

A guide map towards micro resilience planning



A community status report Based on Baseline survey and community consultations



Gorakhpur Environmental Action Group

Preface

The adverse impacts of climate changes has been a major concern of any development process in our country. Continued abuses of environment has increased the risk factor to human existence in many parts of our land. The worst victims as usual are from the poorest strata of our society.

The realization that the adverse affects of climate changes can only mitigated through increase community resilience at micro level to reduce climate changes risks is a major turning point in the recent developmental discourse.

This baseline survey and community consultation were conducted as a part of the ward level micro resilience programme in the Gorakhpur city initiated by Gorakhpur Environmental Action Group in collaboration with Rockefeller foundation

We are grateful that a rare opportunity to enter into the lives of so many was offered to us through this baseline survey and community consultation exercises. We thank all, especially the community volunteer, ACCCRN team members and Dr Siraj a. Wajih, the president of GEAG and concerned team members of GEAG and the community leaders in the project area

In a short span of time, hundreds of men, women and children from Mahewa ward have shared their present status, household information with us. Many of them also shared their happiness, anger, frustrations and future plan with us – their acceptance has humbled us. Their elaborations on resilience and expectations have made this effort meaningful. We are indebted to those hundreds of men and women living in flood prone and water logged areas whose wisdom, fortitude and dignity made us to affirm the power of human family.

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Backdrop

In recent years, the focus on cities in India has grown steadily due to large population transfers (rural and urban migration) and more frequent and intense natural risk like flood, epidemics etc. Climate change has added a new dimension to the urban risk. It threatened cities directly through physical impact of stress and catastrophic event and indirectly through distress migration due to impact in the hinterland. The concept of moving toward climate resilience is very new in our development and management paradigm and requires innovative approach and intervention.

Resilience is the capacity to responds against odd. In applied sense, the resilience to climate related risk applied in an urban area tries to identify the capacity of a cities' urban infrastructure and services to withstand disaster on one hand and how community and institutions are expected to deals with such an event on the other.

Gorakhpur city is the fastest growing city in then middle Ganga plain. But unfortunately, the infrastructure development pace is not at par with its population growth. Consequently, the ability of the local governance to maintain the quality of life of the local people particularly the poor is declining. It can be presumed that these challenges will be exacerbated directly or indirectly with the alteration of climatic phenomena such as more rainfall in fewer days, increasing temperature and moisture in the coming future.

Keeping this view in mind the present intervention of resilience building is based on grass root level development planning (bottom-up approach) to involve the local people in decision making. The 74th constitutional amendment of municipality act 1992 of India also rendered lots of scope to decentralise of governance by making ward committee to ensure community participation in decision making and to bring the governance and citizen together. But an indifferent implementation of the 74th CAA has impeded the process of infrastructure development. Still the most of the municipalities in India are leaving behind and week in providing quality services to their citizens.

The present study is an attempt to build a micro resilience plan model through multi tiered approach toward resilience building. It would address capacities for absorbing shocks and stresses through direct intervention at multi tiers- individual household, neighborhood cluster and ward. Along with, the approach adopted in the ward would be shared across other wards in the city, thus a building a strong case for a bottom – up planning process.

Objectives

The overall objective of the base line survey was to assess the need, preference and priorities of the targeted communities of the project area. The specific objectives of the baseline study are as under:

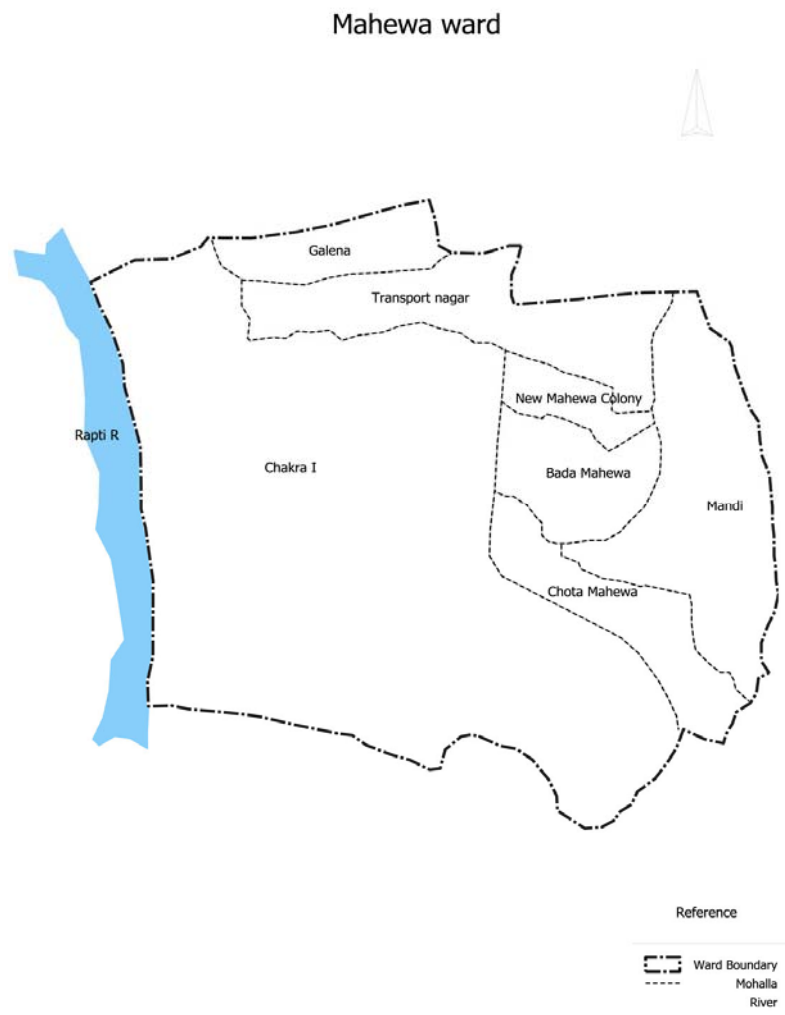
- To establish a sound quantitative and qualitative baseline information , level of risk factors, impact of risks on the community living in the area
- To assess the existing demographic, economic, health, sanitation, and livelihood condition of the communities for preparing a guide map of future intervention through micro planning.
- To assess the felt need of the communities through bottom up approach in coping the risk they are being confronting

Baseline Survey Methodologies

The base line survey followed both the quantitative (questionnaire) and qualitative method for data and information collection. The whole baseline survey accomplishment process ensures household questionnaire survey and community consultation (PLA) for gathering required information from the community.. This process enables us to reconfirm our information & data collected from base line survey and both the processes acted as complimentary and supplementary to each other. The door to door survey assisted us to build up a rapport with the community which in turn helped us to collect information from community consultation and to reconfirm the authenticity of the data collected through baseline survey.

