

VILLAGE MASTER PLAN FOR DISASTER MANAGEMENT



DHONTOLA RONGAMATI AND A PART OF BARONTI MANIARI VILLAGE

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CHAPTER – 1 : INTRODUCTION

1.1. VISION

In order to make Disaster Management successful, it has been realized that it has to be a collaborative exercise and the stake-holders are both within and outside the government. Among the stakeholders, community is a major one and it has to be on the front-line in the process of disaster management. Their involvement is a pre-requisite for coping with Disasters.

In the process, community's involvement should encompass –informing the community of the threats from natural and man- made disasters, consulting the community to understand how they view the threats from natural and man- made disasters, working in collaboration with the community to firm up the shared understanding of the threats and developing the plan to face those threats through the community. Thus, planning for disaster management involves two dimensions viz. i) measures that community can take with its own resources, and ii) the areas in which it will work as an informed pressure group for the measures desired to be taken.

With this background as the vision, Assam State Disaster Management Authority has envisaged to engage community in developing a road-map for remedial and reinforcement measures for natural resource conservation, and further, this community to act as an advocacy group on critical issues concerning disaster management. The Village Master Plan is envisaged to formulate a plan of action containing details of possible remedial measures for prevention, mitigation and response that can be taken up by the community itself and areas in which the Community will need the support and guidance of the Government Departments and agencies.

1.2. WHAT IS VILLAGE MASTER PLAN FOR DISASTER MANAGEMENT?

The Village Master Plan for Disaster Management is a live and dynamic writtendocument having three parts viz. Village Land Bank, Village Knowledge Bank and Action Plan for management of disasters. This written document is to serve as a dynamic repository of information on all the factors that have a direct or not-so-direct role in causing or managing disasters. Its dynamics lies in the fact that it is to be seen as a process of knowledge-creation rather than a product and community is to be the hub of knowledge-creation.It is thereby expected that an aware and discerning community is expected to address the problem of hierarchical ignorance and enlightened policy-making. This makes the Plan is to serve as a potent tool for citizen engagement and discursive participation at the grass-root level.

It underlines the multi-componential nature of disaster management. The plan is expected to evolve into an efficacious instrument to trigger and intensify meaningful dialogue on disaster management. It will work as a trigger for reengineering of processes and mechanisms for implementation of the developmental and conservation programmes.

1.3. WHAT IS THE NEED VILLAGE MASTER PLAN FOR DISASTER MANAGEMENT?

1. It is the need of the hour that each and every one from the community realizes that:
 - We live in a place that falls in seismic zone V, making the occurrence of earthquakes a near certainty.

- we have a large network of rivers which gets over flooded during almost every monsoon inundating the nearby areas with flood waters
- the green cover, including forest and non-forest areas is dwindling
- our wetlands are shrinking/disappearing
- our hills/hillocks are becoming unstable and landslide-prone for indiscriminate hill-cutting and human settlements on their slopes.
- open spaces are shrinking with increased demand for land for housing and other development activities.

The result from these is that, these are contributing to the problem of the phenomenon called Climate Change bringing variations in the variables of climate. i.e. rainfall and temperature and resulting in intense climatic events.

2. What has happened is that the process of economic development and modernisation is putting unsustainable pressure on our natural resources in in numerous ways, some of them are:
 - construction of pucca and multi-storied houses are adding to the threat of greater damage to life and property by earthquakes.
 - human settlement and farming in natural courses of rivers and water channels is are adding and worsening the flood scenario.
 - construction of roads, railway lines etc. without due attention to the natural drainage systems are also adding to the threat of floods.
 - deforestation is adding to the problem by increased desiltation of rivers and landslides.
 - increased use of chemical fertilisers and pesticides are affecting soil health, air pollution and contamination of water.

All these factors contribute to the onset or severity of disasters. Some of us may be directly responsible for them, but all of us are silent partners to the creation or aggravation of the problems by remaining silent spectators. So, no natural disaster is a natural disaster in entirety.

3. It is not possible to prevent all of them, but it is always possible to prevent some and mitigate their impact.
4. Most effective response to a problem is always by those who face the problem upfront. It is the community, therefore, that has to refuse to be a silent spectator and assume the leadership to engage with the challenge of natural disasters.
5. Now, to engage the community in the process, State Government created VLMCC as an Institutional mechanism for community's engagement with Disaster Management at the level where it matters most. It is envisaged as an instrumentality that facilitates dialogue within the community and also with the stake-holders outside the community. It is bottomed on the premise of active collaboration between the government and community to achieve common goals. In the process, Village Master Plan will be the written document through which, VLMCC will act as
 - a. Guardian of the land and natural resources including the community land, open spaces, grazing lands, wetlands, hills and hillocks and ecological sites.

