, Tourist places etc. Gross water demand comprises network demand and physical & non-physical losses. Estimated net water demand and Gross water demand as calculated by this office based on above norms is given in the Table 29.

Table No 29. Projected net and gross water demand for Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Net water demand in MLD	3.93	4.86	6.42
Gross water demand in MLD	4.51	5.56	8.69

The water requirements for the rural settlements (village abadis) have not been projected since this aspect is independently handled by the Department of Public Health

Sewerage and Sanitation

The rate of wastewater flow depends upon the rate of water supply to community and the rate of ground water infiltration. The entire spent water of community should normally contribute to the total flow in a sewer. However, the actual dry weather flow quantities usually are slightly less than the per capita water supply. Since some water is lost in evaporation, seepage into ground, leakage etc. Generally, 80% of the water supply may be expected to reach the sewers unless there is data available to the contrary. As per the norms adopted by Punjab Water Supply and Sewerage Board (PWSSB) practical wastewater flow has been estimated to be 85% of water supplied to the consumers.

Projected waste water flows

Considering 85% of the water supplied to the consumption reaching the sewer and adopting the recommended norms for infiltration the projected waste water flows has been calculated. Combining the projected net waste water flows and infiltration gives the value of gross waste water flows as shown in Table 30. Table

Table No 30. Projected gross waste water flows for Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Net waste water flows in MLD	3.34	4.13	5.45
Gross Waste Water Flows in MLD	3.83	4.72	7.38

Drainage requirement

It is evident from the existing studies that there is a slight gradient in the ground level of Bagha Purana from north east direction towards south west direction. The kale Ke drain passing through southern side of the town. However there area several ponds waste water of the town is collected.

Solid waste disposal

The production of solid waste in an urban area is a function of the socio economic profile of the population and activities in the area. As per UDPFI guidelines the generating of waste varies from about over a quarter of a kilogram in small towns to about half a kilogram per capita in large and metro cities. For Bagha Purana town the waste generation will be 3/8 of kilogram per capita /per day thus generating a total $3/8 \times 56000 = 21000 \text{ kg} = 21 \text{ metric ton per day}$.

Power

As per the standards given in UDPFI guidelines the power consumption works out to be 2 KW per household at city level. Based on above the power consumption for Bagha Purana town on five yearly basis is calculated in Table No.31

Table No 31. Power requirement of Bagha Purana Town (2011-2031)

Year	2011	2021	2031
Household Number	4860	5999	9344
Power consumption in MW	9.72	12.00	18.68

As per UDPFI guidelines one electric sub station of 11 KV is required for the population of 15000 persons. Thus for the projected population of 56000 population the, total electricity requirement is 41 KW, a total number of one 33KV and one 11KV electric sub stations required.

Constitution of Think Tank

7.6 As per the D O letter dated 2-12-2008 of Honorable Chief Secretary addressed to all the Deputy Commissions of the Punjab state, circulated vide Endst.No.9526-45 CTP (Pb)/sp 135 dated 10-12-08 of Chief Town Planner, Punjab, there is a proposal to set up a think tank under the chairmanship of Deputy Commissioner concerned for each city/town to envisage a vision 2031 for that city/town.

Based on the instructions contained in the above referred letter, the Think Tank for visualizing the future of the Bagha Purana town (vision 2031) constituted by Deputy Commissioner Moga includes the persons from various sections of society. The detail is given in Annexure No.3

The Strength Weakness Opportunities Threat (SWOT) Analysis

7.7 For the preparation of Master Plan of LPA, Bagha Purana, it is necessary to develop a long term vision (2031) of the town that takes into account the present Strengths and Weaknesses of the town and the Opportunities and Threats likely to be presented by the surrounding region. Based on the above parameters, the issue paper (SWOT Analysis) as prepared by the District Town Planner, Faridkot, which to be discussed in the meeting of Think Tank as given below;

Strengths;

- Strategic location in terms of roads as the town is located on the cross junction of two important roads links i.e. Moga – Kotkapura road and Mudki- Nihal Singh Wala Road.
- Important growth centre for surrounding villages because of its strategic location.
- Important Urban centre of the district after Moga.
- Existence of large number of warehouses and godowns.
- Free from flood prone areas.

Weaknesses

- Missing rail link.
- Away from the developed belt of the state i.e. N.H.1 corridor.
- Low growth rate of industries.
- Shortage of affordable and qualitative housing stock.
- Unplanned and haphazard development.

- No sewerage network and storm water drainage
- No solid waste management or land fill site.

Opportunities

- New PUDA approved residential colonies.
- Widening and strengthening of main roads of LPA.

Threats

- The town is under the shadow of Moga city.
- Present scenario of commercial development along major roads will create more parking problems.
- Through traffic will put huge burden on town roads, as the town is located on the cross junction of important roads.

Vision-2031

7.8 A vision is a statement explaining that where the city wishes to go, within a given time frame and is often expressed in terms of clear expectations. Based on the outcome of discussion held in various meetings of 'Think Tank' The vision Bagha Purana 2031 as finalized in the meeting held on dated 27-11-2010 is articulated as follows:

"To project Bagha Purana as a hub of agro-based industries and storage centre for agricultural produce by providing high quality physical and social infrastructure to its citizens in an inclusive and environmentally sustainable manner."

- A place where business can thrive;
- A place where people can enjoy themselves;
- An attractive shopping environment; and
- An environment where people want to live.

Strategies' to attain Vision

In order to achieve the objectives and goals enshrined in the vision statement, mission statements for various focused areas have been detailed below:

Growth management

- Promoting planned development through effective city planning.
- Rationalizing land use pattern for effective traffic management and provision of basic services and amenities.
- Making effective plan implementation and enforcement as integral part of city planning and development process.
- Making growth management process participatory.
- Review of master plan on regular basis.
- Improving system of approvals of building plan through use of IT and GIS.
- Making urban development self sustaining.

Urban Environment

- Urban environment to be made integral and essential part of town development process.
- Environment to be made integral part of planning and decision making process.
- Effective treatment of all sewage generated within the town.
- Improving solid waste management.
- Creating / developing new and improving existing parks and open spaces.
- Promoting better water management.
- Making city free from air, water and noise pollution.
- Discouraging the growth of slums and improving existing slums.

Urban Services:

Water supply

- To ensure safe, equitable, reliable, adequate and quality water supply
- To ensure 100% coverage of the Town
- To promote rain water harvesting and recycling of water.

Sewerage and Drainage

- Total coverage of the town with sewerage and drainage system including slums.
- To promote eco-friendly decentralized treatment system.
- To minimize sewage generation through water saving appliances.
- To promote recycling of sewage
- To promote protection of natural water bodies
- To promote optimum use of storm water as an alternate source of water supply.

Solid waste management

- To improve the solid waste management in the city using best practices.
- To use PPP model for Solid waste management.
- To promote “Recycling” system of SWM.
- To make solid waste management people centric

Storm water disposal

- To introduce the storm water disposal system in the entire town
- To improve the capacity of the water bodies existing within the town
- To improve the natural water drainage channels by de silting and stopping the sewage water from entering the channels.

Traffic and Transportation

- To improve safety, mobility and efficiency of traffic within and outside the town.
- To segregate and rationalize the inter and intra town traffic
- To improve road geometry and road capacity of existing network
- To minimize pollution caused by traffic and transportation and improve environment.
- To create new road network and to improve the existing network to promote operational efficiency of traffic.
- To provide adequate parking spaces to remove traffic bottlenecks.
- To plan and provide effective public transport services
- Social Infrastructure

- To provide adequate sites based on norms, for creating / developing various social infrastructures.
- To involve private and corporate sectors for providing / developing and maintenance of social infrastructure.
- To make optimum use of mechanism of planned development for developing adequate and quality infrastructure.
- To promote community participation in maintenance and upkeep of social infrastructure.

8. THE MASTER PLAN

Components of the Master Plan

8.1 Land use and physical planning exercises provide a forum in which the interests of multiple stakeholders as well as the physical, social, and economic constraints on land uses can be debated and balanced specifically, post-disaster planning provides: tools and processes for organizing housing and infrastructure reconstruction in space and over time.

- A framework for stakeholders and elected representatives to relate reconstruction to longer-term mainstream development priorities; and
- An opportunity to modify policy, legislation, and regulations;

Physical planning is a design exercise that uses the land use plan as a framework to propose the optimal physical infrastructure for a settlement or area, including infrastructure for public services, transport, economic activities, recreation, and environmental protection. A physical plan may be prepared for an urban area or a rural area. A physical plan for an urban region can have both rural and urban components, although the latter usually predominates.

The scope of a master plan is limited to the broad proposals and allocation of land for various uses such as residential, industrial, commercial, recreational, public, and semi-public etc. It will propose a network of roads and pattern of streets and traffic circulation systems for the present and the future. It will identify areas required to be preserved and conserved and development of areas of natural scenery and landscape together with preservation of features, structures, or places of historical, architectural interest and environmental value. It will include zoning regulations for regulating development within each zone. Therefore, the Master Plan is an important instrument for guiding and regulating development of a city over a period of time and contributing to planned development both conceptually and operationally. The proposal part of Master Plan of LPA Bagha Purana comprises four main components as follows:

- Proposed land use
- Transport networks
- Zoning Regulations
- Heritage Zone

Master Planning Objectives

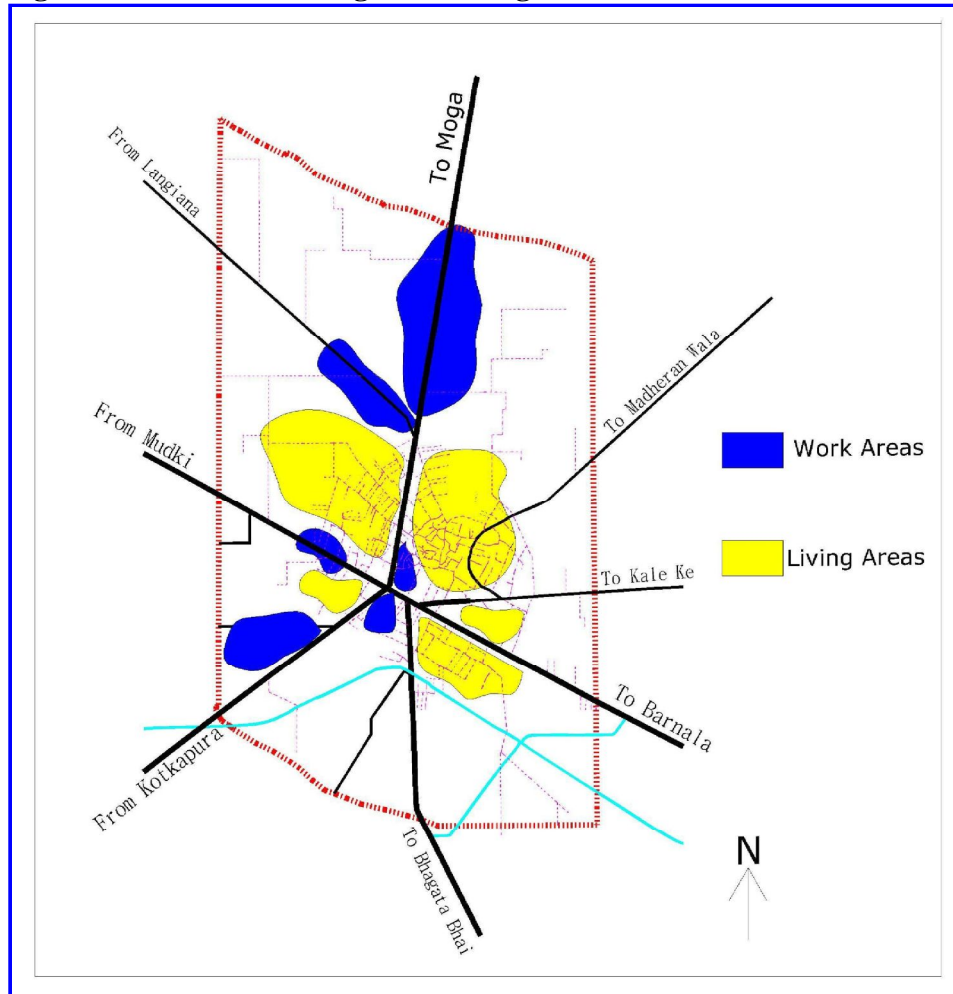
8.2 The long term vision and the mission statements would require spatial land use planning, infrastructure planning, planning of transportation, effective management and operation of infrastructure services, and regulating and enforcing plan proposals. The objective of the Master Plan is to create enabling spatial and Land Use Planning framework to achieve the Vision of LPA Bagha Purana. More specifically following are the objectives.