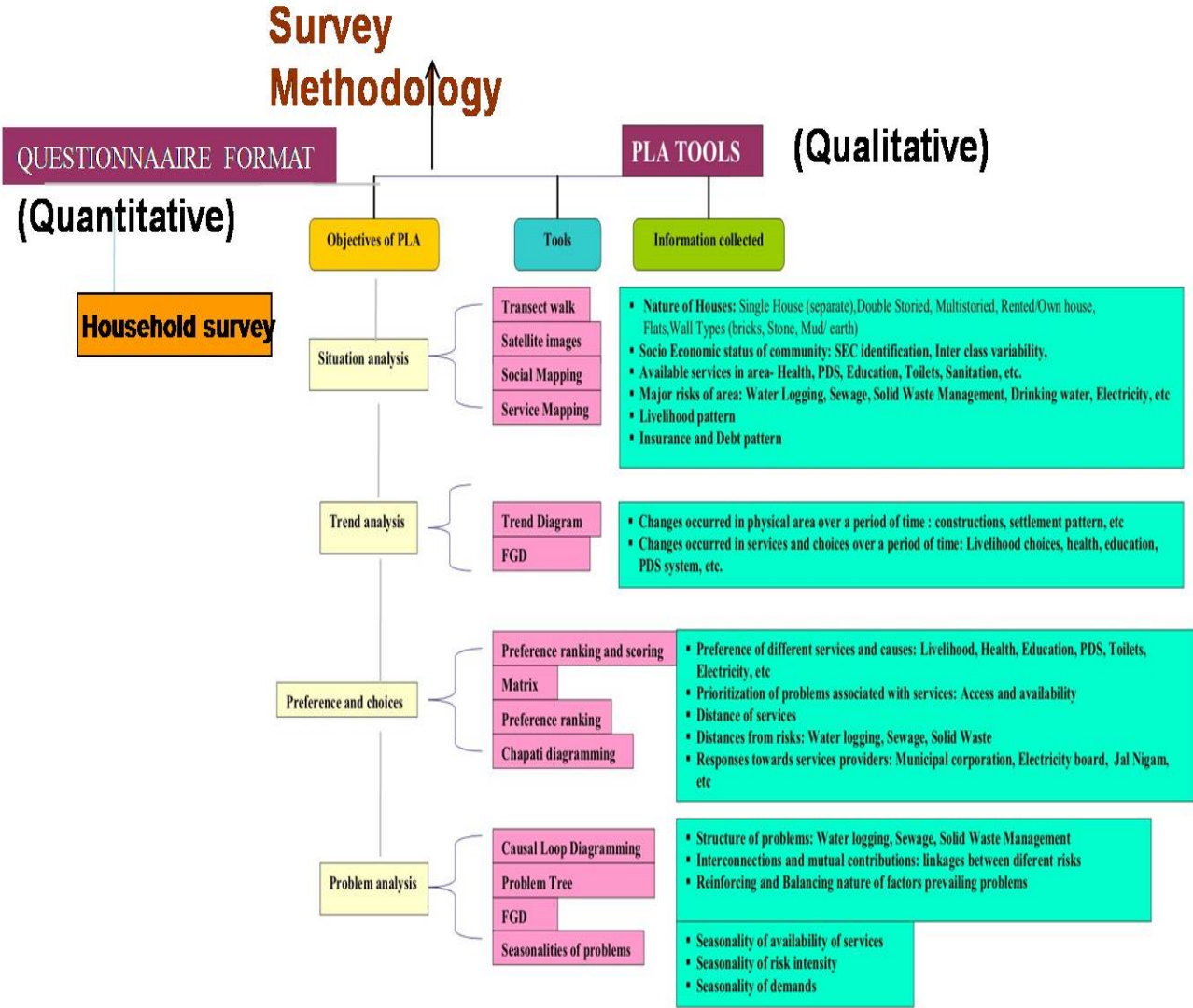
First of all the whole ward was divided into six *mohallas* (neighborhood). The sampled household numbers were 1000. Almost 90% of the total census population in the project area has been covered through this survey. The motive of the survey was to assess the risk factors and intensity of impact, of those factors in their lives and livelihoods. Utmost care was taken to perceive the impact and responses of communities' gender wise. We conducted six

Fig 1. Neighborhood cluster in Mahewa



community consultations in different pockets of the project area. The participants in all community consultations were responsive or supportive to our views and queries. The methodology and tools adopted in qualitative survey is represented in following schematic diagram (fig 2) .

Fig 2. Tools of qualitative and quantitative survey



Limitation and advantage of the household survey

- It is presumed that the income and expenditure data is usually not very accurate, given the problem of poor recall by the respondent. There were tendencies to under report income due to the fear of exclusion & possibilities of deprivation of benefits from government or NGO sponsored welfare programmes.
- Many respondents expected immediate benefits from the survey. Though in most case it was not a problem as the enumerators have good skill and developed effective rapport to collect necessary data and information but in some cases interviewees were not entirely co-operative.
- Some people with dubious motive conducted various surveys in the project area in past and promises were made to get access to government service deliveries. Those experiences etches apprehensions and reluctance among the population to response to any kind of survey
- The sample size is quite large thus represented a real picture on most issues. This information would be useful to establish a baseline for better programming of initiatives in the study area.

Data entry, feeding and analysis

The following were the main activities done during the collection of the data and information through baseline survey: -

- The **questionnaire was developed** for the data collection. During the questionnaire development, need based approach was taken into consideration.
- The **field investigators were oriented** about the questionnaire format and each of the points in the questionnaire was detailed to them. All the possibilities in the questionnaire were discussed in the group and the queries were sorted.
- **Field testing** of the questionnaire was done in the area by the staff oriented. The testing was aimed on the possible modifications of the questionnaire and the feedbacks from the field.
- **Redesigning of questionnaire** was done after the feedbacks from the field. The modifications were added in the questionnaire and the other suggestions were included.
- **Data collection** was done in the proposed area. The process adopted was rapid assessment and the families and villages selection was done through door to door survey .
- **Community consultations** were conducted in the proposed area with two motives. First to check the biases of quantitative data and secondly to bridged the gaps between reality and illusion and also to get a better understanding and information about the area and the behaviors of the community. The community consultation was conducted in the six pockets .
- The **data feeding** was done in the computer for the purpose of the analysis of the collected data and information. The **analysis** was done on different indicators of the questionnaire.
- **Report documentation** was done according to the analyzed data.

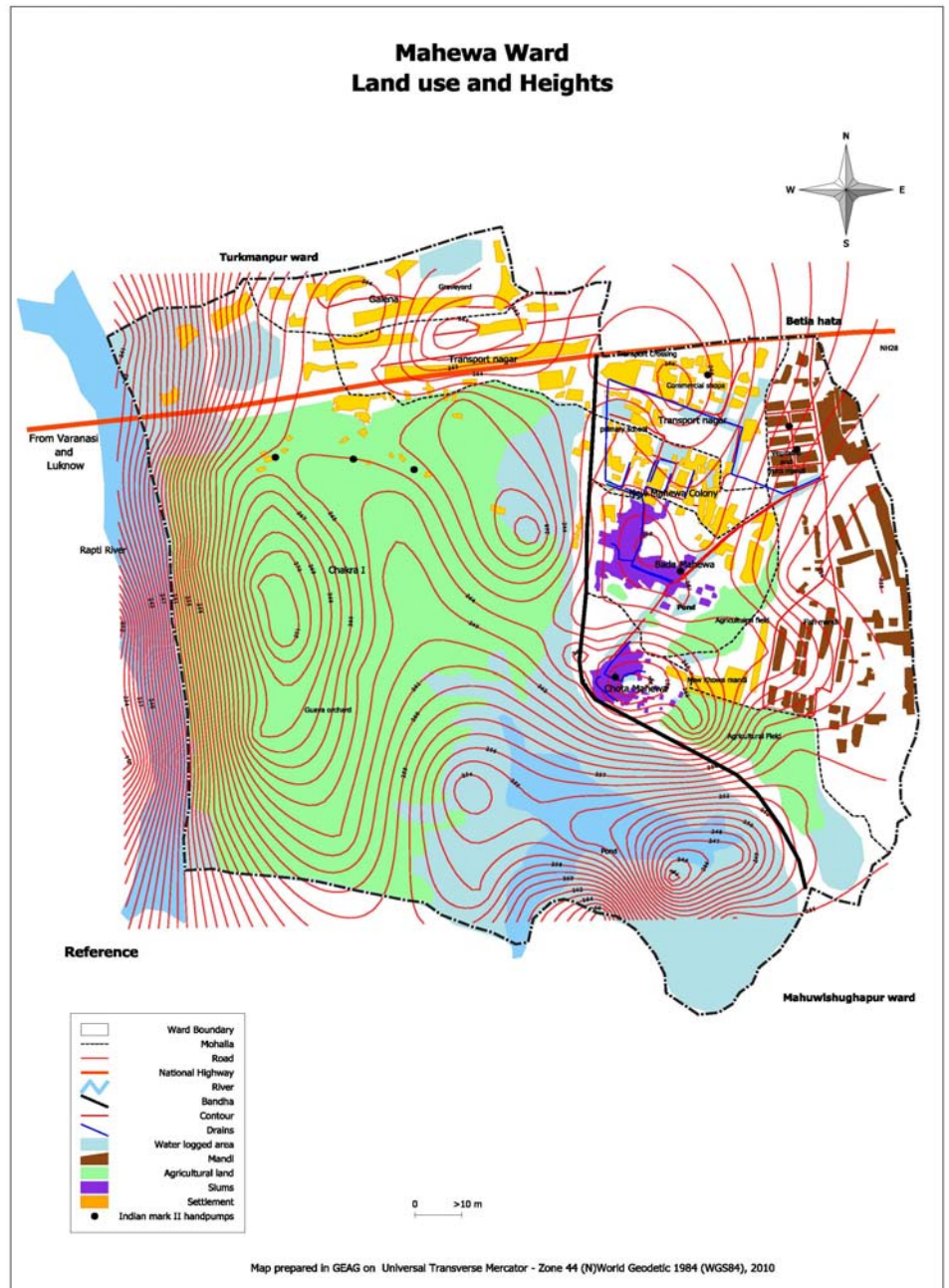
- **Sharing** of the analysis and the output of the survey would be done with the staff and their feedbacks were collected on the same.