- b. Carry out awareness generation on the importance of conservation of natural resources. This will facilitate the community to develop a sound understanding of factors contributing to or aggravating the impact of disasters.
- c. Build consensus on community-level action to address those factors.
- d. A pressure group on Disaster management Issues.

1.4. OBJECTIVES OF THE PLAN

- To involve community in developing a road-map for remedial/reinforcement measures for natural resource conservation and thereby, acting as an advocacy group on critical issues concerning disaster management.
- To create an authentic database on the status of existing natural resources which have bearing on the likelihood or intensity of disasters
- To gain knowledge of all the factors that ensure the safety of the natural resources and the factors that contributes to their substance. Some of this knowledge is expected to be embedded in the tacit knowledge of the community and some will have to be passed on by the domain area experts.
- To make VMP a live and dynamic document having three parts viz. Village Land Bank, Village Knowledge Bank and Action Plan for management of disasters.

1.5. METHODOLOGY

The methodology that has been undertaken is explained here with the help of the Fig-1.1.below:

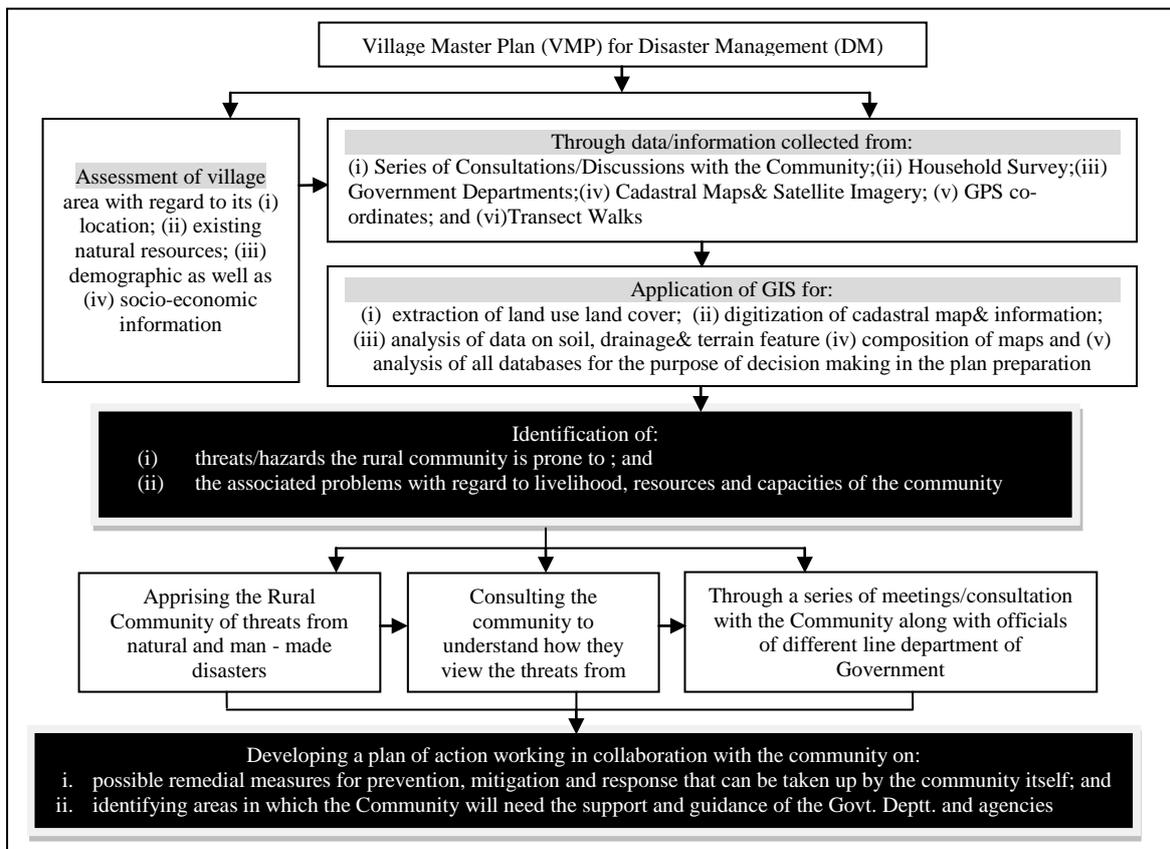
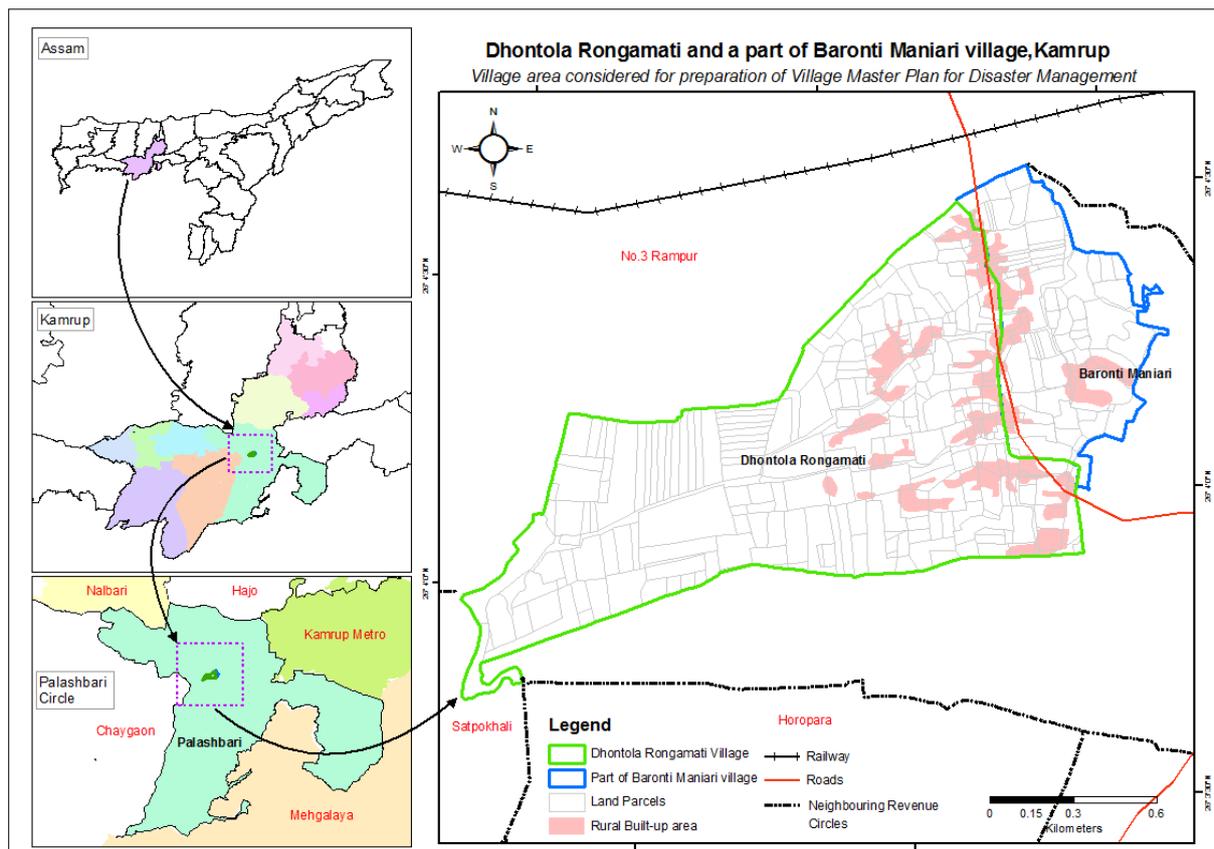