- To make Bagha Purana town as the most vibrant economic centre to promote the balanced regional growth.
- To minimize haphazard, unplanned, and sub-standard growth and development of the city and to achieve planned growth to create healthy environment.
- To effectively manage the traffic and transportation within the town through the mechanism of rationalizing the land use pattern defined in the Master Plan.
- To make land available for public purposes.
- To minimize travel within the town by creating self contained and self sufficient communities
- Adequate parking spaces to be created in the town as an integral part of commercial, industrial, and institutional planning and development process.
- To strengthen the basic infrastructure favorable for agro based Industries.
- To rationalize the distribution of physical and social infrastructure in order to ensure appropriate quality of life to all the residents of the town.

Evaluation of Existing Structure

8.3 Understanding of existing city structure is prerequisite to visualize future structure for accommodating projected growth. The structure of the city can be appreciated by noting the relationship between living and work areas in terms of their connectivity with each other. A thematic map of Bagha Purana given at shows the city structure as it exists at present. A careful study of above map is given below:

Figure 15: Work and living areas – Bagha Purana town



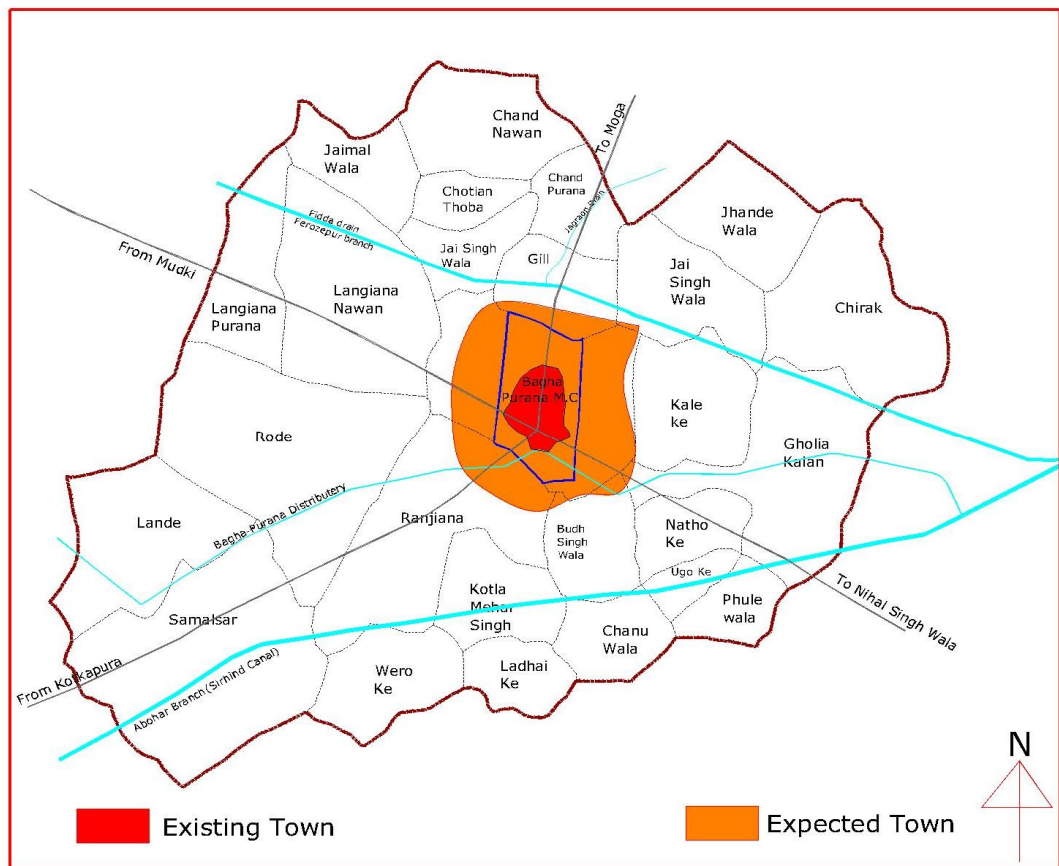
The central part of the town (Baghat Singh Chowk) where main bazaar known as Jadugar Market, Nehru market, shopping area on Moga Roads, Mudki road, Kotkapura road, and Nihal Singh Wala road is the commercial work area of the town and the Grain market on Kotkapura is wholesale related work area of the town. The other main work area is warehouses/godowns largely on Moga and Jai Singh Wala road.

The living areas of Bagha Purana are unplanned and developed in a haphazard manner. These living areas are Bagha Patti, Purana Patti and Muglu Patti categorized as old part of the town. The town is growing towards all directions. The intensity of development along the Moga road is high as comparison to other corridors of development like Kotkapura road and Nihal Singh Wala road. This Town like other towns of the state also has intermingling of residential and commercial areas.

Conceptual Plan, LPA Bagha Purana-2031

8.4 While studying the existing road pattern of LPA Bagha Purana, there are several rural link roads which have been found quite potential for the growth of Bagha Purana town. As pointed out in the study part Bagha Purana town has unique location advantage so far as the road connectivity is concern. The town is well connected with surrounding rural as well as urban settlements. The development on all these roads along with main roads may provide opportunities to the town to grow towards all sides in a balanced manner. This alternative may provide a shape to the future city of Bagha Purana like an organism. The thematic concept may look like the Figure 16 as below;

Figure no. 16 Concept plan Bagha Purana



The above explained concept has been discussed with senior officers of this department and Advisor Town Planner, it has been agreed that this concept of development along all roads may be most suitable for the future growth of Bagha Purana town. As the proposed roads would open up new areas for development the scope of potential areas extends up to the proposed by pass road towards western side of the town.

Land Use Requirements

8.5 Before proceeding to prepare proposed land use plan and transport network the areas required for different purposes is to be worked out on the basis of norms and standards of various organizations.

Land required for main land uses:

8.6 The land requirements for different uses for the projected population of Bagha Purana town have been worked out on the basis of norms given in UDPFI. The assessment of the urbanisable area is normally based on the proposed residential area, which is considered to be 40% of total proposed urbanisable area of cities like Bagha Purana as per the norms given in UDPFI guidelines. Though the residential area requirements for urban area of LPA as per UDPFI guidelines works to 1776 Hectare the proposed road network would open up many new areas for urban uses because of increased accessibility. Therefore keeping in view the proposed road network particularly the Ring Road, the big chunks of accessible land would be put under different uses out of which major share is to be covered by residential use.

Residential use:

8.7 It is evident from Table 19 given at head no. 4.4 that maximum number of households (30.64%) have two rooms accommodation and 45.64% have one room whereas 13.43% have three rooms, thus for the purpose of working out the requirements the dwelling unit having average of 2 bed rooms has been taken for working the future requirements as shown in Table no. 33

Table No 33. Calculation of average plot area in Bagha Purana

Sr. No.	Description	Area in sq.m.
1	Carpet area of average dwelling unit. 1 Living Room, 2 Bed Rooms, 1 Kitchen and other	120
2	Built up area inclusive of walls, verandahs etc	144
3	Plot area @ footprint to plot ratio of 0.65	222

Table No 34. Stage wise residential area requirements for urban area, LPA Bagha Purana (2011-2031).

Sr.No.	Year	No. of Families	Net Land Required in hectare (Assumed 1 family plot)	Gross Residential Land in hectares
1	2011	5800	128	256
2	2021	7200	160	320
3	2031	11200	248	496

Note

Assumed family size = 5

Plot size of 222 sq.meters

Assumed family per one plot.=1

50% area is assumed under other uses like convenient shopping, roads, parks & open spaces and public buildings etc.

Commercial Use

- 8.8** As given on page 152 of UDPFI guidelines the area requirements for commercial activities have been calculated. As per the classification of towns given at page 7 of UDFPI guidelines which indicate that towns having the population up to 50,000-5,00,000 persons qualify in category of medium town. By the year 2031 Bagha Purana will fall in the category of medium town. The projected population of Bagha Purana town for 2031 has been worked out to be 56,000 persons which falls within the range of 50,000-5,00,000 persons. Therefore the norms of medium towns have been taken for calculating area requirements for commercial use as per Table 35

Table No 35. Area of commercial centers

Sr.No.	Name of Commercial Centre	Area per 1000 persons sq.mt.	Number of shops
1	Cluster Centre	220	1 for 110 persons
2	Sector Centre	300	1 for 200 persons
3	Community Centre	500	1 for 200 persons
4	District Centre	880	1 for 300 persons
5	Total	1900	

As per the figures given in the table above 1900 sq mts area for different categories of commercial areas has been proposed for 1000 persons thus 1.9 sq mts (say 2 Sq. M.) area is required per person.

Table No 36. Commercial area requirements for urban areas of LPA, Bagha Purana

Sr.No.	Name of Town	Projected population	Commercial Area Required@2 sq.m.per person
1	Bagha Purana urban	56,000	11.2 hectares

Industrial

- 8.9** The detailed data regarding various categories of workers in census 2001 pertaining to Bagha Purana town is not available. The data of industrial workers available in census

2001 is limited to the household industry only. The no. of workers engaged in other industries is not available. The projections of industrial workforce can not be made accurately, therefore, for calculating the industrial use requirements the proposed land use structure standards cited in UDPFI guidelines on page no 143 are adopted as given below.

- Total existing industrial area of Bagha Purana town 14.5 hect.
- Existing industrial use as a percentage of town area 1.27%
- Norms and standards for percentage of Industrial use
(as per UDPFI standards) 10-12 %

As per existing land use plan, the industrial use is only 1.27% of the town area. The industrial workers in LPA Bagha Purana and Bagha Purana town may increase abnormally; therefore, the area projected to be required on the basis of the figures of 2001 census may not be sufficient. The scope of agro based industries is foreseen in future around Bagha Purana; therefore in order to accommodate such uncertainty more areas are required for industrial use. As per above narration, 10-12% of the total urbanisable area is assumed to be required for industrial use in LPA Bagha Purana which needs bigger chunks of industrial areas at potential sites. Irrespective of above facts the efforts have been made to work out the actual requirements of industrial area for urban settlements falling in LPA Bagha Purana as follows:

Table No 37. Projected urbanisable area requirements for LPA Bagha Purana 2031

Sr. No.	City/Town	Year	Gross Residential Land required	Urbanisable area required*	Industrial use requirement**
1	Bagha Purana	2011	256	640	64
		2021	320	800	80
		2031	496	1240	124

Note:

- * For calculating the Urbanisable area the residential use is assumed as 40% of the total urbanisable area.
- ** Assumed percentage of industrial use is 10% for Bagha Purana town of total urbanisable area as per UDPFI standards.

Recreational facilities

8.10 As per PAPR Act 1995, about 45 % of the area of a colony is to be left for non saleable purposes out of which 10 % is to be left for public buildings. As per the provisions of this Act normally 25-30% area is provided for circulation i.e. roads, pavements etc. Assuming the figure at 27% for roads, the remaining 8% has been considered for recreational, park, open spaces, sports etc. By this formula if we have one hectare area of a colony then 800 sq.mt. are supposed to be provided for this category. Keeping in view the average size of plots as 200 sq.mts., about 28 plots can be adjusted in one hectare area (assuming 55% saleable area), which would accommodate about 40 families taking average size of one family as five members a total of 200 persons are estimated to live in one hectare. Therefore, by this calculation about 4 sq.mt. Recreational area works as share of each person. However at city level approx. 2 sq.mt. per capita area is to be added for city level open spaces. Thus total 6 sq.mt. Per capita area is required at city level for recreational facilities. As per the above narration 34 hectares are required for parks, open spaces and play grounds etc. but keeping in view the sentiments of the people and the pressure on urban land it is not advisable to block one's land for such non-remunerative activities. It is assumed that as and when the land is developed under PAPR Act, the areas for recreation would be ensured to be allocated as per above.

Land required for social infrastructure:-

8.11 The land requirement of social infrastructure for Education, Health Care, Police, Fire facilities etc. for Bagha Purana urban is calculated as below:

Table No 38.Land requirement for educational facilities for Bagha Purana Urban(For 100000 populations)

Category	Norms	No. of units	Area/unit (in ha.)	Total area (in ha)
College	100000	1	4	4
Secondary School	7500	13	1.6	21
Primary School	5000	20	0.4	8
Pre-primary school	2500	40	0.08	3.2
Total				37

- Area per person required in sq.mts. =3.7
- Total area required 3.7 x 0.5 lacs = 18.5 hectare

Table No 39. Land requirement for medical facilities (For 250,000 persons)

Category	Norms	No. of units	Area/unit (in hecets.)	Total area (in hecets.)
Hospital	250000	1	4	4
Intermediate (Category-A)	100000	2.50	2.7	6.75
Intermediate (Category-B)	100000	2.50	0.6	1.50
Dispensary	15000	17	0.1	1.7
Total				13.92

- Area per person required in sq.mt. 0.56 or Say 0.6
- Total area required under medical facilities 0.6 x 0.5 Lacs = 3 Ha

Table No 40. Land requirement for police. (For 100,000 persons)

Category	Number of persons	No. of units	Area/unit (in ha.)	Total area (in hecets.)
Police station	100000	1	1.5	1.5
Police Post	50000	2	0.16	0.32
Total				1.82 (or 18200 sq. mtrs.)

- Area per person required in sq.mt 0.18. Say 0.2
- Total area required for police =0.5 lacs x 0.2 =1 hect.