After collection of information during the field survey data was transferred to GEAG head office for entry, feeding processing. The Data was collected on 123 variables and SPSS-12 software was used for data entry and to perform logical error checking to identify any gross error. During a subsequent stage of error checking, frequency table assisted in identifying any outlying result or error. At the final stage the results were compared with community consultation reports which were conducted in each *mohallas* (neighborhood) just after the format filling.

Distinctive characteristic of the study area

The study area is the part of the Gorakhpur city. It is located in its south western part. The whole ward is confronting with physical, social, economic, political and institutional vulnerability. Earlier it was the part of flood plain of river Rapti. At present the river is making its western boundary. As the river Rapti is notorious for shifting its course, recurring flood and significant portion of the ward is low lying, the western part of the ward is flood prone while eastern part is inflicted with water logging. Approx 33% of the land is water logged by floods from rivers and rainfall, and a majority of the population belongs to the low income group with 16% living in slums. There is one embankment, which divides the ward into two

Fig 4 Physio culture characteristics of Mahewa



parts, to protect the city from flood.

The study area (fig.4) had a population of 8,226 (Census: 2001) which constituted 1.32% of the city population and was spread over 2.87 sq km, though at present the population is expected to be around 12,000. Accessibility to municipal services in the ward is limited and existing infrastructure is of very poor quality. As a result of growing encroachments, natural water bodies within the ward are under threat causing problems of drainage and water quality. Being an outlying area, internal morphology and composition of communities in the ward are altering rapidly. As such there is limited social cohesiveness and a general apathy to city level governance issues.

In spite of a direct exposure to potential floods from the Rapti river basin (1998 floods) local planning processes have not sought to mitigate potential impacts.

The data and information collected through survey backed by community consultation were classified and categorized under following heads for purposes data analysis and computation

- Demographic characteristics
- Social status
- Economic status
- Assets
- Livelihood
- Access to and quality of Services
- Hazards
- Prioritization of problems
- People view of development
- Future intervention and their prioritization

Findings and issues emerged from the baseline survey and community consultations

Demographic characteristic

The demographic characteristic of the region is cosmopolitan and heterogeneous in nature. The inclusions of the area into the municipal corporation, since then the demographic characteristics of the ward have undergone rapid change. According to census population (2001) the ward had 8226 population but during last one decade it has increased to around 10-12 thousand. Due to slow pace of infrastructural development, only some portion of the ward is properly developed while still vast majority of the area is lacking behind regarding the access to the municipal facilities. From the households and community consultation, it is estimated that at present the ward holds 1500-1700 households.

The quality of society is determined by the level of education. The level of literacy of the ward in comparison to other wards of the city is quite low. Out of 1000 household 54.5

percent respondent are illiterate. The situation of female literacy is pitiable. About 77.6 percent female respondents are illiterate. This low level of female illiteracy has wide impact on the children literacy. The lack of education institution, high school fees in private school and social deprivation is the major bottleneck in the growth of education level. The low level of education has increased the family size of the household. At present average household size for the ward is 5.26. Though there are differences in the neighborhood level (table 1.)

Table 1 Average Household size

Mohalla	Average Household size
Chakra I	4.93
Chota mahewa	5.02
New Mahewa	5.98
Galan	5.67
Bada mahewa	5.64
Transport nagar	4.94
Total	5.26

Social composition

In Indian context any community cluster is divided into various castes, sub castes and religious grouping. The qualitative information and quantitative data reveals that the ward is predominantly composed of Hindu people. About 95 percent people and Hindu and just 5 percent belong to Muslim community. The table 2 indicates that there were 21(twenty one) castes groups in the area. In this Nishad are, the population wise, most dominant caste based social group comprised of 68% of the targeted population (Table 2). Nishad were traditionally dependent on fish catching and fish cultivation in ponds and rivers for their livelihood and classified as OBC in our schedule.

Fig. 5 Caste category of ward

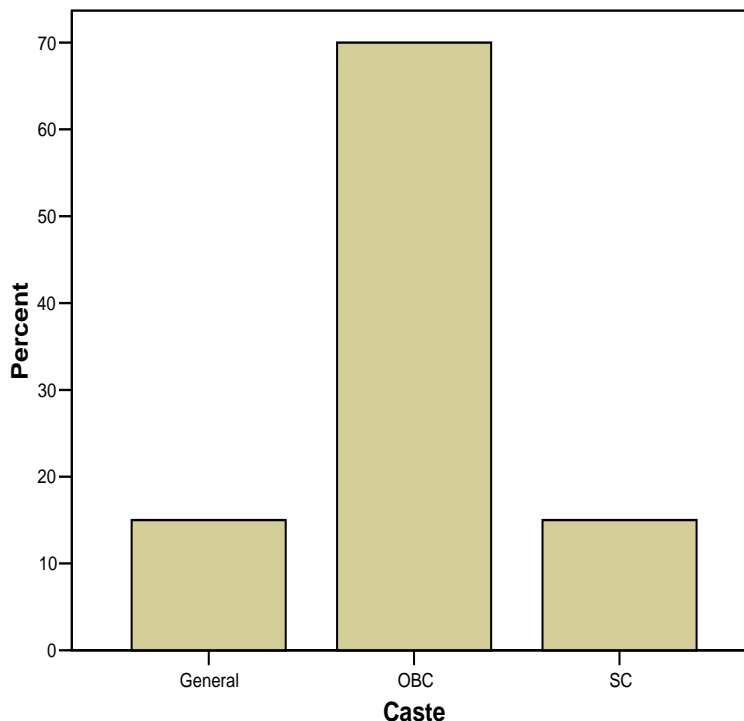


Table 2 Caste structure in Mahewa

Caste	Neighborhood					
	Chakra I	Chhota mahewa	New mahewa	Galena	Bada mahewa	Transport Nagar
Nishad	29.0	24.8	2.1	6.5	29.8	7.9
Jaiswal			16.7	8.3	8.3	66.7
Bramhin	12.3	10.8	27.7	3.1	10.8	35.4
Kshatriya	3.6	3.6	32.1	3.6	3.6	53.6
Gond	10.5		15.8		63.2	10.5
teli / Bania	4.6	29.2	21.5	1.5	16.9	26.2
Chaurasia		33.3	33.3		33.3	
Halwai			33.3		33.3	33.3
Kumhar		52.9	29.4		11.8	5.9
Harijan / Chamar	6.7	48.9	2.2	13.3	6.7	22.2
Khatik	31.5	2.7	5.5	42.5	5.5	12.3
Chauhan	53.3	20.0				26.7
Kayastha		9.1	63.6			27.3
Paswan		11.1	11.1	11.1	22.2	44.4
Yadav	13.0	2.2	41.3	4.3	4.3	34.8
Maurya	4.5	4.5		9.1	31.8	50.0
Verma		33.3			33.3	33.3
Pathan	2.4			11.9	2.4	83.3
Ansari	22.2		33.3	11.1		33.3
Nai	17.6	11.8	35.3		11.8	23.5
Bhumihar			50.0			50.0
Luhar	33.3					66.7
Total	20.4	19.0	10.6	8.4	20.1	21.5

There is a sizable population of upper castes like Bramhin, Baniyas and others (almost 15%). The presence of minorities and schedule castes are not significant in the project area.

The Table 2 also shows that the population of general caste are tend to be higher in developed area like transport Nagar, New mahewa compared to other neighborhood area. It also emerged from the community consultation that many upper caste families hold agriculture land in underdeveloped area mainly as a part of their future investment. It is generally expected that the rapid growth of urbanization will force municipal authorities to change this agricultural land as free hold private land for residential purposes which in turn give them a handsome return against their current investment. At present these lands either have been given to other low caste people as care takers of those lands.