Table No 41. Land Requirement for fire station

Category	Number of persons	No. of units	Area/unit (in ha.)	Total area (in hecets.)
Fire/Sub Fire station	200000	1	1	1

- Area per person required = 0.05 sq.mt
- Total area required = 0.5 lacs x 0.05 = 0.25 hectares.

Table No 42. Land Requirements for main public amenities

Sr. No.	Name of facility/Amenities	Land required (in hectare)
1	Educational	18.5
2.	Medical & Health care	3
3.	Police & Security	1
	Total	22.5

Space Norms and Standards

Social Infrastructure and Public Utilities:

8.12 Basically UDPFI norms and standards have been followed for calculating the area requirements for different social infrastructure and public utilities however the Punjab State Govt. policies issued time to time have also been adopted where it was

applicable. There are three different sets of norms and standards taken into consideration the comparative chart of these is given in Annexure---. The comparative table of norms and space standards (Annexure No. 4), the norms suggested by UDPFI Guidelines has been found more suitable for the preparation of Master Plan Bagha Purana because of the following reasons:

- The norms and standards suggested by UDPFI Guidelines are more detailed and cover almost each physical and social infrastructure as compared to Master Plan Zoning Regulation /Govt. policies
- Norms and standards suggested by UDPFI Guidelines are more realistic and suit to local conditions such as prevailing development controls, availability of land and land prices etc.
- UDPFI Guidelines suggest different norms and standards for different category of towns like small and medium towns, large cities and hill areas which is not available in other guidelines.
- The Norms and standards of Master Plan Zoning regulation in Punjab/ Govt. Policies are not detailed and do not cover the whole of activities, hence are not being adopted.
- Norms and standards suggested by Delhi Master Plan have not been found suitable for local planning area Bagha Purana because these norms are of higher level, formed especially for Mega city like Delhi, where development controls are very tight, population is more than 1.25 crores and the land is scarce and costly.

Note:

- The norms space standards as suggested by Punjab Govt. policies from time to time shall have the over riding effect on the norms and standards of UDPFI Guidelines adopted for the preparation of Master Plan, Bagha Purana .
- For the aspects which are not covered under UDPFI Guidelines, the norms and standards as suggested by Master Plan zoning Regulation in Punjab shall be adopted and where these Zoning regulation are also silent, only in that case, the norms and standards suggested by Delhi Master Plan shall be followed.

Traffic and Transportation

8.13 After due considerations the norms and standards for Traffic and transportation as given in UDPFI Guidelines were discussed with the Advisor Town Planner and following roads hierarchy has been adopted;

Road hierarchy

- 8.14** R1: 150 feet (R.O.W.)
- R2:100 Feet (R.O.W.)
- R3: 80 feet (R.O.W.)
- R4: 60 feet (R.O.W.)

Within the above ROW, width of footpaths and cycle tracks given may be provided as follows if required.

Footpath

8.15 The width of footpaths is listed as below:

- Minimum width 1.5 m
- Adjoining shopping frontage At least 3.5 m
- Longer shopping Frontage Minimum 4.5 m

Width should be increased by 1m in business/ shopping areas

Cycle Track

8.16 The minimum width of cycle tracks should be 2m. Each additional lane, where required, should be one meter. The capacity of cycle tracks recommended is as below:

Table No 43. Norms and standards of cycle tracks

Width of Cycle Tracks	Width in meters	Capacity (Cycle /hr)	
		One way	Two way
Two lanes	3	250-600	50-250
Three lanes	4	>600	250-600
Four lanes	5		>600

Strategy for obtaining Land for public purposes

8.17 A city typically requires 40% to 50% of its area for variety of public purposes. Where land is owned by the state as in Delhi, Chandigarh or Navi Mumbai it is easier to allocate land of public purposes. However where private land market is active, how to ensure land for public purpose is a major challenge in preparing Master Plans. Conventional master planning relied on the powers of compulsory acquisition of land designated in the master plan for public purposes. However limitations of this

approach have been painfully exposed. At the same time not addressing the question of land for public purposes may limit the utility of the master plan itself.

With this background a wide menu of strategies to obtain land for public purposes is examined in this chapter. The land required for public purpose can be divided into four-fold classification as illustrated in diagram below.

	A Specific Location	B Flexible Location
A. Positive impact on land prices	AA Arterial Road network	AB Parks, play grounds, schools etc.
B. Negative price or environmental impact invoking NIMBY response.	BA Sewage Pumping Stations and treatment plants	BB Solid waste disposal sites

(In many cases necessity of a particular activity at the city scale is recognized e.g. solid waste disposal site or a slaughterhouse. But they are locally undesirable and invoke “Not in My Backyard” response.)

No single alternative needs to be used throughout the city. It may vary for example, in core areas v/s outlying areas. Similarly different alternatives may be suitable for different types of public purposes. The possible alternatives for obtaining land for public purposes such as roads, educational, health, parks, water supply, sewerage, social and religious institutes, old age homes, community centers etc with their limitations are listed as below.

Through O.U.V.G.L. Scheme:

8.18 Identifying vacant government land (including municipal land) and using it as source for providing land for public purposes. However given the need for using government land for generating financial resources, entire stock of government land need not be assigned to non-remunerative public purposes. In fact government land would offer many opportunities for PPP where part of the land could be used for public purpose. For example a plot of government land could be allocated for an intercity bus terminal with a budget hotel.

Rationalizing obsolete uses of public lands could be another way of putting public land to more relevant public purpose. Old jail or an agricultural produce market in the

congested part of the city is common examples. But this requires public land at other location. Make specific designations on the master plan and then proceed with compulsory acquisition of land. Impracticability of this is too well known to be recounted here. But this may be unavoidable in certain cases – particularly 'A' category public purpose.

Through T.D.R.:

8.19 Alternative to monetary compensation there could be award of Transfer of Development Rights either to remainder of the land or to a distant location. This could be in three generic cases viz.

Roads and Road widening: Development rights calculated at the FAR permissible in adjoining area may be allowed to be used in the remainder of the plot up to a limit.

Development rights that cannot be so consumed can be transferred elsewhere in receiving areas. If FAR is related to width of the road, resistance to widening may get reduced.

Public purposes on open land or exclusive plots: Lands required for parks and playgrounds or exclusive uses like secondary school, fire station etc. can receive TDRs in lieu of compensation. Weight related to price differentials in originating and receiving zones could be considered as an incentive.

Public purposes that require built-up space but not necessarily exclusive plot:

Examples of this could be municipal vegetable market, library etc. In such cases landowner may be allowed to fully use his development rights provided that he offers the built up space required for the public purpose.

Through PAPR Act 1995

8.20 Layout and Sub-division Regulations: These regulations depending upon the total area of layout can provide for some reservation for general public purpose in addition to local requirements. This is currently being used under the colonization rules operated under the PAPR Act 1995.

Through Land Pooling or Town Planning (Development) Schemes:

8.21 As per the provisions of section 91 (Chapter XII) of Punjab Regional and Town Planning & Development (Amendment) Act, 2006, the concerned Authority may for the purpose of implementation of the provision of the Master Plan or for providing amenities where the same are not available or are inadequate, frame the Town

Development Scheme and land for various amenities can be earmarked as per the provisions of sub section 2(g) of section 91.

The strategic approach would relate to geographically depicting the sites required for public purpose and proposing regulatory framework for obtaining the land for public purpose whether shown on the plan or not. For this, master plan has to consider a wide menu as detailed in Annexure No.5 Admittedly all items on the menu may not be applicable for every city.

Proposed Land Use Plan

8.22 After going through the detailed studies conducted by the office of DTP, Faridkot pertaining to LPA Bagha Purana and discussions held at different levels i.e. with S.H.U.D, Adviser, Town Planner, Chief Town Planner, Senior Town Planner and Think Tank and further based on analysis, assumptions and projected population of LPA Bagha Purana, the Proposed Land Use Plan 2031 has been prepared, in which different land use zones have been earmarked such as residential, commercial, industrial, rural and agricultural etc.

After examining the various possibilities and taking into account the pattern suggested in Urban Development Plans Formulation & Implementation (UDPFI) Guidelines published by Ministry of Urban Affairs & Employment, Government of India, New Delhi, the aforesaid land use categories have been adopted for the proposed land use plan. The other concerned aspects of these different land uses have been detailed out in the following sub-heads. The issues, guidelines and controls mentioned below may be read with Zoning Regulation Specified later in the chapter.

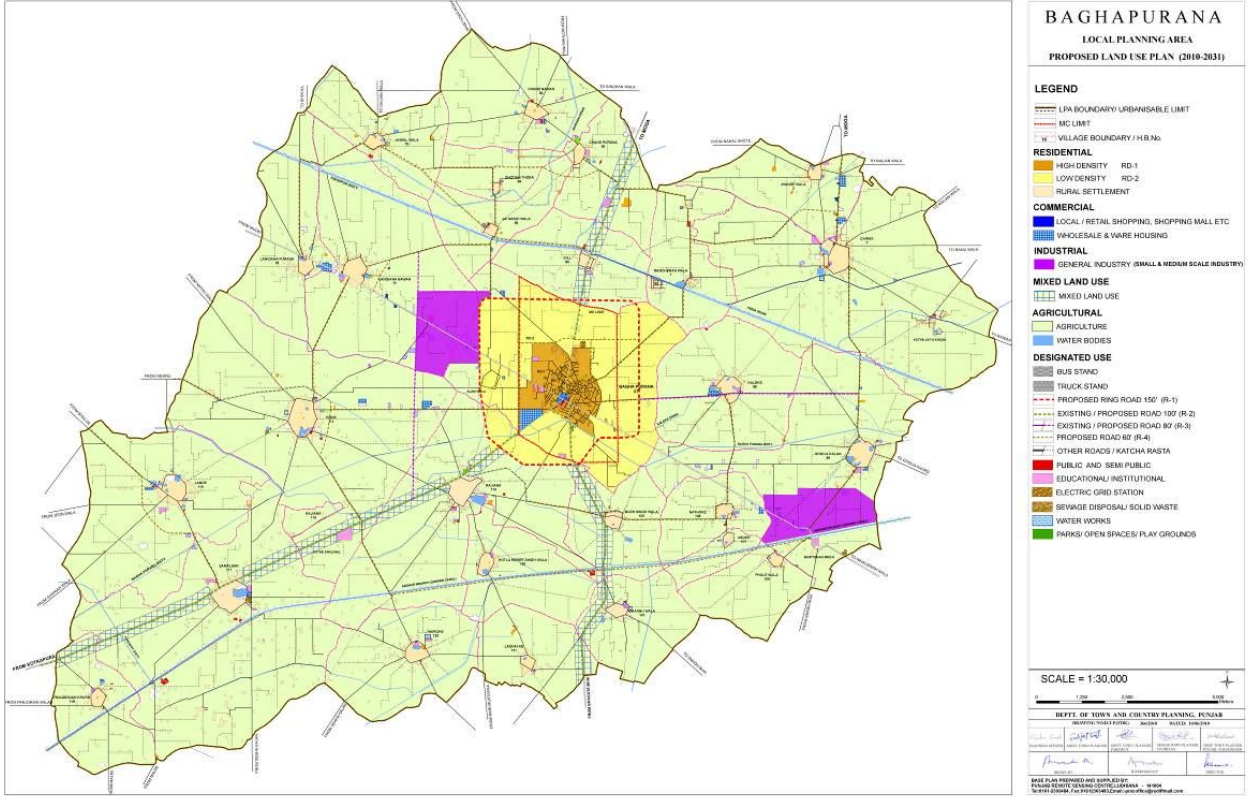
As discussed in the preceding chapters the concept of multi direction growth of Bagha Purana has been adopted. As observed by the office of DTP Faridkot the growth realities depict that present development trends of Bagha Purana are predominantly found along all the major roads therefore proposals along these roads have been made up to larger extent in comparison to other roads. While finalizing the Proposed Land use Plan and Proposed road network of LPA Bagha Purana all the factors discussed above have been kept in view and proposals are shown in proposed Land Use Plan of LPA Bagha Purana Drg.No. DTP (FDK) 370/2010 dated 30-8-2010 and the detail of proposed areas is given in Table No.44.

Table No 44. Break-up of major proposed land uses LPA Bagha Purana (2010-2031)

Sr. No.	Proposed Land use	Urbanisable Area*		Total LPA	
		Area in Hect.	%age	Area in Hect.	%age
1	Residential	2498.61	60.65	3608.33	11.66
2	Commercial	30.00	0.73	52.22	0.16
3	Industrial	353.65	8.58	722.25	2.23
4	Mixed Land use	813.00	19.73	813.00	2.52
5	Rural And Agriculture				
i)	Agriculture	----	-----	25820.6 1	80.39
ii)	Water bodies	8.25	0.20	280.82	0.87
iii)	Plantation and Orchard	----	-----	392.3	1.21
6	Designated Areas				
i)	Traffic & Transportation	311.25	7.55	445	0.38
ii)	Utilities	13.62	0.33	17.22	0.05
iii)	Public & Semi-Public & Religious	55.62	1.35	131.50	0.41
vi)	Parks and Play Ground	35.35	0.88	38.75	0.12
	Grand Total	4120.35	100	32322	100

*Urbanisable Area excludes the area proposed to be retained as predominantly 'Rural and Agricultural'

Drawing 3: Proposed land use; LPA Bagha Purana



It would be observed that the area requirements calculated earlier are considerably less than the areas allocated in the proposed land use plan. It needs to be appreciated that farmland incrementally acquires potential for growth as the road network and other infrastructure develops. Consequently all the fringe areas are neither converted to urban use nor are they developed at the same density at any given point in time. The proposed land use plan apart from the area requirement based on the norms, takes cognizance of this fact. As a result some of the fringe areas may not be converted to urban use till 2031 besides the fact that these areas have been proposed for different uses.

The total area proposed for different uses other than rural is termed as proposed urbanisable area which includes all the use zones such as residential, industrial, commercial etc. The total urbanisable area of Bagha Purana for the year 2031 works to about 4120.35 hectares. The spatial extent of different use zones has been shown in the Proposed Land Use Plan Drg.No. (FDK) 370/2010 dated 30-8-2010.

However, the lands which come under the optimum utilization of vacant Govt. Lands (OUVGL) scheme of the state Govt., the use of such lands/sites shall be determined by the Govt. later on at any appropriate time, irrespective of their existing / proposed land use. The sites on which various projects have been approved or whose change of land use has already been permitted by competent authority/govt., such sites shall be deemed to be adjusted as sanctioned/permitted. The other Govt. projects like strategic roads may come anywhere in LPA Bagha Purana irrespective of Master Plan proposals

Residential

- 8.23** The projected population of Bagha Purana town for the year 2031 works to be about 56,000 persons who are almost more than double the present population therefore the demand for residential areas would be much more. As per the norms the land required for residential use to accommodate 0.6 lacs projected population works to 496 hectares. Therefore in order to accommodate the growing population within the limits of proposed urbanisable area of Bagha Purana and integrating the future development pattern, proposals on much more areas have been made on the pockets which have been identified as most potential and suitable for residential purpose which will also include commercial, public amenities and parks etc. Besides this the rural settlements falling in LPA Bagha Purana are proposed to expand around its existing built up areas.(Abadies)

Keeping in view the trend of growth of residential areas and accessibility etc some potential pockets have been identified absolutely fit for residential purposes such as areas along Moga road, Kotkapura road, Mudki road and Nihal Singh Wala road road as well as along other link roads like Jai Singh Wala Road, Kale ke road. Besides this the areas likely to be connected by Ring road and other sector roads are also proposed for residential use.

The residential areas are proposed towards each direction of the town. The total residential area proposed works to about 2498.61 hectares which is 60.65% of total urbanisable area, this also includes the areas required for amenities, parks, local roads etc. which may cover some area of residential use zone thus bringing the actual percentage of residential use down to about 40% of the proposed urbanisable area in addition to this 5% area is to be reserved for commercial purpose. The total residential area in LPA is proposed to be about 3608.33 hectares which is 11.66% of total LPA area and it includes the rural residential areas also. The detail of areas is given in Table No.60 and the geographical extent is shown in Drg no. DTP (Fdk) 370/2010 dated 30-8-2010.

Commercial

- 8.24** As discussed in earlier chapter the separate data for commercial workers is not available however major share of workers goes to other category comprising 89.95% of total workers which also includes commercial workers. The studies reveal that the present commercial areas are falling in central part of the town as Jadugar market, Subash market and Nehru market some of the commercial areas are along main lines of communication. While preparing proposed land use plan the existing commercial areas are retained as such with the proposal to create parking facilities over there. As per discussions held with Adviser Town Planner and senior officers of this department specific areas for commercial use have not been earmarked at this stage however provision has been made in zoning regulations that commercial use can come at potential place within residential area. As per the provisions of PAPR Act 1995 about 5% of residential colony can be provided for commercial use, therefore as and when the new residential areas would be developed in future the commercial areas will be

earmarked at the suitable place however the independent commercial projects can come up within proposed residential zone fulfilling the required parameters.

The existing Grain Market has been proposed to be retained as such which is sufficient for coming at least twenty years. However as per the provisions of zoning regulations such type of activities can be established in various land use zones if need arises any time in future.

Informal Sector

- 8.25** Bagha Purana although is a small town the informal activities are common in this town also like other urban areas of the state. These activities in form of mobile rehariwalas are normally found on the main roads such as near Bus Stand, near Subash market & Nehru market and Jadugar market etc. The unorganized sector needs attention and planned development.

Existing Policy for Informal sectors

With a view to make informal sector, an integral part of the planning process and keeping in view the National Policy on Urban Street vendors, the following provisions are proposed to be made for the informal sector: The location/concentration of present stationary informal units shall be taken into account. It should be ensured that such activities do not spill over on the road network in the right of way. The Govt. / concerned local agency would coordinate to achieve the objective. The areas of informal sector shall have suitable public convenience and arrangement of solid waste disposal. Formulation of guidelines for schemes would include 'Hawking' and 'No hawking' zones. Specific areas would be earmarked for stationary and mobile street vendors by the concerned local authority.

The local authorities would take up new design of stalls, push-carts and mobile vans of various sizes and with cleaning facilities, giving due consideration to urban design requirement of specific area, where informal shopping is being permitted. No informal unit should be permitted along/near the intersection in order to avoid traffic congestion and accidents.

Planning Norms for Informal Trade

- 8.26** As stated informal sector is proposed to be made an integral part of planning process. Accordingly the informal sector would be incorporated in the planned development in

various use zones. The provision of informal sector should be ensured at the time of sanction of building plans/layout plans as per the norms given in the Table No.45.

Table No 45. Planning norms for Informal sector

Sr. no.	Use zones/use premises	No. of informal shops/units
i)	Retail trade:	
	Metropolitan city centre, district centre, community centre, convenience	3 to 4 units per 10 formal shops(to be provided in informal bazaar/service market components)
ii)	Government and commercial offices	5 to 6 units per 1000 employees
iii)	Wholesale trade and freight complexes	3 to 4 units per 10 formal shops
iv)	Hospital	3 to 4 units per 100 beds
v)	Bus terminal	1 unit for 2 bus bay
vi)	Schools	
	Primary Secondary/	3 to 4 units
	Senior secondary/ integrated	5 to 6 units
vii)	Parks	
	District parks	8 to 10 units at each major entry
	Neighborhood parks	2 to 3 units at each major entry
viii)	Residential	1 unit/1000 population
ix)	Industrial	5 to 6 units per 1000 employees

Industrial

8.27 The studies reveal that Bagha Purana is not an industrial town. The agro-based industries particularly Rice shellers indicate that there is a good potential for agro based industrial development. Keeping in view the existing trend of industrial activities two new areas one on Mudki road and other on Nihal Singh Wala road have been proposed for industrial use. The area proposed for industrial use has been measured to be 353.65 hectares within urbanisable area which is 8.58% of urbanisable area and 722.25 hectares total in LPA Bagha Purana which is 2.23% of LPA as given in Table No.60 and the spatial extent is shown in Proposed Land Use Plan Drg. No. DTP (Fdk) 370/2010 dated 30-8-2010

The industries (small, medium or large scale) except highly obnoxious, hazardous, inflammable and polluting industries as defined by Punjab Pollution Control Board have been proposed to be located in this industry area subject to clearance from PPCB

Mixed Land Use

8.28 The need for creating mixed land use zone in Master Plan of LPA Bagha Purana arises from the fact that Bagha Purana town being an important economic and commercial centre of district Moga has a large potentiality of mixed land use along main transport corridors passing through LPA. The existing trend of mixed land use on road fronts,

where residential, commercial (retail and wholesale).industrial and institutional uses are common also testify the requirement of mixed land use along these roads. The main roads which have been identified for mixed land use in Master Plan are listed below;

- Bagha Purana – Moga road (SH.16)
- Bagha Purana – Kotakapura road (S.H.16)
- Bagha Purana – Bhagata Bhai road (SH.16A)

The mixed landuse along road fronts shall be permissible upto a maximum depth of 200mt.subject to the condition that the frontage of the plot/property to be considered for mixed land use must about the main road. The depth of 200 mts.shall be measured from the outer boundary of the proposed width of said road.

The mixed land use has been proposed along above roads only outside the urbanisable area. The other development controls along roads where mixed land development has been proposed shall be as per zoning regulations of Master Plan of LPA, Bagha Purana.

Rural and Agricultural Zone

- 8.29** With the motive to preserve the basic agriculture character of the state the land outside the proposed urbanisable area falling within the LPA Bagha Purana has been proposed to be retained as agricultural. Out of total area of LPA about 25820.61 hectares have been proposed for this purpose which is about 80.39% of LPA area. In light of the present use of the land, most of the area has been proposed for agricultural use in this zone. However some compatible uses like water bodies, orchards, etc. have been retained as per existing land use. Such areas will be part of agricultural zone where the regulations of agricultural zone shall apply. The mixed land use zone is shown in proposed Land Use Plan Drg.No.DTP (Fdk) 370/2010 dated 30/8/2010

Designated Areas:

Traffic and Transportation

- 8.30** Transport network and proposed land use need to be considered in an integrated manner. For Master Plan of LPA Bagha Purana, exclusive road network has been proposed taking into account the connectivity requirements. The entire network may develop in phases as the traffic demand builds. However, it is emphasized that land use proposals of Master Plan may be reviewed as the road network actually develops.

The concurrent planning of urban and rural growth in Bagha Purana Local Planning Area and the Transportation system is required to provide an integrated, safe and efficient system for transportation of people and goods. The system is intended to meet the projected travel demands in that area. The road network occupies the significant roles in the transport sector in Bagha Purana Local Planning Area.

Entire Local Planning Area and Bagha Purana Town will be served by well structured and well defined road hierarchy in order to cater the traffic needs of the city population arising from living areas to work areas. This would include redefining of existing road network and the network to be created in the areas proposed to be brought under urbanization. Keeping in view the future shape and size of Bagha Purana urban area there is need to create/propose a high-speed network in the shape of ring and radial roads.

Proposed Road Network

- 8.31** The proposed road network for LPA Bagha Purana has been developed in concurrently with the proposed land use pattern as shown in the plan Drg. No.DTP (FDK) 376/2010 dated 15/12/2010. In order to provide better connectivity the concept of ring-radial road pattern has been followed. One ring road around the Bagha Purana town has been proposed which will work as bye pass and connect the main roads such as Moga road, Kotkapura road, Bhagata Bhai road, Mudki road and Nihal Singh Wala road. Besides this the proposed ring road will also provide the connectivity to other rural link roads like Jai Singh Wala road, Rode road, Kotla Mehar Singh Wala road Kale Ke road, etc. The areas falling within the proposed ring road has been provided the accessibility through the radial roads and other lower order hierarchy of roads as shown in Drawing no.DTP (FDK) 376/2010 dated 15-12-2010. The following hierarchy of roads has been proposed:

R-1	150 feet wide (RoW)
R-2	100 feet wide (RoW)
R-3	80 feet wide (RoW)
R-4	60 feet wide (RoW)

Ring Road

- 8.31** The proposed ring road having a Right of Way (RoW) of 150 feet will encircle the future town of Bagha Purana taking its starts from Moga road outside the MC limit up

to the common boundaries of village Gill and Bagha Purana then towards southern direction running parallel to limit of MC Bagha Purana intersecting Nihal Singh Wala road near Kale Ke drain and then turning towards the western direction along Kal Ke drain and crossing (Bhagata Bhai road then straight up to Kotkapura road from where proposed towards north crossing Mudki road and then turning towards east and joining Moga road. This Ring Road runs a length of about 16 km around Bagha Purana town.

Other Roads

- 8.32** Existing roads like Moga road (SH-16) and Kotkapura (SH-16) road are proposed as R-1 roads having width of 150 feet. Bagha Purana- Bhagta Bhai road (SH-16A) has been proposed as R-2 road having width of 100 feet. Some more roads of this hierarchy are proposed to provide accessibility to the new potential areas. The next hierarchy order of R-3 and R-4 roads are proposed to interlink these roads. Besides this the existing roads connecting various villages falling in LPA Bagha Purana have also been proposed to be widened to 60 feet (R-4). These roads will provide direct connectivity amongst the villages and linkages between main road passing through the LPA. The detail of road network is shown in Drg. No. DTP (FDK) 376/2010 dated 15/12/2010

The other existing roads which have not been covered within proposed hierarchy and whether falls within or outside M.C. limits shall be minimum 40 feet wide. Widening of such roads shall be done proportionality on both sides of existing road.

Bus Stand

- 8.33** The site of existing Bus stand though is very limited but this bus stand simply serves as a halt for buses of longer routes. There is no bus depot in this town therefore large size bus stand may not be required in near future however the proposal for bus stand as and when required can be made at any appropriate place.