During community consultation it emerged that the Nishad community being a traditionally fishing community started living in that area due to the facts that it is a low line and it's proximity to various water resources like river, ponds and other water logged areas,

The table showed the presence of various caste and religious groups are fragmented and not consolidated at one place and are somewhat interdependent on each other for survival so there is apparently little threat of caste conflicts or any other social conflicts in the project area.

Marital status

The table below was made on the data collected on marital or single status of the marriage eligible population (18 years + for women and 21 years + for men). The above table revealed that there are large numbers of widows and widowers in the area.

Ill health due to consumption of home made liquor, widespread practices of substance abuses by the males, the presence of water borne diseases due to water logged condition, The practices of getting treated by non registered medical practitioners, non availabilities of government health services, low quality and adulterer food consumption and low hygienic and basic health awareness are the main risk factors for premature death among the target population. The target population gives impotence to income and pleasures over health and it did not come out as a priority issue during community consultations.

Table 3. Marital Status

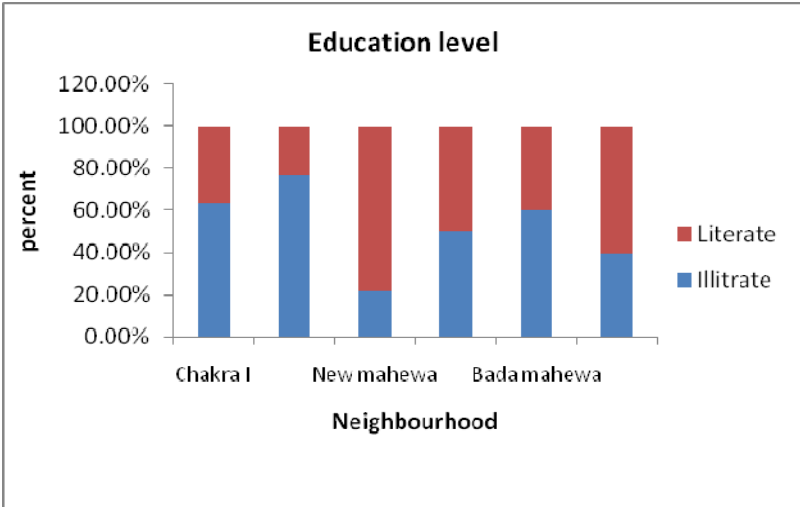
Marital status	Muhhalla					
	Chakra I	Chhota mahewa	New mahewa	Galena	Bada mahewa	Transport Nagar
Married	18.7%	17.8%	11.3%	8.6%	19.9%	23.6%
Unmarried	17.0%	14.9%	17.0%	6.4%	25.5%	19.1%
Widower	27.8%	22.2%		5.6%	27.8%	16.7%
Widow	34.3%	30.4%	3.9%	7.8%	17.6%	5.9%
Total	20.4%	19.0%	10.6%	8.4%	20.1%	21.5%

Education

Over all the area has low level of education attainment. About 54.5 percent of respondents can not read or write. But when this data was is categorised into male and female. A clearer picture emerged on the education status of the area. It indicated that the proportion of female in the population that cannot read or write is higher than the proportion of man. About 66.1 percent females in the area are illiterate. In addition, their proportion in all other categories of educational attainment is also low than their male counter part. Amongst literates, about 65.93 percent people of the area have attained High school level education. Gender wise, 80.71 percent of literate female have attained high school level education while in the same category the percentage of male is about 61.54.(Table 4)

At spatial level the mark discrepancy is noticed. The proportion of primary level education in is higher in Cahkra 1, Chote Mahewa and Bada Mahewa (fig 6). There are only two primary schools and few privately owned school in the target area. There is hardly any government support system to promote adult education too

Fig 6 Educational level



The education issue was discussed during community consultations at length and it was emerged that low income, apathy to invest on education, low accessibility to affordable education are the main impeding factors for the current dismal education status in the area.

Table 4. Education level in Mahewa

Education	Muhalla					
	Chakra I	Chhota mahewa	New mahewa	Galena	Bada mahewa	Transport Nagar
Illiterate	23.7	26.6	4.2	7.7	22.2	15.6
Primary	29.2	10.6	12.4	12.4	21.2	14.2
Middle	14.9	16.0	14.9	12.8	22.3	19.1
High school	18.3	7.5	14.0	6.5	17.2	36.6
Inter	8.5	11.3	25.4	5.6	16.9	32.4
Graduate	5.1	5.1	28.8	8.5	3.4	49.2
Post Graduate	5.0	-	35.0	5.0	5.0	50.0
Other	20.0	-	-	-	80.0	100

Economic status

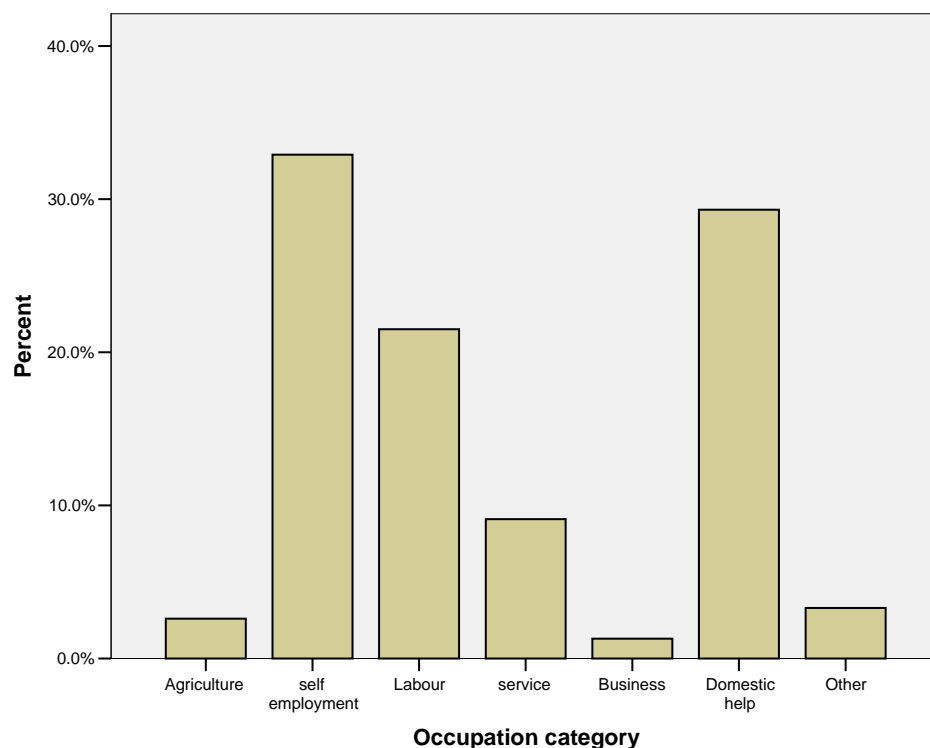
Economy of the area based on various informal sectors. Overall the area is composed of lower to middle income group people. Newly developed area is dominated by middle income group people while lower income group people are confined in the older part of the area. There are two slum clusters i.e chota mahewa and Bada mehewa as recognized by municipal corporation

Workforce participation

The composition of work force depicted a picture of the quality of life people maintain and their social economic activities.

In the area, out of 1000 respondents 34.5 percent are engaged in self employed informal sector (fig 7). The figures based on survey data revealed that a bulk of the target population can be categorised as self employed. The earn money as rickshaw puller, vendor, mechanic etc.

Fig 7. Occupational structure



The transport Nagar is marked as the ternate point of all incoming and outgoing transports in the Gorakhpur city so a wholesale market is automatically developed in the area which has generated different kind of work opportunities for local people. A Large chunk of population (22 percent) also are engaged in various type of daily wage activities like providing services in road side eating joints, house constructions work and transport related work (Table 5). The development of new residential colonies has attracted service class people to reside in the area. In new mahewa 22 percent people are in service sector. In some pockets of the area agriculture and its allied activities is practiced (2.6 percent) for their livelihood. The table provide the area’s employment profile in detail.