Truck Stand

- 8.34** The present site of truck stand at Bagha Purana in the grain market which is not sufficient for future requirements of trucks operating from truck union of Bagha Purana. The proposed site of truck stand as and when required can be selected within the proposed industrial zone or wholesale zone.

Map of Transport Networks

8.35 Proposal for Tail Link

Bagha Purana is an import town of Moga district but till now there is no rail link because of which the pace of development remains at low level as discussed in the various meeting of Think Tank, it was unanimously felt that a rail link from Kotkapura to Moga is required which would pass through Bagha Purana. In the light of the decision taken by the Think Tank, it is proposed that Bagha Purana may be connected with the rail network of the country. The alignment of the railway line however shall be finalized by the railway department which may pass through LPA, Bagha Purana at any place

Utilities

8.36 The sites of existing utilities like water supply and electric grid station have been retained as such. The requirements of residential areas to be planned in future would be taken care at the time of approval of such projects. However independent site for the city as per future requirements can be selected as per the provisions of zoning regulations of Master Plan Bagha Purana and fulfilling the requirements of other departments.

Public and Semi-Public Uses

8.37 The existing Public and Semi-Public uses are proposed to be retained as such. At this stage no new specific areas are proposed for this purpose however the suitable sites will be earmarked as per the provisions of PAPR Act 1995 as and when residential areas are developed.

Parks and Play Grounds

8.38 There are very few parks in Bagha Purana which have retained as such in proposed land use plan of LPA Bagha Purana. For future requirements the green areas would be carved out as per the provisions of PAPR Act 1995 at the time of approval of industrial and residential/estate or Private Colonies.

9 ZONING REGULATIONS AND DEVELOPMENT CONTROL REGULATIONS

SECTION-I

9.1 ZONING REGULATIONS

The zoning regulations proposed for adoption in L.P.A, Bagha Purana are as below:-
Chief Town Planner, Punjab being the planning agency designated under section 57 of "The Punjab Regional and Town Planning and Development (Amendment) Act, 2006" for the Local Planning Area, Bagha Purana here by makes the following zoning regulations as per the requirement under clause (d) of sub section 1 of section 70 of "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" relating to the Master Plan prepared for Local Planning Area, Bagha Purana.

9.2 SHORT TITLE, SCOPE, EXTENT, & COMMENCEMENT

Title

These regulations shall be called the Zoning Regulations and development control regulations for Local Planning Area, Bagha Purana 2010 (hereinafter referred to as "these Regulations").

Scope of the Regulations

The scope of these regulations is limited to defining permissible land uses in various land use zones depicted in the proposed land use plan forming part of the Master Plan. Other aspects of "development" such as sub-division and layout of land or intensity of development measured through FAR, ground coverage, parking requirements, building design and construction etc. will be governed by other Acts and regulations promulgated by Government from time to time. Competent Authorities under such regulations shall ensure that the developments permitted by them are in conformity with these regulations.

Jurisdiction

These regulations shall apply to all "development" in the Local Planning Area, Bagha Purana declared under section 56(i) of "The Punjab Regional and Town Planning and Development (Amendment) Act, 2006" *vide* notification no 12/55/2006 – 4 HGI/9857 dated 19.12.2007.

Date of Coming into Force

These regulations shall come into force on the day on which the designated Planning Agency publishes the final Master Plan along with these regulations in the *Official*

Gazette after obtaining the approval of the State Government under sub section (5) of section 70 of "The Punjab Regional and Town Planning and Development (Amendment) Act 2006".

Till such approval, the authorities in considering the applications for permission for development shall have due regard to the draft proposals including these regulations.

10 DEFINITIONS

For the purpose of these zoning regulations, the following definitions, unless the context otherwise requires, shall apply:-

- (i) **“Act”** means "The Punjab Regional and Town Planning and Development (Amendment) Act, 2006" (Punjab Act No. 11 of 1995).
- (ii) **“Government”** means the Government of the State of Punjab.
- (iii) **“Chief Town Planner”** means the Chief Town Planner of The Department of Town & Country Planning, Punjab or any other officer to whom his powers are delegated.
- (iv) **“Planning Agency ”** means the Chief Town Planner Punjab designated as such under Section 57 of "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" for Local Planning Area, Bagha Purana.
- (v) **“Local Planning Area”** means the Local Planning Area declared under section 56(1) of "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" vide notification No 12/1/10-4HG1/1431 dated 20/5/2010
- (vi) **“Existing Landuse Plan”** means the Plan showing the different landuses existing at the time of preparation of the Existing Landuse Plan of Local Planning Area, Bagha Purana as indicated on Drawing No. DTP (FDK) 368/2010 dated 28-06-2010.
- (vii) **“Proposed Landuse Plan”** means the plan showing the proposed admissible uses of different areas and landuse zones covered in the Local Planning Area, Bagha Purana and as indicated on Drg. No. 370/2010 dated 30-08-2010.

- (viii) **“Non- Conforming Building or use”** means use in respect of any land or building in the Local Planning Area, the existing use of which land or building is contrary to the prescribed land use.
- (ix) **“Zonal Plan”** means the detail plan of a part of Master Plan as delineated in the plan showing different zones and this zonal plan will show all or any of the following:-
- a) Areas earmarked for various land uses as per approved Proposed Land Use Plan.
 - b) Existing and proposed road network, water bodies etc.
 - c) Area temporarily or permanently prohibited for the building operation.
 - d) Any other detail required to be provided in the zonal plan.
- (x) **“Zoning Plan”** means the plan of area or part thereof or supplementary layout plan approved by the Chief Town Planner, Punjab and maintained in the office of Competent Authority showing the permitted use of land and such other restrictions on the development of land as may be prescribed in the zoning regulations, for any part or whole of the area such as sub-division of plots, open spaces, streets, position of protected trees and other features in respect of each plot, permitted land use, building height, coverage and restrictions with regard to the use and development of each plot in addition to such other conditions as laid down in these regulations hereafter.
- (xi) **“Mixed Land use”**: Means the area where multiple use of land comprising residential, commercial, institutional, recreational uses and industries other than Red category as listed by Punjab Pollution Control Board (PPCB) or as amended from time to time shall be permissible subject to environmental safeguards in a regulated manner.
- (xii) **“I.T. Park”**: An IT Park is a cluster of separate buildings together with a technical infrastructure, created with the aim of attracting an indulgence of knowledge and technology for science bodies and business."

- (xiii) **“Fashion Technology Park:** " Means where knowledge based infrastructure to inspire the global fashion community catching all segments of Designing, Manufacturing, Marketing, R & D, Logistics, Broad forecasting, all are under one roof."
- (xiv) **“Knowledge Park:** "A platform for interaction and provider clustering opportunities to all the Organizations, Institutions, Hotels, Restaurants, Hospitals. Real Estate Agency clubs, Business Parks with main objective of facilitation of technology better to public and private sector."
- (xv) **“Logistic Park”:** "A logistic park is an area within which all activities related to transport, logistics and the distribution of goods for both national and international transits, are carried out by various operators on a commercial basis."
- (xvi) **“Farm House:** Farm house means a building allowed on a holding of agricultural land for residential and agricultural activity of the land holder. The total floor area of such farm house shall not exceed 2 per cent of the area of holding or 200sq.m.whichever is less.
- (xvii) **“Industry”:** Means the place or site where processing and reprocessing of raw materials into consumer goods, or further processes goods from other industries or builds capital good used to manufacture consumer and non consumer goods it also includes energy-producing industries and the construction industries.
- (xviii) **“House Hold Industry”:** Means house hold occupation/ Industry conducted only by family members/persons residing in the dwelling with or without power and not contrary to the provisions of the Water Pollution (Prevention and Control) Act 1974 Air pollution (Prevention and Control) Act 1981 and Environment (Protection) Act 1986.
- (xix) **“Public and Semi Public activities”:** Means the uses relating to governmental/semi governmental offices, educational, medical institutions, recreational and entertainment facilities, cultural and religious institutions etc.

Terms and phrases used, but not defined in these regulations, shall have the same meaning as assigned to them in Act.

11 LAND USE ZONES

The proposed land use plan incorporated in the Master Plan of LPA Bagha Purana depicts the following land use zones:-

- (i) Residential
- (ii) Commercial
- (iii) Industrial
- (iv) Mixed Landuse
- (v) Rural and Agricultural

12 USE PROVISIONS IN LANDUSE ZONES

Permissible uses in the above land use zones shall be as given below:-

13 RESIDENTIAL: Permissible Uses

Housing

- Plotted housing, Group housing, Farm houses
- Old age homes, Orphanages, Homes for mentally/physically challenged children, leprosy ashram, hostels
- Service apartments, Hotels, Motels, Guest houses, Dharamshalas, Lodging houses, Serai, Rayan Baseras.
- Jails, Asylums, Reformatories

Trade & Commerce

- Retail trade and service shops, restaurants.
- Professional services such as those provided by lawyers, accountants, town planners, architects and others, A.T.M., Cyber Cafes.
- Rehri markets
- Departmental stores, shopping malls
- Filling stations*
- Gas distribution (without storage of cylinders)
- Milk chilling plant (in low density residential only)

- Gas godown / kerosene oil storage/fire cracker storage (in low density residential zone on independent plot only which shall be permissible till that time the residential or any other activity compatible to residential comes within a radius of 100 mts from the site)
- Household industry, Cottage industry, Atta chakki, Biogas plants & Solar Energy
- Repairs of household articles, cycles & scooters
- I.T.Park, Knowledge Park, Fashion Technology Park

Public & Semi-Public

- Education- schools, coaching classes, I.T.I., polytechnic, engineering college, medical college and other degree colleges, universities, professional research and training Institutions, advanced education and training like IIM or IIT.
- Health care- Clinics, health centres, dispensaries, nursing homes / nursing care facilities, health clubs, hospitals(including super specialty hospitals) (subject to notification no.17/7/5-Hg2-311/11.1.08), veterinary dispensaries and hospitals
- Art, entertainment, cultural and religious activities such as libraries, museums, clubs, marriage palaces, bhawans, sports activities including parks, gardens, play grounds, swimming pools, gymnasia, stadia, golf courses etc ., amusement parks, cinemas, auditoriums, theatres, places of worship.
- Public utilities and Services- Fire station, Police stations, Post office, Dhobi Ghat etc., Bus Stand, Auto Rickshaw/Taxi Stand, and Telecom & Transmission Towers.
- Plant, nurseries and green houses related to nurseries, floriculture
- Cemeteries/ Cremation ground/ Graveyard/ existing Caracus sites
- Water harvesting measures.

- * The siting of filling stations petrol pumps shall be subject to instructions / guide lines of MORTH / TCPO / Punjab Govt. issued from time to time.

Any other use not mentioned above but sub-servient to residential use shall be allowed with special permission from Chief Town Planner, Punjab.

14 COMMERCIAL: Permissible uses

Trade & Commerce

- Retail trade, business showrooms & service shops, restaurants.
- Rehri markets, Informal markets
- A.T.M., Cyber Cafes
- Super markets, Departmental stores, shopping malls, multiplexes.
- Milk collection centre, chilling station, Pasteurization Plants, fruit ripping plants etc. only in whole sale market.
- Trade fairs, Exhibition & Convention centres
- Filling stations
- Gas distribution (without storage of cylinders)
- Printing presses, Atta chakki
- Automobile showrooms & motor market (Garages)

Housing

- Service apartments, Hotels, Motels, Guest Houses, Dharamshalas, Lodging House
- Residences on upper floors only

Offices

- Offices of all types

Public Semi - Public

- Education- coaching classes, distant education, I.T. enabled services, schools, colleges, Vocational Training Institute, Vetarnary Services.

- Health care- Clinics, health centres, dispensaries, nursing homes, hospitals
- Art, entertainment, cultural and religious activities such as libraries, museums, marriage palaces, sports activities including parks, gardens, play grounds, swimming pools, gymnasia, stadia, golf courses etc ., amusement parks, cinemas, auditoriums, theatre, betting & gambling, pubs & bars, night clubs, night food streets, discotheques
- Plant, nurseries and green houses related to nurseries, floriculture
- All Public utilities and Services- Fire station, police stations, post office etc., Bus Stand, Auto Rickshaw/Taxi Stand, Telecom & Transmission Towers.
- Water harvesting measures

Any other use not mentioned above but sub-servient to commercial use shall be allowed with special permission from Chief Town Planner, Punjab.

14 INDUSTRIAL GENERAL: Permissible uses

- All types of industries as classified by the department of industries and commerce further categorized by PPCB (Punjab Pollution Control Board) and following uses are permissible in the industrial zone:
- Junk yards, disposal works, gas works, power plant, hot mix plant.
- I.T.Parks, Knowledge Parks, Industrial Parks, Fashion & Technology Park, Film City.
- Warehouses, godown & covered storage, cold stores, logistic parks, freight complex, container yards, dry port, weigh bridges
- Loading & unloading yards, truck terminals, bus terminals, railway station and siding, railway yards, helipads, metro stations
- Tempo / Taxi stand, Bus stops, Tonga stand
- *Petrol filling / service stations, fuel storage, LPG storage, storage of fire crackers

- Education- Schools, coaching classes, I.T.I., polytechnic, engineering college, medical college and other degree colleges, universities, professional research and training Institutions, advanced education and training like IIM or IIT.
- Health care- Clinics, health centres, dispensaries, nursing homes, health clubs, hospitals, including super specialty hospitals (subject to notification no.17/7/5-Hg2-311/11.1.08), veterinary dispensaries and hospitals
- Entertainment centre, multimedia centre, hotel, restaurant, showroom of mills, marriage palaces, places of worships, automobile showrooms
- Govt., Semi – Govt. / Private business offices, financial institutions
- Residences for watch & ward staffs, residences for industrial workers / management
- All public utilities, police station police beat box, fire station, cemeteries / graveyard, caracus site (existing only), slaughter house
- Farming, quarrying

Any other use not mentioned above but sub-servient to industrial use shall be allowed with special permission from Chief Town Planner, Punjab.

15 MIXED LAND USE ZONE: Permissible uses

- All types of uses permissible in residential use zone.
- All types of uses permissible in commercial use zone.
- All industrial uses except those of red category with permission of PPCD shall be permissible in this zone.

Any other use not mentioned above but sub-servient to mixed land use zone shall be allowed with special permission from Chief Town Planner, Punjab.

16 RURAL & AGRICULTURAL ZONE: Permissible Uses

This zone is sub divided into two sub zones as following:

- (i) Village Abadis and 200 mts around phirni

(ii) Agricultural/Rest of area

(i) VILLAGE ABADIS AND AREA UPTO 200MTS OF PHIRNI : Permissible Uses

- Residential development in the form of plotted and group housing.
- Educational, Medical, Cultural, Religious and Recreational uses which commensurate with the scale of village population
- Local commercial, service industry, dhobi ghat
- Public utilities & Services including communication towers

(ii) AGRICULTURAL ZONE : Permissible uses in the rest of the area

- Farm houses, hostels for students, working women
- Oldage homes, orphanages, jails, asylums
- Agriculture, Horticulture, Dairy, Piggery, Fishing, Poultry Farming, Mushroom growing centre, Slaughter house
- Milk collection centres, Chilling Stations and Pasteurisation plants, Cold storage Rice Shellers, Processing of farm (grains, fruits and vegetables) products, Brick Kiln, Lime Kiln, Charcoal Kiln
- Storage of Fuel Oils, LPG Storage Godowns, storage of Fire Crackers, Wholesale trade of agricultural products only Warehousing, Godowns, Logistic park, ice factory, Cement / Sand and Concrete mixing plant, hot mix plant.
- Railway station, sidings, bus stop, truck terminal, container yard, air freight and parking area
- Public buildings and utilities including Electric sub-stations, sewage treatment plant (STP) solid waste dump site, caracas disposal site
- Transmission and telephone lines and poles, telecommunication towers, surface drainage, water bodies including irrigation canals
- Aforestation including orchards, gardens and commercial timber, Land preservation and conservation measures such as storage, check dams, Water harvesting measures
- I.T.Park, Knowledge Park, Fashion Technology Park

- Education- schools, coaching classes, I.T.I., polytechnic, engineering college, medical college and other degree colleges, universities, professional research and training Institutions, advanced education and training like IIM or IIT.
- Health care- clinics, health centres, dispensaries, nursing homes / nursing care facilities health clubs, hospitals(including super specialty hospitals) (subject to notification no.17/7/5-Hg2-311/11.1.08), veterinary dispensaries and hospitals
- Art, entertainment, cultural and religious activities such as libraries, museums, clubs, trade fairs, exhibition, mela grounds, camping grounds, marriage palaces, bhawans, sports activities including parks, gardens, play grounds, swimming pools, gymnasia, stadia, golf courses etc ., amusement parks, places of worship.
- Panchayat ghars, dharamshalas and any other project of Central and State Govt. agencies / Deptt. / Undertaking / Local Bodies.
- Any other use not mentioned above but sub-servient to rural & agricultural zone shall be allowed with special permission from Chief Town Planner, Punjab.

17 DESIGNATED AREAS

Following areas have been specifically designated in the proposed land use plan.

- (i) Traffic and Transportation
- (ii) Utilities
- (iii) Public & semi public

USE PROVISIONS IN DESIGNATED AREAS

Following uses are permissible in the designated areas

(i) TRAFFIC & TRANSPORTATION: Permissible uses

All types of roads, Railway lines, Rail yards, Railway station & sidings, Transport Nagar (including, Post & Telegraph offices & Telephone exchange, dhabas, labour yards, areas for loading and unloading, stores, depots, and offices of goods booking

agencies, Petrol Filling station & service garages, parking spaces public utilities and buildings, broadcasting station) Bus Terminus & depot, bus stop shelter, taxi/tonga/ rickshaw/scooter stands, parking space as shown in Drg.376/2010 dated 15-12-2010

(ii) UTILITIES: Permissible uses

Water supply, Sewerage system (including main pumping station and Sewage Treatment Plant {STP}), drainage, storm water, waste processing and disposal, electricity, communication systems and related installations etc.

(iii) PUBLIC AND SEMI-PUBLIC ACTIVITIES : Permissible uses

Government and Semi-Government offices, Governmental Administrative Centres, (Secretariat) Educational, Cultural and Religious institutions including theaters, auditoriums etc. Medical Health Institutions, Community Centres, Club, Orphanage, Old Age Home, Banks, Police Stations etc.

18 SPECIAL CONDITIONS

- The sitting of Petrol Pump / Filling Stations shall be subject to fulfillment of instructions/guidelines of IRC/MORTH/TCPO /Punjab Govt. issued from time to time.
- Minimum width of access road for warehousing uses shall be 80'.
- All public and semi-public uses in residential zone shall be located on independent plots with minimum access of 80'.
- All types of industries permitted in the designated land use zone are subject to the fulfillment of conditions issued by industries department / Punjab Pollution Control Board from time to time.

19 EXCEPTIONS

- As provided under Section 79 of the Punjab Regional and Town Planning and Development (Amendment) Act 2006, after coming into operation of this Master Plan, no person shall use or permit to be used any land or carry out any development in any area otherwise than in conformity with this Master Plan.

- Provided that the competent authority may allow the continuance of any use of any land, for a period not exceeding ten years, upon such terms and conditions as may be provided by regulations made in this behalf, for the purpose and to the extent, for and to which it was being used on the date on which this Master Plan came into operation.
- Notwithstanding the above, the uses specifically provided for in the Sector / Zonal Plans shall be permissible or as may be allowed by the Chief Town Planner, Punjab after special appeal where Sector / Zonal Plan is not prepared.
- Uses determined by the Chief Town Planner, Punjab as compatible with uses permissible shall be allowed in respective zones.
- Developments approved prior to coming into force of these Regulations shall be deemed to be in compliance with these regulations.
- The site on which various projects have been approved or whose change of landuse has already been permitted by competent authority/Govt. such sites shall be deemed to be adjusted.
- Uses of Land covered under Optimum Utilization of Vacant Govt. Land (OUVGL) Scheme of the State Government shall be determined by the Government at any appropriate time notwithstanding the provisions of these regulations subject to the fulfillment of other requisites like minimum area, road width and frontage etc. of the respective landuse.
- In the event of conflict in interpretation of data within the study area the information in the GIS format will be deemed as the accurate version and shall prevail.
- In case the area of a project falls partially under no construction zone along a water body, relaxation of maximum upto 5% on the total area of the project shall be allowed towards calculation of saleable area in lieu of the area falling under the no construction zone. In case, the area falling under no construction zone is less than 5% of the total area of the project then the relaxation shall be proportionately less.

- The buildings / premises for which the existing (present) land use has been retained as such in the Master Plan may continue to operate without time limit. However, in case the present use of the buildings / premises is discontinued (partially or wholly) these buildings / premises or part thereof may be put to any compatible use (except industry) with the surrounding use zone in the Master Plan provided it fulfills the other development regulations / controls as laid down in the Master Plan or as prescribed by the Govt. / Local Body from time to time.

20 RESIDENTIAL DENSITIES

Residential zone is divided into two sub zones viz. High Density Zone and Low Density Zone and are shown on the Proposed Land Plan Drg no. DTP (FDK) 370/2010 dated 30/08/2010. The maximum permissible density in these zones shall be as shown in table below:

Sr. No.	Zone	Density
1	High Density Residential Zone (RD-1)	Above 200 persons/acre
2	Low Density Residential Zone (RD-2)	Below 200 persons/Acre

Note: However to encourage group housing and save agricultural land, 60 dwelling units/acre shall be permissible in standalone group housing projects irrespective of the density of particular zone.

21 IMPLEMENTATION OF THESE REGULATIONS

- All authorities competent to grant permission for layout or sub-division of land or construction of building or development of land in any other form shall ensure that the permitted development is in compliance with these regulations.
- Land owners desirous of developing their land can obtain by applying to the designated authority in writing and giving details of their land along with necessary maps, a list of permissible uses.
- Similarly land owners proposing development of certain uses on their land can obtain a certificate of “Compliance with Master Plan” from a designated authority
- In the extended M.C limits after the notification of Master Plan the stimulations in the Master Plan for area shall continue to be applicable in the extended M.C limits.

SECTION-II

22 DEVELOPMENT CONTROL REGULATIONS

The purpose of the Development Control Regulations (DCR) is to assist developers and end users within the Local Planning Area, Bagha Purana to strive for a more quality and environment –friendly development.

These Development Control Regulations are applicable to new and future developments. The developers are requested to abide by the zoning and planning intentions of the Master Plan. However, development proposals/projects that have been granted approval (including CLU) by the Competent Authority before coming of these into operation will continue to be honoured subject to the terms and conditions of approval and shall not be affected by these controls.

Chapter XI of "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" provides for 'Control of Development and Use of Land where Master Plan is in Operation.' The chapter lays down the procedural framework for exercising the development control. "Development" as defined by the Act means the carrying out of building, engineering, mining, quarrying or other operation in, on, over or under land or making of any structural or material changes in any building or land including that which affects the appearance of any heritage site and includes demolition of any part or whole of the building or change in use of any building or land and also includes reclamation, redevelopment, a layout or sub-division of land.

The F.A.R., hieght, groud coverage, parking, set backs, width of road & frontage of site etc. regarding residential, commercial, institutional, industrial or any other use for areas falling with in mucipal limits shall be governed by muncipal bye laws.

Some of the key regulations currently in force are reproduced below.

23 Residential

Category	Minimum area of colony		
	Low Potential Zone II	Low Potential Zone III	Low Potential Zone IV
Residential Plotted	Outside M.C. limits 10 Acres Within M.C. limits any area	Outside M.C. limits 10 Acres Within M.C. limits any area	Outside M.C. limits 10 Acres Within M.C. limits any area

In case of left out pocket i.e. where on all sides the construction has already taken place, that left out area without any minimum stipulation can be developed as a residential colony.

Note:

- (i) The above potential zones falling in L.P.A. Bagha Purana are as per notification no. 17/17/2001-5HG2/PF.1 dated 20.06.2010 or as amended from time to time.
- (ii) The minimum area of colony is as per Memo No.18/182/06-6HG2/5598 dated 17.07.2007, Memo No. 17/17/01-5HG2/7655 dated 19.09.2007 and Memo No. 17/17/01-5HG2/1640 dated 18.06.09 or as amended from time to time.
- (iii) F.A.R, height and ground coverage for individual residential plots within municipal areas, the municipal building byelaws shall be applicable and outside Municipal limit the building bye-laws of respective Development Authority shall apply. However, saleable area of any plotted residential colony (residential and commercial) shall not exceed 55%.
- (iv) Any change in area or any other norms at latter stage by the state Govt. shall be applicable

24 Parking requirements for plotted developments

Plot size*	Parking requirements
85 sq m and less (100 sq yd and less)	2 scooter parking spaces
86-168 sq m (101-200 sq yd)	1.5 car parking space within plot area
169-425 sq m (201-500 sq yd)	2 car parking space within plot area
425 sq m and more (500 sq yd and more)	3 car parking space within plot area

Note:

- (i) Deviation of up to 10% of this control is allowed, if it is arising from site conditions / constraints.
- (ii) The minimum width of roads within residential areas shall not be less than 12 m, if the existing road is less than 12 m, the proportionate land on both sides shall be safeguarded for widening to comply with the minimum requirement. The height of buildings on these roads shall not exceed ground plus two (G+2) storeys.
- (iii) Size of the front gate on boundary wall and construction of front boundary wall is optional to meet the parking requirements.
- (iv) Any change in area or any other norms at latter stage by the state Govt. shall be applicable

25 Group Housing

1	Minimum Plot size	
	Within MC limits	4000 square meters
	Outside MC limits	
	a) For General Category	5 acres
	b) For EWS	2.5 acres
2	Minimum road width	Group housing stand alone projects, shall be permissible on minimum existing 60' wide road with condition that the promoter shall be required to leave space from his own land for widening it to 80' and the space so left shall be public space. In the planned colony, group housing shall not be permissible on a road less than 60' wide.
3	Minimum Frontage	Outside M.C limits 20 meters
4	Permissible FAR	Outside M.C limits 1:1.75
5	Permissible Height	There shall be no restriction on the height of building subject to clearance from Air Force Authority and fulfilment of other rules such as set backs, distance between buildings etc. However structural safety and fire safety requirements as per National Building Code shall be compulsory.
6	Parking Provisions	For group housing developments, the requisite parking provision is 1.5 ECS per 100 sq m of covered area. The maximum provision allowable for group housing projects is 3ECS per dwelling unit.