Table 5. Spatial scenario of Occupational Profiles

Occupation	Muhhalla					
	Chakra I	Chhota mahewa	New mahewa	Galena	Bada mahewa	Transport Nagar
Agriculture	58.3	8.3	20.8		8.3	4.2
Rickshaw puller	12.5	18.8		18.8	50.0	
Shop	15.1	6.6	14.2	10.4	17.0	36.8
Mechanic	9.5	4.8	9.5	7.1	9.5	59.5
Labour	22.2	27.8	10.8	1.9	24.5	12.7
Vender	17.9	10.3	2.6	19.2	34.6	15.4
Service	5.5	5.5	22.0	12.1	34.1	20.9
Flour Mill	33.3		33.3		33.3	
Tailoring		50.0			33.3	16.7
Cook	25.0	50.0			25.0	
Rag picking Work	8.0			16.0		76.0%
Driver	14.3	7.1	14.3	21.4	14.3%	28.6%
House rent	-	-	33.3	-	-	66.7%
Housewife	28.5	33.8	3.8	8.7%	13.7%	11.4%
Student	18.2	18.2	27.3	-	27.3%	9.1%
Transporter	-	-	15.4	-	7.7%	76.9%
Priest	75.0	-	-	-	25.0%	
Agriculture Residue Seller	-	50.0	-	-	-	50.0%
painting Work	40.0		30.0		20.0%	10.0%
House Work / Old age / Nothing	36.8	21.1	5.3	10.5%	21.1%	5.3%
Animal Husbandry	11.1	11.1	33.3		22.2%	22.2%

Pensioner		14.3	14.3		14.3%	57.1%
Self Entrepreneur	11.1		27.8	11.1%	8.3%	41.7%
Private Doctor				100.0%		
Driver						100.0%
Total	20.4	19.0	10.6	8.4%	20.1%	21.5%

Non visible or disguised sources of livelihood having visible impact

The development of transport hub and subsequent development of other service sectors have attracted many invisible livelihood activities. It is astonishing that not even a single household has responded about liquor marketing business during household survey

But in community consultation it was revealed that a large number of females in chota mahewa, chakra I and bada mahewa are engaged in liquor making and marketing. Besides it, the movement of large numbers of truckers in the Transport Nagar has also generated illegal activities drug peddling and prostitution activities. Although the police are aware of these activities but do not take any action because of huge amount of money extract from this illegal business and also due to involvement of economically and politically influenced people who provide indirect patronage in developing such types of activities. The sustainable livelihood and widening of livelihood came out as one of the major need of the people during community consultations especially for unskilled youth and single women

Status of agriculture

The agriculture practices in the area are on the verge of end. The master plan 2021 of the city demarcated this area as residential land. Gradually the people who were originally residing in the area were forced leave due to economic compulsions are being absconding. Those who have left are just as a care taker of the land. In southern part of the ward and in flood affected area i e in chakra I, still some people are sustaining their life through practicing agriculture. From the households and community consultation, it is deduced that agriculture activity has not been a lucrative business. The rising input costs and uncertain market and and hiking price of land has forced the households to detach and shift on other livelihood option. The livelihoods of 25 families in the project area are solely dependent on agriculture. People in this area use non occupied plots for cultivation work. Due to easy access to market some families especially *Nisad* usually grow cash crops especially vegetable and fruits on those lands and sale out those products in the local vegetables and fruits in the local market.

The techniques of agriculture are is orthodox. For getting better and quick returns, they use large quantity of chemical fertilizers. The table 6 showed that only 4 families use organic fertilizer and rest of the cultivators either totally dependent on chemical fertilizer or use mix fertilizer in their respective fields.

Table 6. Types of fertilizer used in agriculture

Types of fertilizer used in agriculture	Muhhalla						Total
	Chakra I	Chhota mahewa	New mahewa	Galena	Bada mahewa	Transport Nagar	
Chemical Fertilizer	9	5	2	0	5	0	21
Organic Fertilizer	2	2	0	0	0	0	4
Both	12	0	3	0	2	0	17
No use of Fertilizer	29	0	0	0	7	0	36
Not Applicable	152	183	101	84	187	215	922
Total	204	190	106	84	201	215	1000

As it has indicated earlier that agriculture in the area is not being profitable business. The figure shown in the table 7 indicates different components related to the existing agricultural practices and the problems related to it. The changing climate and their ill effects has added new blockage in the agriculture practice. About 47 percent households who practices agriculture responded that during rainy months (July- August- September) their land get inundated .During this period they forced to do other activities like labor , rickshaw puling to sustain the livelihood. Besides this, during normal period, lack of irrigation facilities, fear of stray animals, attack of insects, damages of crop in rainy season has also raised indifference among cultivators from agriculture.

Table 7. Problems associate with agriculture

Problems	Responses	
	N	Percent
Lack of irrigation facilities	20	20.6
Unavailability of grazing land	3	3.1
Attack of Insects on Crops	8	8.2
No crop in rainy season	9	9.3
Inundation of agricultural land	45	46.4
Fear to Stray animals	12	12.4
Total	97	100.0

The community consultations revealed that the cultivators do not have any knowledge or do not get any support regarding low external input sustainable agriculture practices from any or from Government agriculture department. A large area of agricultural land is used for Guava cultivation in Chakra. At least 100 families are dependent on guava cultivation in that area. They usually get income by producing guava two times in a year.

Housing

Types of houses

Housing pattern indicates the prosperity of the region. Being located in the periphery region of the city Gorakhpur, the land use as well as the housing pattern is rapidly altering. In the area around 30 % people are still living in non cemented or non concrete house (Table 8). The community interaction reveals that most of the houses are vulnerable and are not able to withstand flood water or water logging.

Fig. 8 Types of house

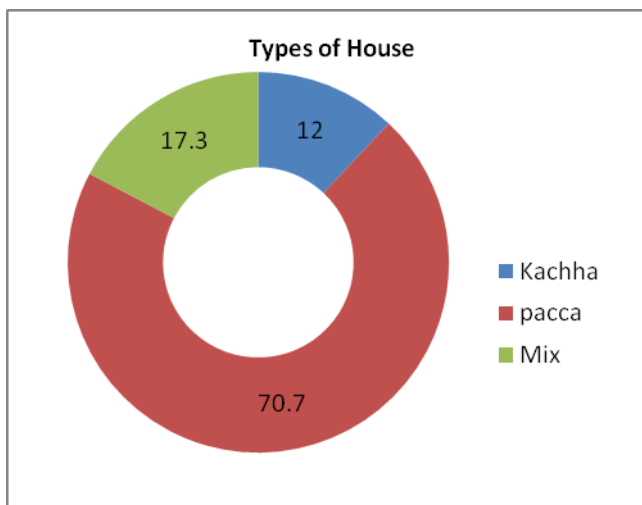


Table 8: Types of houses

Muhhalla	Types of house		
	Kachha	Pakka	Mix
Chakra I	25.5	52.5	22.1
Chhota mahewa	12.6	73.7	13.7
New mahewa	8.5	75.5	16.0
Galena	7.1	76.2	16.7
Bada Mahewa	6.0	87.1	7.0
Transport Nagar	7.9	65.6	26.5
Total	12.0	70.7	17.3

Being in flood and water logging the communities who are more vulnerable or marginalized sometimes prefer to build these types of houses because it reduces the repetitive cost for rebuilt, repairing or renovation of houses if get damaged due to flood or water logging. It is also to be noted that being a low line area the construction cost of building a house here is much higher than most other parts of the Gorakhpur city. So the building of non cemented or non concrete structure sometime also act as a cope up mechanism for the vulnerable communities habituated to live with flood or water logging.

Table 9 Average number of rooms

Muhhalla	Average number of rooms
Chakra I	1.62

Chhota mahewa	3.17
New mahewa	3.51
Galena	3.61
Bada mahewa	2.02
Transport Nagar	2.14
Total	2.48

The above table 9 indicates average number of room in house is 2.48. But it does not indicate the real picture of the housing condition. In slums i.e in chota mahewa and in bada mahewa interior scene of houses are very pathetic. There is not ventilation. They remain as dark room when electricity is absent. At least 5 -6 family members somehow reside in the room. It also shows the high density of population and lack of space for human habitants in the target area. So the scarcity of land and availability of land is clear from the above table. These figures also indicate the high market value of land in the area. So many neo rich people have started buying land near the project area and some of the started living there too.

Income – expenditure pattern

The data regarding the income of the respondents were meticulously collected and checked by cross questioning. Here in this report amount told by the responded were verifies through per days income and monthly expenditure. Though this notion is not applicable with every livelihood options because in this there area some households whose livelihood is lies on the rent obtain through their asset they developed. Home rent or contract faming. But it definitely shows the trend that people hardly able to save money from their income. In some area it also indicates that expenditure is higher than the family income. These families manage to live on borrowed money from various sources.