Note: 1) Construction of residential houses sold by promoters on floor basis shall also be considered as group/flatted housing development & parking requirement shall be as per the norms applicable to Group Housing.

2) Any change in area or any other norms at latter stage by the state Govt. shall be applicable

26 Farm House

Minimum area	2.5 acres
FAR	0.04
Ground Coverage	2% (maximum 200 sq mts.)
Number of storeys	2
Height	Single Storey 18'-0" Double Storey 28'-0"
Hard Surface	10%

Note: Farm House shall only be allowed to upkeep the farm operations and it shall not be used for independent residential or any other purpose.

27 Commercial

Commercial use in residential zone located within the municipal limits shall be allowable as per municipal bye laws. The area requirements for such commercial developments shall be as per the Municipal rules and regulations.

For stand alone commercial complexes with height greater than three storeys within as well as outside the Municipal limits, the additional criteria listed in following table shall apply.

Additional criteria for stand-alone commercial complexes (more than three storeys)

1	Minimum area required	As per M.C norms (within M.C. limits) 1000 sq m (outside M.C.limit)
2	Minimum frontage	As per M.C. norms (within M.C. limits) 20 meters (Outside M.C. limits)
3	Maximum F.A.R	As per MC norms (within M.C. limits) 1:1.75 (Outside M.C. limits)
4	Maximum height	There shall be no restrictions on the height of building subject to clearance from Air Force Authority and fulfillment of other rules such as setbacks, distance between buildings etc. However, structural safety and fire safety requirements as per N.B.C shall be compulsory.
5	Maximum groundcoverage	As per MC norms (within M.C. limits) 40% (outside M.C. limits)
6	Parking	For projects with no multiplexes, the minimum parking shall be 2ECS per 100 sq m of covered area (including circulation area). For projects with multiplexes/cinemas/theatres, the minimum parking shall be: a) 3 ECS per 100 sq m of covered area in respect of the covered area by the

- multitplex component +30% of the total covered are
by that component and
ECS per 100 sq m of covered area, in respect of balance commercial component and circulation area.
Parking norms within the municipal limits shall be the same as that notified by the Department of Local Government.
Total parking requirement shall be provided in the compulsory front set back and within the development site boundary or in the basement.
- 7 Basement Multi level basement will be allowed behind the building in zoned area except in setbacks provided it is proposed for parking purposes only and satisfy the public health and structural requirements.
- 8 Minimumwidth of approach road 80 feet
- 9 If the site area is 1 acre or more minimum 15% area is to be reserved for landscaping.
- 10 For the movement of fire tender the minimum set back distance to comply with the existing norms and standers.

Note : The E.C.S shall be counted as below:

- 23 square meters for open parking.
- 28 square meters for parking under stilts on ground floor.
- 32 square meters for parking in the basement

28 Commercial at Local Level

The provision for small scale, single storey commercial facilities at the local level within Municipal limits shall be as per municipal bye laws, however outside the municipal limits such activities shall be on roads with a minimum width of 18 m (60') & with minimum 6 mts front setback for parking.

These commercial facilities are intended to serve the needs of local residents only and will not be shown separately on the Master Plan. Instead, they shall be subsumed under the predominant residential land use.

29 Development Controls along Roads

The development controls along major roads beyond the Right of Way (RoW) shall be as per table below, however the access to all properties within and outside the municipal limits that abut R-1 and R-2 hierarchy of roads shall be through service road. The cross-section of these roads shall be detailed at latter stage whenever required. The minimum ROW and no construction zone along the major roads shall be followed as given below:-

Sr. No.	Name of the road	Hierarchy	Right Of Way (in mts & feet)	No construction zone on both sides of ROW (in mts)
1	Ring Road around Bagha Purana	R-1	45(150')	5
2	Kotkapura-Moga road (SH-16)	R-1	45(150')	5
3	Bagha Purana- Bhagta Bhai	R-2	30(100')	5
4	Mudki - Nihal Singh Road	R-2	As per existing Width	5

Note: - (i) Front set back shall be over and above the proposed widening width of road, if any.

(ii) Where widening of existing road is proposed the land shall be taken proportionately equally from both the sides of existing road.

(iii) If there is extension of Municipal limits of any local body falling in LPA, after final notification of Master Plan, the development controls / zoning regulations as applicable to the area outside M.C. limits shall apply to the area so covered under extended M.C. limits.

30 Institutional:

Components	Norms/Standards
Minimum Plot size	As prescribed by affiliating authority.
Minimum frontage	200 feet
Minimum width of approach road	40 feet (12m) or as ammended by Government from time to time
Maximum F.A.R	1:1
Maximum ground coverage	40%
Parking	1 ECS per 100 square meters of the covered area if the project is covered under notification no.17/171/5-Hg2/311 dated 11.01.08.

Note: Other building regulations shall be governed by Zoning Plan as approved by the competent authority.

31 Industrial

Size of Plot	Site Coverage
For the first 2420 sq yds	50% of the site
For the next 2420 sq yds	33% of the site
In excess of 4840 sq yds	25 % of the site
FAR	1:1.0
Parking	1 ECS per 100 square meters of the covered area.
Road width	The minimum road width for industrial unit shall be 12 mts.

Note: Residential component: Residential component in the industrial plot/premises shall not exceed 5% of the area of the site and shall be within the maximum permissible covered area.

- The minimum road width for each land use shall be as specified in the Master Plan or by the Government policy / guidelines issued from time to time. However, in case the existing road width is less than the minimum specified width in the Master Plan / Government policy the proportionate land on both sides shall be safeguarded

for widening to comply with the minimum requirement. In case, where habitation / settlement comes in the alignment, the widening shall be on other side of habitation / settlement.

- In case the site of any project is situated within Municipal limits and the project is submitted to Local Body for approval the building byelaws of the concerned local body shall be applicable provided the land use is in conformity to Master Plan.
- Industrial / IT Park shall have minimum 10 acres area. In IT Park, IT component shall have FAR 2. In industrial park, for an industry component FAR shall be 1 and other components shall have FAR as mentioned under different uses in the Master Plan.

32 Environment Considerations:

- Minimum buffer of 15 meters green belt of broad leaf trees should be provided around the boundary of village abadies falling in the industrial zone of Master Plan. This should also be provided between residential areas and red category industries falling in industrial zone of Master Plan, boundaries of which are located within 100 m from the boundary of such areas. However, for special type of industries such as Rice Shellers / Saila Plant, Stone Crushers, Hot Mix Plant, the standards prescribed by the Punjab Pollution Control Board or any other agency shall apply.
- All residential colonies, commercial establishments like shopping malls, multiplexes etc shall maintain a minimum distance of 250 meters form the most hazardous (maximum accident hazardous) industries notified by Director General, Factory Adviser Service Labour Institute. The distance should be measured from source of pollution/hazard in the industrial premises to the building lines as per Zoning Plan of the colony/complex.

33 Other Development Controls and Guidelines Required

- (i) Expansion of village abadies: Contiguous expansion of village abadies in non residential zones of Master Plan is permissible up to 200 mts in the Master Plan. However, for the village abadies falling in residential zone of Master

Plan no such limit has been earmarked as the area around them is already earmarked as residential.

- (ii) The contiguous expansion of village abadies falling under agricultural zone of Local Planning Area is also permissible to accommodate the natural growth of village abadies.
- (iii) Regulation for village abadi: Special building regulation shall be prepared for the development and regulation of an area falling within the lal dora or phirni of the villages falling in the Local Planning Area.
- (iv) The existing high tension lines shall be shifted along the road but outside the right of way to ensure unhindered ROW for traffic and other services for all times.
- (v) Minimum 5 meters wide green strips on each side of minor, drain, canals, underground pipelines shall be maintained. Realignment of water bodies shall be permissible wherever feasible, subject to the certification by the Drainage / Engineering Department to ensure free flow of storm water. After any such realignment, the river mouth, the river bed, and the green strip on either side shall be maintained at least to the minimum prescribed level.

Note: The Development controls/Guidelines/Norms & Standards revised from time to time by the Government shall have overriding effect on the Development controls mentioned in the master plan.

34 Transferable Development Rights

To facilitate development, it is necessary to accord top priority to the implementation of public utilities and infrastructure (such as roads, parks, green belts etc,) which will in turn encourage urbanization.

However, the respective technical agency or authority will not be able to proceed with its implementation programmers until the ownership of private land affected by these public utilities and infrastructure has been transferred to the state or to the relevant authority(s).

Acquisition of private land for this purpose can be carried out through one of the following options:

- Cash compensation can be made to affected land owners whose land is to be acquired.
- A government – approved land pooling scheme can be implemented.
- Transferable Development Rights (TDR).

Under the TDR scheme, the affected land owner(s) shall be entitled to additional FAR for the development of his balance land parcel at a rate of 1:1. The additional FAR will not be subjected to any CLU, EDC or license / permission fees. The land owner(s) also has the option to sell it in total or in parts to a third party.

All the records of transactions administered under the TDR scheme shall be maintained by the state and / or relevant authority(s), based on the precedence set in Mumbai. The TDR scheme shall be restricted to development projects for public infrastructure and facilities which shall be announced from time to time. The additional FAR shall not be transferable from one L.P.A to another. The detailed policy guidelines on the operation and implementation of TDR Scheme shall be prepared and announced by the competent authority in due course of time.

Annexure No.1: Notification regarding Declaration of LPA, Bagha Purana

**GOVERNMENT OF PUNJAB DEPARTMENT OF
HOUSING & URBAN DEVELOPMENT
(HOUSING BRANCH-1)**

Notification

Dated: 20/05/2010

No 12/1/10-4HG1/1431 Whereas it appears to the Governor of Punjab that to meet the challenge of rapid growth of Bagha Purana and to provide for a workable framework for comprehensive planned and regulated development, preparation of statutory Master plan of Bagha Purana is very essential. Hence in order to develop Bagha Purana and its surrounding in orderly manner and to prepare its Master plan under "The Punjab Regional and Town Planning and Development act,1995" the Governor of Punjab is pleased to declare the Local Planning Area of Bagha Purana with in the meaning of sub section(1) of section 56 of the Punjab Regional and Town Planning and Development (Amendment) Act.2006.The total area proposed for Local Planning Area is 32322 hectares including Bagha Purana Municipal Council, and adjoining 26 villages as shown in Annexure-1.The Schedule of boundary of Local Planning Area is given below:-

Schedule of Boundary

- North: Starting from point 'A' which is common Sarhada of village Jaimal wala (H.B.No-79),village Bhikha (H.B.No-76), and village Gajan wala (H.B.No-80) towards east along the northern boundary of village Jaimal wala(H.B.No-79), village Chand Nawan (H.B.No-82),village Chand Purana (H.B.No-83),village Mandheran Wala (H.B.No-1) village Jhande wala (H.B.No-2) and village Chirak (H.B.No-7) up to point 'B' which is common Sarhada of village Malian Wala (H.B.No-5), village BishanPura (H.B.No-6) and village Chirak (H.B.No-7).
- East: Thence from point 'B' towards south along the eastern boundary of village Chirak (H.B.No-7),village Gholia Kalan (H.B.No-89) and village Phule Wala (H.B.No-106) up to point 'C' which is common Sarhada of village Phule Wala (H.B.No-106),village Manuki (H.B.No-105) and village Samadh Bhai (H.B.No-142).

Master Plan of Local Planning Area, Bagha Purana

South: Thence from point 'C' towards west along the southern boundary of village Phule Wala (H.B.No-106),village Chanu Wala (H.B.No-141),village Ladhaike (H.B.No-131),village Weroke (H.B.No-129) village Samalsar (H.B.No-117) and village Panjgraian Khurd (H.B.No-118) up to Point'D' which is common Sarhada of village Panjgraian Khurd (H.B.No-118),village Malke (H.B.No-119) and village Panjgraian Kalan (Distt FDK) (H.B.No-126).

West: Thence from point 'D' towards north along the western boundary of village Panjgrain Khurd (H.B.No-118),village Samalsar (H.B.No-117),village Lande (H.B.No-116),village Rode (H.B.No-111),village Langiana Purana (H.B.No-78) and village Jaimal Wala (H.B.No-79) up to Starting Point 'A'.