Table 10. Average monthly income and expenditure scenario

Muhalla	Total Gross monthly income of a family (in Rs)	Total gross monthly family expenditure (in Rs)
Chakra I	4075.94	2777.52
Chhota mahewa	3183.95	2388.84
New mahewa	9683.49	8129.34
Galena	4810.71	5157.14
Bada mahewa	5955.22	4235.88
Transport Nagar	6971.16	5929.53
Total	5562.79	4441.67

The expenditure pattern showed that the people in the area spend most on medical treatment followed by food consumption. Some people have higher expenditure on education. (Table 10)

The fact emerged from the Community consultation that the high expenditure pattern on medical treatment, food or education anyway indicates the awareness level of the people on health and education. On the contrary in most cases health expenditures were made towards the treatment of illness and occasionally for consuming low quality food available in road side eating joints.

The table 11 indicates that the people having higher income level tend to spend more on health treatment and food. The communities living In Galena and transport Nagar and new mahewa are relatively economically well off than other areas which are evident on their higher spending on entertainment and transportation.

Table 11 Average Expenditure on different heads

Muhhalla	Food (in Rs)	Health (in Rs)	Education (in Rs)	Entertainment (in Rs)	Transportation (in Rs)	Other (in Rs)	Total expenditure (in Rs)
Chakra I	2281.61	176.51	219.40	11.77	36.45	53.79	2777.52
Chhota mahewa	1730.52	447.63	162.00	14.51	11.02	20.96	2388.84
New mahewa	3749.05	915.18	864.62	203.36	622.38	1792.85	8129.34
Galena	2514.28	409.52	454.76	252.40	348.21	983.13	5157.14
Bada mahewa	3135.92	364.09	371.55	66.33	113.79	159.01	4235.88
Transport Nagar	2679.06	636.41	741.67	239.82	617.44	842.79	5929.53
Total	2609.17	462.77	440.09	113.27	262.13	504.47	4441.67

Indebtedness

Analyzing the borrowing pattern of the respondent showed that 28 percent of the household are indebted. (Table 12) The main reason to plunge into the trap of indebtedness is that these people have neither saving habits nor they have adequate income to save money. So they bound to borrow money from outside sources to cater the emergency household needs like treatment of illness, marriages etc. It is interesting to note that 38.8 percent households have barrowed money for health treatment. It also gives inference that health related problem is chronic in the area. Alcohol intake is one of the most important causes of liver diseases in the area. Hepatitis and Jaundice is rampant in the area.

Besides it the social mayhem like dowry and increase 'boaster attitude' in the society tends people to borrow money to keep their reputation. There is no government recognized financial institutions like branches of scheduled banks, micro finance institutes or cooperative banks to support people with loan at low interest, so people are forced to borrow money from local money lenders with an exorbitant interest rate.

Table 12 Indebtedness

Neighborhood	Have you taken debt? (In percent)	
	Yes	No
Chakra I	26.0	74.0
Chhota mahewa	37.4	62.6
New mahewa	28.3	71.7
Galena	27.4	72.6
Bada mahewa	22.9	77.1
Transport Nagar	26.5	73.5
Total	28.0	72.0

Table 13 Sources of credit

Source	Responses	
	N	Percent
Relatives	86	29.2%
Friend	52	17.6%
Money lender	106	35.9%
Bank	36	12.2%
Finance Company	12	4.1%
LIC	3	1.0%
Total	295	100.0%

As expected money lender were the predominant sources of credit, accounting 35.9 % of all the sources the 28 percent people who had borrowed money People also borrow money from the relatives (29.2 percent) and friends (17.6%) who sometimes also take interest (Table 13).

The figure also showed that some have borrowed from public or private financial institutions like the Punjab National Bank (PNB) or from the Life insurance Corporation LIC. The amount usually is not large and it showed that the amount borrowed from all sources The highest amount did not exceeds Rs 75 000. and sometime it is as low as Rs 1000 The average amount borrowed, is Rs 5057.45. (Table 14)

Table 14 Average Amount of Debt taken

Muhhalla	Mean amount (in Rs)
Chakra I	6110.294
Chhota mahewa	4196.579
New mahewa	5203.774
Galena	4916.667
Bada mahewa	3875.622
Transport Nagar	5906.977
Total	5057.450

These type of loans trapped people in a vicious circle of debts. The whole process led to a situation where people repay money to one source by borrowing money from another source and thus end up borrowing money from multiple sources. There are many incidents came up during PLA exercises where people borrowed little money initially but over the years the whole process ultimately led them to a economically and financially desperate situation. Some people had to sell of their land to get out of this financial trap.

Access to basic civic Services

Access to basic civic services is one of the main indicators for socio economic development of the communities living in outskirts and Peri - urban areas of any cities. In that context in our survey we tried to figure out the kind of services available to the people and also quality of those services provided by the authorities. The table 15 indicate the condition of accessibility of services among the people of the area.

Table 15. Access to services

Access to Services	Yes	No
School	39.1	60.9
Health	0	100.0
Electricity	55.6	44.4
Sanitation	45.2	54.8
Solid waste	25.6	74.4
Water supply	35.4	64.6
Drainage	79.6	20.4
Identity proof	59.2	40.8
Connecting Road	100.0	0
Ration card	65.1	34.9
PDS	65.1	34.9
Post office	0	100.0

It is evident from the summary tables presented above that a large chunk of people in the project are deprived and excluded from any kind of basic facilities needed for dignified human survival.

Schools

The figures in table of education section suggested that the large number of aged adults is illiterates. The table also shows that the graduation from primary to secondary level or to a higher level is limited to a very small population.

There are various reasons for the poor educational and literacy status in the area. Non accessibility to formal government primary education system, low quality of education, non conducive environment for learning and lack of awareness of the population at large are the main impeding factors behind the dismal status of education. This is good bench line indicators for any kind of development intervention.

At present there are two private primary schools have been functional in the area. Unfortunately people were economically poor can't pay the fees charged by private school. So they don't send their children in those schools.

It was learned from the community consultation that there was a govt. school was functioning in the area till recent, but the school was damaged due to some social conflict. The school was never renovated and now it became abundant. The community leader also did not take up any initiative to reopen that school.

Drinking water

Physical availability of domestic water is not a problem to the people of the area. Majority have access to hand pump (55.9 percent) (Table 16). Because to higher level of ground water table installation of hand pump is not a costly affair. Northern parts of the area have municipal water supply connection. Thus, New Mahewa and transport nagar people meet their needs from municipal water supply (24%), Nagar nigan taps (7%) and through personal boring(5.2%).

Table 16: Sources of drinking water

Source	Responses		Percent of Cases
	N	Percent	
Nagar Nigam Pipeline	301	24.1%	30.1%
Nagar Nigam tap	96	7.7%	9.6%
Personal Boring	65	5.2%	6.5%
India Mark II	45	3.6%	4.5%
Hand pump	698	55.9%	69.8%

Others	43	3.4%	4.3%
Total	1248	100.0%	124.8%

As mentioned above that though availability is not a problem but its quality of drinking water is matter of concern for the people in the area. Due to poor maintenance, the pipe line has broken at many points. It is also very horrified that water supply pipe lines in the area have passes through the open drains. Majority of the Indian hand mark II hand pumps in the area are installed in low and water logged area. As the result during rainy season their water gets contaminated. The supplied water sometimes get contaminated due to mixing of unavoidable contaminated elements during rainy seasons Besides that a large part of the area has not been regularized and being in a flood prone and water logged zones, their accessibility to safe drinking water get affected. Both household format and community consultation has revealed that due to low literacy and unconscious about health, they usually take polluted water for domestic uses. The table indicated that 60 per cent household do not filter water while only 25 percent take care about its quality and use some measures of purification. (table 17.)

Table 17 Do you have filter water?

Responses	Frequency	Percent
Yes	253	25.3
No	602	60.2
Some times	145	14.5
Total	1000	100.0

Table 18 Methods of Water Purification

Muhhalla	Method of Purification							Total
	Aqua guard	RO Purification	Candle Water Filter	Use of Alum	Boiled Water	Use of Chlorine Tablet	Not Applicable	
Chakra I	0	0	5	0	79	0	120	204
Chhota mahewa	0	0	2	0	40	0	148	190
New mahewa	5	1	19	0	51	0	30	106
Galena	2	0	2	5	23	2	50	84
Bada mahewa	0	1	3	1	35	1	160	201
Transport Nagar	8	5	24	11	71	1	95	215
Total	15	7	55	17	299	4	603	1000

So economically well off people adopted home based water purification process. Unfortunately economically poor people cannot afford to install water purification system

because of its high recurring costs. So they use low cost other water purification method which is listed in the above table.

Above tables also indicate that during rainy season they purify water by boiling in the stove or by using water purifier tablets during rainy seasons. Access to safe drinking water came up as one of the pertinent issues during community consultations. The prevailing situation often leads to health hazards in the area.

Electricity

Access and proper availability of electricity is the precondition for smooth life style. More than half (55.6 percent) have access to electricity, at least the electricity point seem to exist (Table 19) whether there is steady power supply – and Gorakhpur is infamous for its prolonged power cut through out the years – is a different matter. In this local fault is not included.

Table 19 Access Electricity connection

Mohalla	Do you have Electric connection?	
	Yes	No
Chakra I	15.2	84.8
Chhota mahewa	41.1	58.9
New mahewa	95.3	4.7
Galena	81.0	19.0
Bada mahewa	66.2	33.8
Transport Nagar	67.4	32.6
Total	55.6	44.4

The frequent power cut has bound the people to use some sort of alternative sources of electricity (Table 20). Most people (80 percent) use earthen lamp or lantern to lighten their house. While those who are well- to- do families have installed generator (1 percent), and inverter (6.8%) in their houses. Those who have electricity express their grievances against irregular supply; higher cost of installing electric connection. The natural disaster also often disrupts power supply in the area.

Table 20 Means of alternative sources of electricity

Means	Responses	
	Number	Percent
Generator	14	1.1%
Inverter	85	6.8%
Lantern	672	53.9%
Petromax	18	1.4%
Emergency Light	86	6.9%
Earthen lamp	325	26.1%
CFL from Battery	12	1.0%
candle	35	2.8%
Total	1247	100.0%

Table 21 Monthly Money spent on light

Muhhalla	Average monthly amount spent on light in Rs
Chakra I	134.28
Chhota Mahewa	143.12
New Mahewa	348.38
Galena	322.68
Bada mahewa	247.49
Transport Nagar	310.41
Total	235.10

The above table shows people have to pay a good portion of their household income on electricity or on other sources of lights. During PLA exercises it came out that the people having electricity connection naturally have more access to various facilities than their counter part who do not have electricity connection. The availability of electricity is integrally linked with socio economic development of the area. The legislator of the local assembly constituency resides in the area, In spite of that the area is deprive from many basic facilities and deprived from any kind of government welfare services or infrastructural facilities.

Sanitation

The vast majority (54.8) per cent do not have a sanitary toilet in the house where they live.(table 15) consequently they are force to defecate in the open . Though there are some community toilet but they are also not very good in condition. During water logging period or in flood period especially female get worst affected. Privacy is the matter of luxury for them. An 'inspection' of a toilet is a nauseous affair. It is just a pit latrine

surrounded by some plastic sheets on three sides and a curtain in the front that can blow in the wind.

Solid waste and drainage

Municipal Corporation is the sole responsible authority to keep the city clean and healthy through adopting solid waste management and maintenance of drainage. The area is acutely suffered from water logging and water and vector borne diseases. The ill management of solid waste collection and siltation in drain has aggravated the problem of water logging in the area. During the transit walk of the area, It was noticed that hardly any drainage system is functional. Some of them are damaged and most of them are choked. The waste water of house hold floats in front of their houses.

During the project formulation the issue of solid waste management came out as a burning issue. The table 22 indicate that 80 percent people feel solid waste management is a problem and it also reveal that 62 percent of the population disposed their solid waste either on road or on open lands. These figures indicate that there is no govt. disposal or removal system. About 67 percent people admitted that their drains choked often due to irregular disposal of solid wastes.

Table 22. Disposal of solid waste?

Disposal site	Frequency	Percent
Dustbin	111	11.1
Drain	79	7.9
Road	476	47.6
Burn	166	16.6
Open land	159	15.9
Pit	7	.7
Guava orchard	2	.2
Total	1000	100.0

Table 23. Problems due to irregular solid waste collection

Problems	Responses	
	N	Percent
Mosquito increase	706	24.3
Water borne diseases increase	521	17.9
Unhygienic condition	385	13.2
Bad foul	535	18.4
Infectious diseases increase	151	5.2

Piling of solid waste on roads	97	3.3
Travelling problem	281	9.7
Movement of animal increased	30	1.0
Effect on employment	12	.4
Drainage Choked	112	3.9
Bad effect on Environment	42	1.4
Do not answer	31	1.1
Total	2906	100.0

The data and information of solid waste management collected through baseline survey and through community consultations (PLA) figured in the tables 23 showed that the non or irregular disposal of solid waste have an adversely affected the population in terms of choked drainage system, increased Health hazards due to filthiness and environmental pollution.

Satisfaction and qualities of services

Recently the government of India has launched service level bench marking programme in urban areas, to monitor and evaluated the authority in service delivery. It involves measuring and monitoring of service provider performance on a systematic and continual basis. In the area even the populations who have access to those facilities are mostly are not satisfied with the facilities provided under current or existing systems (Table 24). The suggestions of the people indicate that the people exclude from those facilities are demanding those services and others who have some access to those facilities are not at all satisfied with those services and they want lot of improvement in the design and implementation of those service deliveries system

Table 24. Satisfaction level with services

Services	Satisfied level	
	Yes	No
Water supply	39.5	60.5
Sanitation	32.6	67.4
Electricity	23.0	77.0
Road	21.4	78.6
Drainage	8.8	91.2

In this context it emerged that there is a strong need to develop an advocacy, campaign and lobbying strategy through public awareness to increase people's accessibilities and entitlements to urban basic services and facilities.

The government authority’s denial to provide them even the identity proofs (around 40% people) essential to have access to any civic facility reflects the lack of political and social commitments from their part.

The table 15 on access to services showed that the area is devoid of minimum basic services. require to live in people do not have access to basic education system, water supply or sanitation Besides that the absence of drainage system, lack of solid waste management system have aggrieved the woes of people already suffering from acute water logging problems in low line areas. The access to food supply under Public Distribution System including issues of ration cards and electric supply are limited

Tax payment

Payments of tax on property, or on housing are the pre condition of receiving or to have access to govt. service deliveries. The above table indicates that in most of the neighborhoods people do not pay taxes. This is one of the main sources of revenue earning for service providing authorities. Non payment of taxes is one of the reason is cited by the relevant authorities to people who are denied or deprived of services. More than half of the people (57.3 percent) of the area do not pay any tax to the government (Table 25).

Table: 25 Do you pay Tax?

Muhhalla	Do you pay Tax? (In percent)	
	Yes	No
Chakra I	4.9	95.1
Chhota mahewa	31.1	68.9
New mahewa	48.1	51.9
Galena	88.1	11.9
Bada mahewa	59.2	40.8
Transport Nagar	53.0	47.0
Total	42.7	57.3

But people who are not receiving any basic services and are unsure of having access to government services often are not ready to pay taxes. This paradox needed to be solved

Hazards

Water logging

The whole area is chronically prone to water logging and flood. The western part is flood affected while the eastern part is inflicted with water logging due to low lying area. The poorer citizens live in these areas and often their residences are flooded. The western

portion of the area cent percent inundated during rainy season for four months while 13.7 percent household of eastern part have responded that their houses get flooded during the rainy period.

The water logging has a devastating effect on the lives and livelihoods of the people in the area which is evident from the figures depicted in the table 26. It showed the the problem has negative and adverse affect on health, mobility, sanitation, clean drinking water and on employment.

Table 26. Types of problem due to water logging

<i>Problems</i>	<i>Responses</i>	
	N	Percent
Mobility & Traveling problems	851	41.9%
Health problems in Human & Animals both	218	10.1%
Defecation problem	62	2.9%
Unhygienic condition	335	15.5%
Filth accumulated	66	3.0%
fear to infectious disease	158	7.3%
Mosquito Increased	343	15.8%
Effect on employment	40	1.8%
Insects entered into house	6	.3%
No problem	25	1.2%
Don't Know	7	.3%
Total	2167	100.0%

Table 27 Other problems in house during rainy season

	Frequency	Percent
Dripping Roof	397	39.7
Moisture in Wall	310	31.0
All is well	212	21.2
House inundated	73	7.3
Other	8	.8
Total	1000	100.0

The houses also get partially or fully damages during rainy season. The onset of mosquito and waterborne diseases causes serious health problems in most neighborhood areas.