The boundaries of Local Planning Area, Bagha Purana are specially shown on the Drawing No. DTP (FDK) 356/2010,Dated:10.02.2010.All the provisions laid down u/s 56(2) of The Punjab Regional and Town Planning and Development (Amendment) Act.2006 and all the concerned rules framed under the Act have been taken into consideration.

Chandigarh

Dated: 20/05/2010

Dr. S.S.Sandhu I.A.S

Secretary to Govt of Punjab

Housing & Urban Dev. Deptt.

Master Plan of Local Planning Area, Bagha Purana

Detail of Village/Area falling with in Local Planning Area-Bagha Purana

Sr. No.	Name of Settlement	Hadbast Number	Area in Hectares	Population	Population	Remarks
1.	Bagha Purana M.C.	87	--	17287	21596	Area included in Bagha Purana rural
2.	Bagha Purana Rural	87	2361	2397	2025	Total area of Bagha Purana revenue estate including M.C. BaghaPurana
3.	Chand Purana	83	661	2081	2347	--
4.	Jai Singh Wala	85	557	1164	1341	--
5.	Langiana Nawan	77	2041	4628	5511	--
6.	Gill	86	774	1808	2370	--
7.	Mandheran Wala	1	708	1861	1946	--
8.	Kale Ke	88	1163	3848	4516	--
9.	Gholia Kalan	89	2058	6307	6658	--
10.	PhuleWala	106	520	2368	2969	--
11.	Ugo Ke	107	187	827	764	--
12.	Natho Ke	108	506	1859	2172	--
13.	Budh Singh Wala	109	636	2125	2466	--
14.	Rajiana	110	2261	6712	8007	--
15.	Kotla Mehar Singh	130	730	2432	2826	--
16.	Chanu Wala	141	668	2491	2686	--
17.	Rode	111	3005	8374	8928	
18.	Chand Nawan	82	1071	3474	3728	--
19.	Chotia Thoba	84	371	873	831	--
20.	Jaimal Wala	79	670	2907	3042	--
21.	Laingeana Purana	78	904	2387	2750	--
22.	Lande	116	1783	4721	5408	--
23.	Samalsar	117	2893	8823	9971	--
24.	PanjGraian Khurd	118	697	3113	3195	--
25.	Weroke	129	982	3114	3550	--
26.	Ladhaike	131	603	1492	1620	--
27.	Chirak	7	2817	8936	8224	--
28.	Jhande Wala	2	695	2021	2421	--
	Total	--	32322	108430	123868	--

Dr. S.S.Sandhu, I.A.S

Chandigarh

Secretary to Govt. of Punjab

Dated: 20/05/2010

Department of Housing & Urban Dev.

Annexure No. 2: Chief Town Planner, Punjab as the Planning Agency for LPA, Bagha Purana

**GOVERNMENT OF PUNJAB DEPARTMENT OF
HOUSING & URBAN DEVELOPMENT
(HOUSING BRANCH-1)**

Notification

Dated 21/5/10

No.12/1/2010-4HGI/1437 Whereas the Governor of Punjab was Pleased to declare the Local Planning Area of Bagha Purana and its Surrounding area u/s 56 (1) of the 'The Punjab Regional and Town Planning and Development act 1995' vice notification No 12/1/2010-4HG1/143 Dated 20.5.10.

Further the Governor of Punjab is pleased to designate the Chief Town Planner, Punjab as Planning Agency for the above local Planning area under Section 57 of 'The Punjab regional and Town Planning and Development Act, 1995.

Chandigarh

Dated 13 May, 2010

S.S.Sandhu IAS

Secretary to Government of Punjab

Department of Housing & Urban Dev.

Annexure No. 3: List of members included in Think Tank for finalizing Vision-2031

Sr.No.	Public Sector	Private Economic Sector	Social Sector
1	Senior Supt.Police, Moga	Manger, State Bank of India, Bhaga Purana	Sh.Ajay Kumar Reporter Jagi Bani and Punjab Kesri
2	Additional Deputy Commissioner, Moga	Sh. Sunil Mital, Aggarwal Rice Mills, Bagha Purana	Sh. Vijay Sharma M.C Bagha Purana
3	Sub Divl. Magistrate,Moga	Sh.Bal Krishan Bali ,Nauru Mandi, Baga Purana	Sh. Nar Singh Brar Chairman spring field School ,Bagha Purana
4	Additional Chief Administrator, PUDA, Ludhiana	Sh.Vipan Jain, (Sharman Sweets)	Dr. Mahesh Gupta M.B.B.S, Bagha Purana
5	President, M.C.,Bagha Purana.	Sh.Amarjit Brar, President Artia Association, Bagha Purana	Sh. Davinder Arora Bagha Purana
6	Civil Surgeon, Moga	Sh. Darshan Singh Artia Vill. Nattuke	Sh. Kulwant Sharma (Ret.) A.D.O Powercom, Bagha Purana
7	Distt. Transport Officer, Moga	Sh. Gurdev Singh, Principal, P.C.S. School, Bagha Purana	Sh.Nand Singh Brar M.C.,Bagha Purana
8	Executive Officer, M.C. Bagha Purana		Sh.Rajinder Banci, Bagha Purana
9	General Manager, District Industry Centre, Moga.		President, Lion Club, Bagha Purana
10	Executive Engineer, P.W.D., (B & R), Construction Division, Moga		President, Rotary Club, Bagha Purana
11	Executive Engineer, Punjab State Electricity (Distribution), Moga		
12	Executive Engineer, Water Supply & Sanitation Deptt. Moga		
13	Environmental Engineer, Punjab Pollution Control Board, Faridkot.		
14	Executive Engineer, Punjab Water Supply & Sewerage Board (Branch-II) Bathinda.		

Annexure No.4: Comparative Statement of Norms and Standards for Social Infrastructure

Aspect	As per zoning regulations and sub-division clauses for Master Plan in Punjab/Govt. Policies	UDPFI Guidelines	Delhi Master Plan
Primary school	Population:3,000-4,000 No. of students: 600 Area Old city (over 650 ppha) : 0.2 ha Outer areas (less than 650ppha):0.5 ha	Population: 5,000 Number of students :500 Area per school:0.4 ha Covered area:0.20 ha Minimum play field area: 0.20 ha	Population: 10,000 Area:2000-4000 sq m
Senior Secondary School	Population:12,000-20,000 No. of students: 1000 Area Old city (over 650 ppha) : 1.00 ha Outer areas (less than 650 ppha):2.5 ha	Population: 7,500 Number of students :1000 Area per school:1.60 ha Covered area:0.60 ha Minimum play field area: 1.00 ha	Population: 10,000 Area:6000-8000 sq m
College	Population:30,000 No. of students: 800 Area Old city (over 650 ppha) : 2.50 ha Outer areas (less than 650 ppha):5.00 ha	Population: 1,25,000 Number of students :1000-1500 Area per college:4.00 ha Covered area:1.80 ha Play field area:1.80ha Residential/hostel area: 0.40 ha	Population: 5,00,000 Area: As per UGC Norms
University	N.A.	New University Area:60.00ha	4 sites in urban extension to be provided at city level Area: up to 20.00 ha
Technical Education Centre	N.A.	Population :10,00,00 Area per centre 4.00 ha Area per technical centre:2.10 ha Area per ITI:1.40 ha Area per coaching centre:0.30 ha	Population :5,00,000 Area : 4000 sq m
New Engineering College	Number of students :300 Area Old city:(over 650 ppha): 1.00 ha Outer areas (less than 650ppha):2.50 ha	2 Number to be provided in urban extension Strength of college : 1500 -1700 Students Area per college:60.00ha	Population :5,00,000 Area: As per AICTE norms

Master Plan of Local Planning Area, Bagha Purana

Medical/Pharmacy College	Area :5 acres(Rural)	2 site of 15 ha each in urban extension including space for specialized general hospital.	Population: 10,00,00
	Area: 2.5 acres (Distt. Headquarter Corporation Limit)		Area :As per Medical Council of India /Regulatory body
Dispensary	Population :5,000 Area: 0.1ha	Population:15,000 Area :0.08 to 0.12 ha	Population:10,000 Area :800-2000 sq m
Nursing Home	N.A.	Population :45,000-1,00,000 Capacity:25 to 30 beds Area:0.20 to 0.30 ha	Population :50,000 Area:1000-2000sq m
General Hospital	Population :50,000 Area:2.5 ha	Population:2,50,000 Capacity:500 beds Area for hospital :400 ha Area for resi accommodation :2.00ha Total area :6.00ha	Population:5,00,000 Capacity :501 beds and above Area :25,000-45,000sq m
Veterinary Hospital	N.A.	N.A.	Population :5,00,000 Area:2,000sq m
Community Hall and Library	N.A.	Population :15,000 Area: 2,000 sq m	N.A.
Club	N.A.	Population :1,00,000 Area :10,000sq m	Population:5,00,000 Area:5000sq m
Amusement park	N.A.	N.A.	Up to 10 ha
City level park	N.A.	N.A.	Population :5,00,000 Area 10acres
Neighborhood level park	N.A.	N.A.	Population 10,000 Area:10,000 sq m
Golf Course	N.A.	N.A.	Population :10,00,000 Area :10-30 ha
Sports Centre/Stadium	N.A.	N.A.	Population :5,00,000 Area :3-10 ha
Post and Telegraph Office	Population :10,000 Area :0.1 ha	N.A.	Population :10,00,000 Area :2,500 sq m
Religious Building	Population :15,000 Area :0.1 ha	N.A.	Population :10,00,000 Area :40,000 sq m
Old Age Home	N.A.	N.A.	Population :5,00,000 Area :1,000 sq m
Orphanage/ Children Centre	N.A.	N.A.	Population :5,00,000 Area :1,000 sq m
Multipurpose Ground (Exhibition cum fair	N.A.	N.A.	Population :1,00,000 Area :20,000 sq m

Master Plan of Local Planning Area, Bagha Purana

Ground)			
Burial/ Cremation Centre	N.A.	N.A.	Population :10,00,000 Area :10,000 sq m
Electric sub-station	Population :50,000 Area : 0.4 ha	N.A.	Population :5,00,000 Area :29,600 sq m
Police Post	N.A.	Population :40,000-50,000	Population :1,00,000
		Area :0.16 ha (area inclusive of essential residential accommodation)	Area :1000 sq m
Police station/police Division	Population:50,000 Area:0.8 ha	Population:90,000 Area:15 ha Area inclusive of essential residential accommodation 0.05 ha additional to be provided for civil Defense and home guards	Population :2,50,000 Area :10,000 sq m
Police Line	N.A.	Population:20,00,000	1 for each administrative zone to be provided at city level
		Area:4.00 to 6.00 ha	Area:2.0 ha
District jail	N.A.	Population :10,00,000 Area :10.00 ha	Population :25,00,000 Area :5.0 ha
Fire Station	N.A.	1 fire or sub-station within 1 to 3 km to be provided for 2 lakh population Area for fire station with essential residential accommodation :1.00 ha Area for sub-fire station with essential residential accommodation :0.60 ha	Fire Station for 5,00,000 population within radius of 5 to 7 km Area: 10,000 sq m

Annexure No.5: Strategy for obtaining Land Public Purpose

Alternative	Land Acquisition through 1894 Act	TDR	Development of land through PAPR Act 1995, TDS under PRTPD Act 2006 and Development Schemes under PTI Act, 1922	Land Pooling	Govt / Panchayat / Waqf Board lands
Plan Proposal	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes
Regulation	No separate regulatory provision necessary	Regulation about use of TDR on receiving plots is necessary	Certain proportion (about 45%) of land is dedicated for public purposes.	This requires a separate legal process to be followed of reconstitution of plots along with evaluation of compensation and betterment as provided in Chapter XII of the 1995 Act.	No separate regulatory provision necessary
Means of securing land	Compulsory acquisition by paying monetary compensation	Monetary compensation substituted by Transfer of Development Rights (TDR)	Availability of land through layout plan provisions	Creating land bank out of pooled land	Land can be made available through transfer of ownership from one department to another. No monetary compensation is involved.
Limitations	Lack of finances for compensation	People may not co-operate at initial stage	This is the method currently relied upon where minimum area for colony is set at 10 acres, as in case of PAPRA.	Comprehensive Land Pooling Policy is required to be framed.	Locational disadvantages in certain cases.

	Landowners' resistance	Landowners' resistance	This is to be market driven and present response is said to be not so encouraging.	Difficulty in pooling of land of large number of owners.	Minimum area requirement may not be fulfilled
	Iniquitous distribution of costs and benefits. Cost borne by those who lose land and benefits enjoyed by surrounding landowners	Iniquitous distribution of costs and benefits. Cost borne by those who lose land and benefits enjoyed by surrounding landowners		Time consuming and complicated process	Source of revenue for Panchayat Bodies / Waqf Board gets depleted.
		But where real estate prices are high particularly where land price is several times the construction cost, chances of success are high.		Equitable distribution of costs and benefits to different share holders.	
		Could also be used for heritage conservation.		New concept difficult to be implemented.	
		New concept difficult to be implemented.			