Epidemics

The widespread water logging, poor solid waste management, poor condition of sanitation has shoddily affected the health condition of children and woman in the area. The table 28 depicted the general trends of the diseases prevailed among the children in the project area. These diseases are mostly water borne. Low level of awareness, poor socio economic condition and subhuman filthy living condition is the prime reasons for one or below mentioned diseases. Diarrhea, pneumonia and jaundice, skin diseases are rampant in the whole area.

Table 28 Diseases pattern in children

Diseases	Responses	
	N	Percent
Cold, Cough & Fever	1669	37.2
Diarrhea	550	12.3
Pneumonia	572	12.7
Skin disease	523	11.7
Small pox	184	4.1
Fit	21	.5
Stomach problem	83	1.8
Vomiting	145	3.2
Malaria / Dengue	150	3.3
Cholera	95	2.1
Heat waves	42	.9
Typhoid	52	1.2
Respiratory infection	45	1.0
Joint pain	16	.4
Jaundice	226	5.0
Gastric problem	8	.2
Brain Fever (JE)	62	1.4
Whooping Cough	13	.3
Measles	24	.5
Flu	4	.1
Do Not Know	5	.1
Total	4489	100.0

Prioritization of problem

To design strategic a policy it is prerequisite to categorized the problem of people according to their intensity. In this study also the problems of the area were arranged

according to their responses. The table is based on people's perception and is more perceptive than quantitative. It showed that in spite of other problems people do feel sanitation and drainage are the main development problems in the project area. About 19.7 percent told that during rainy season toilet become a serious problem not only to the females but also to male people (table 29). It is interesting that gradually people are awaking about the importance of education. Though at present large chunk of people are illiterate and confronting with poverty but they want to teach their children. Bad conditions of roads are also major areas of concerns. There are many other problems too but these problems are prioritized and highlighted even on community interactions

Table 29 Prioritization of problem

	Responses	
	N	Percent
Education	288	15.9
Employment	31	1.7
Toilet	357	19.7
Water-logging	247	13.6
Road	285	15.7
Encroachment	28	1.5
Drainage	299	16.5
Alcohol making	58	3.2
drinking water problem	61	3.4
Health	35	1.9
Unavailability of BPL Ration Card	14	.8
Travelling	88	4.8
Electricity problem	9	.5
No any Facility in our Ward	15	.8
Total	1815	100.0

People views on their own socio economic development

The suggestion made by the people somewhat on the same line as came out in different tables presented in tables of prioritization of problems.

The from the table 30 , Infrastructural development came out as a major need for the people. People also demanded construction of school as one of their suggestions in improving the socio economic status.

Table 30 view of people on development

Preference of people	Responses	
	N	Percent
Infrastructure development	499	26.5
Removal of Encroachment	35	1.9
Spray of insecticide	11	.6%
Installation of India Mark Hand Pump	49	2.6
Development of Health Centre	40	2.1
Red ration card distribution	6	.3
Sanitation / Cleanliness	356	18.9
Clean drinking water supply	55	2.9
School Construction	242	12.9
Develop as other ward	68	3.6
Proper electricity supply	70	3.7
Construction of Toilet	341	18.1
Development of AWC	9	.5
Drainage Improvement	92	4.9
Ban of Alcohol	3	.2
Medical Facilities	5	.3
Total	1881	100.0

The improved sanitation and cleanliness by constructing toilets and by establishing effective drainage system and regular removal of waste came out as remedial measures to the people's problems. There are many other measures on various issues have been suggested by the people. Many problems were raised on the basis of the problems faced by the particular responder.

Table 31 Suggestions mooted by communities

suggestions	Responses	
	N	Percent
Construction of School	471	23.7
Construction of Toilet	347	17.4
Infrastructure Development	545	27.4
Ban on liquor making	81	4.1
Development of health centre	24	1.2
Distribution of house under housing scheme	5	.3

Better sanitation	289	14.5
Installation of hand pump	27	1.4
Awareness Drive on various Govt. programmes	20	1.0
Electrification	96	4.8
Removal of Encroachment	9	.5
Drainage improvement	71	3.6
Children Park	4	.2
	1989	100.0

The absence of any community collective, common interest group or community based organization and lack of issue related awareness came out as one of the main hindrance in addressing the prioritized needs and problems of the local community. It was also felt by the field investigators that negative and indifferent attitude and or non sensible behavior of local communities are also underlying reason for undignified life style of the local population. So there is a strong need to changes the behavioral pattern and attitudes hose need to be changed to bring changes in the socio economic condition of the target community.

A SWOT analysis of the project area and the population – Prepared by the field team

The Strength, Weakness, Opportunity and Threat (SWOT) analysis is necessary to get the complete picture of the city and forms the basis for formulation of strategy to build resiliency. The analysis helps to get the clear picture of the existing situation as well as possible guideline for the resilience building not only for the ward but also for the whole city.

Strength

- Good connectivity by road from the surrounding area The national highway 28 is passing from the northern portion of the ward.
- The wholesale Market (mandi) situated in the project area provides easy job opportunity to the thousands of poor people.
- Well transport connectivity and the presence of wholesale market created an opportunity for famers residing in near by areas farmers to sale their agricultural product
- Huge guava orchard provides guava fruit to the whole city on a cheaper rate.
- Presence of natural water body acts as a buffer zone during rainy season and save the area from a greater damage.

Weakness

- Lack of infrastructure development

- non availabilities of basic civic services
- Dismal condition of connecting roads
- Poor condition of existing water supply network
- open and unlined drains in the ward often leads to health problems onsets of epidemic and contaminated the ground water contamination
- .Poor maintenance of existing water bodies water bodies
- Unauthorized constructions and encroachments on roads have created a havoc and restricted the smooth movement of the traffic.
- A Majority of population lives in slum and in a subhuman condition
- Non availability of electricity proper lighting

Thus the ward has a huge gap in present infrastructure facilities to cater to the needs of the of the people.

Opportunities

- Potential for development of Freight complex to decongest the city and bring all the wholesale as well as trade activities at a common platform out of the city.
- Potential for establishment of good sewage treatment site for the city.

Threat

- The rate of increase of population is very high in last two decades
- Increasing gap in demand and supply of urban services.
- Unplanned development and poor maintenance of infrastructure has increased water logging risk in the ward
- Lack of solid waste management has induced choking of drains.
- Drying up and encroachments on ponds/water bodies.
- Unhygienic condition increase the possibility of epidemic outbreak

Suggested collaborative actions for resilience building

The existing scenario establishes that there is lack of maintenance in each sector that if not taken care off can lead to the worst of the situation.

Thus to address the multiple challenges at local level a collaborative actions has been designed to build resilience. These resilience actions would address capacities for absorbing shocks and stresses through direct intervention at multi tiers- individual household, neighborhood cluster and ward. This participatory process would ensure community's priorities and needs. Concurrently, efforts would be made through effective liaison with local authority to replicate the process in other wards in the city to crab the adverse situations developed due to climate change.

Thrust areas of actions are as follows

- Community mobilization
- Construction of architectural design of low cost housing in water logged area
- Introduction of climate resilient agriculture planning, techniques (time and space management, multitier cropping, crop cycle management, adoption of water resistant crops, practicing integrated farming, waste recycling and training of farmers) for water logging affected farm areas using climate information.
- Developing plan of decentralized drainage system for storm water management.
- Developing design of low cost raised community toilet and establish link with banks for the household interested in construction of such toilet.
- Decentralized solid waste management would be practiced at neighborhood level with the support of community
- Awareness on safe drinking water, method of purification, sanitation and disease reduction would be made at household level.
- Liaison would be made with Municipal Corporation to enhance connectivity of municipal water supply through local demand.
- Drinking Water quality would be monitored through potable kits.
- Ward level committee, as per 74th Constitutional Amendments Act (CAA) would be constituted having representation from other institutions and active individuals of the ward. This ward level committee would act as decision-making institution at ward level.
- Common interest group committee on drinking water, sanitation health & hygiene would be constituted to monitor the situation of the services.