Fig-1.1: Flow Diagram for explain methodology

1.6. VILLAGE AREA CONSIDERED FOR PREPARATION OF VILLAGE MASTER PLAN FOR DISASTER MANAGEMENT

The village area considered for the preparation of the Village Master Plan for Disaster Management comprised of the Dhontla Rongamati village and a part of Baronti Maniari village of Chayani Mouza under Palashbari Revenue Circle in the Kamrup district. The total area of the Dhontla Rongamati village is 1.59 sq. km and the part of Baronti Maniari village considered for the purpose is 0.46 sq. km area. Therefore, the total village area considered for the preparation of village master plan for disaster management is 2.04 sq. km area. The village area considered for the purpose is shown with the help of the Fig-1.2.



Source: ASDMA, Cadastral Map from Circle office, NRSA Database

Fig-1.2: Location map of the Dhontla Rongamati and a part of Baronti Maniari village considered for preparation of Village Disaster Plan for Disaster Management

1.7. BACKGROUND OF THE VILLAGE AREA

1.7.1. GEOGRAPHICAL BACKGROUND

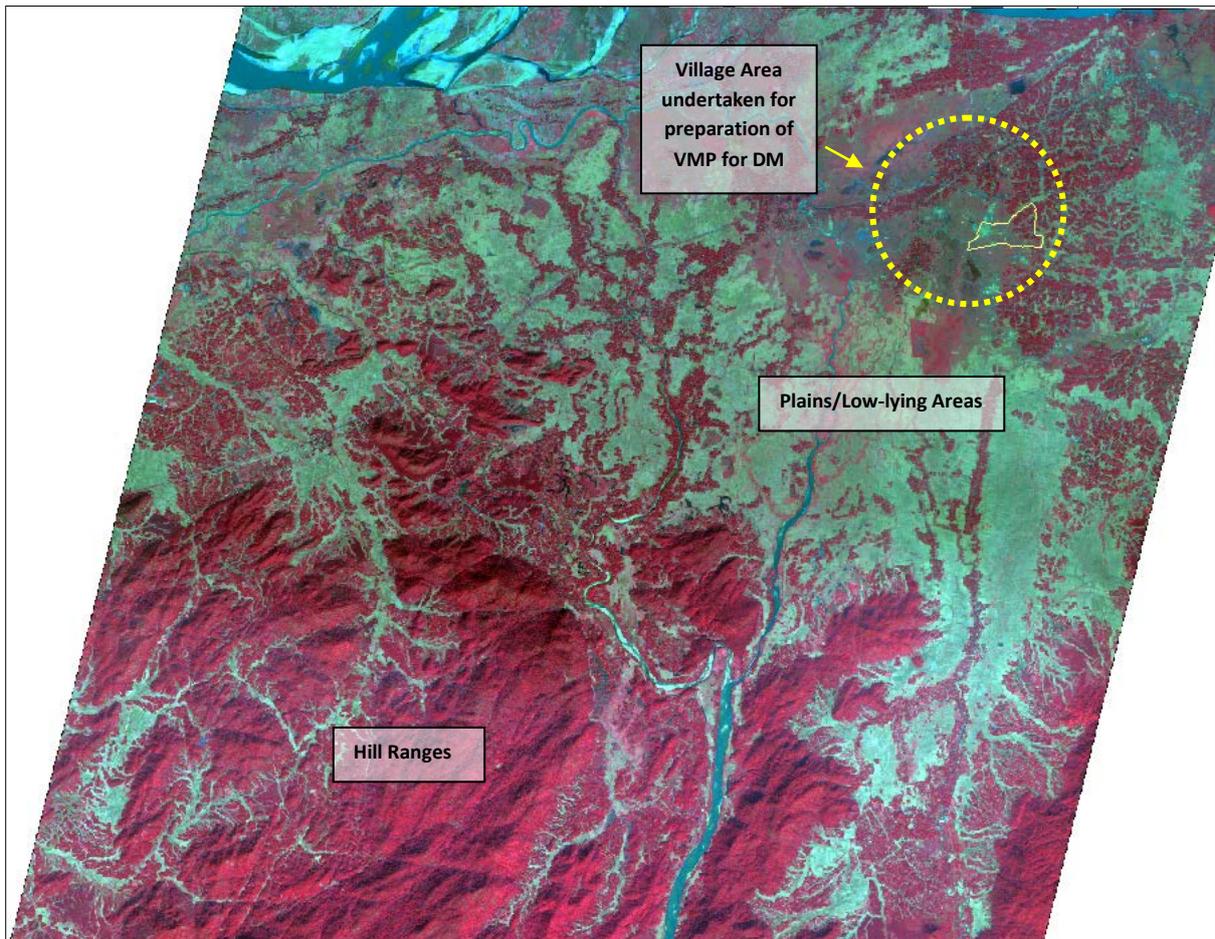
1.7.1.1. Location

The village area comprising of the Dhontla Rongamati village and a part of Baronti Maniari village of Chayani Mouza under Palashbari Revenue Circle in the Kamrup district is situated between 91°28'14.951"E and 91°29'22.278"E longitude and 26°3'48.516"N and 26°4'30.713"N latitudes. The village area is surrounded by No.3 Rampur village in the north and north west, Satpokhili village in

the south west and part of Baronti Maniari village in the south and east. The location of the village area is shown with the help of the Fig-1.2.

1.7.1.2. Topographical Features

The terrain feature of the village area is almost plain, constituting low lying plains. The village area is situated at a distance of 8-10 km away from hills ranges in the south. River Batha runs in the south western part of the village. Fig-1.3: shows the location of the village area with respect to that of the Hill ranges.



Source: Assam Remote Sensing Application Centre

Fig-1.3: Location of the village area with respect to that of the Hill ranges

1.7.1.3. Land and Soils

The land use land cover of the village mainly comprises of the following:

- scattered patches of agricultural land in the eastern part;
- brick kiln area in the west and few patches in the south;
- rural built-up area along the roadsides;
- low lying areas remaining fallow all the year round;
- household plantation with the local tree varieties;
- wetland area (*beel*) in the extreme south west boundary, and few ponds;

- a stretch of river (*Batha river*) passing adjacent to the beel situated in the extreme south west boundary; and
- low lying areas mostly comprised of swamps and waterlogged areas

The land use land cover of the village and percentages of area covered by the categories is shown with the help of Fig-1.4. Photographs -1.1 given below gives a glimpse to the land use land cover of the village.

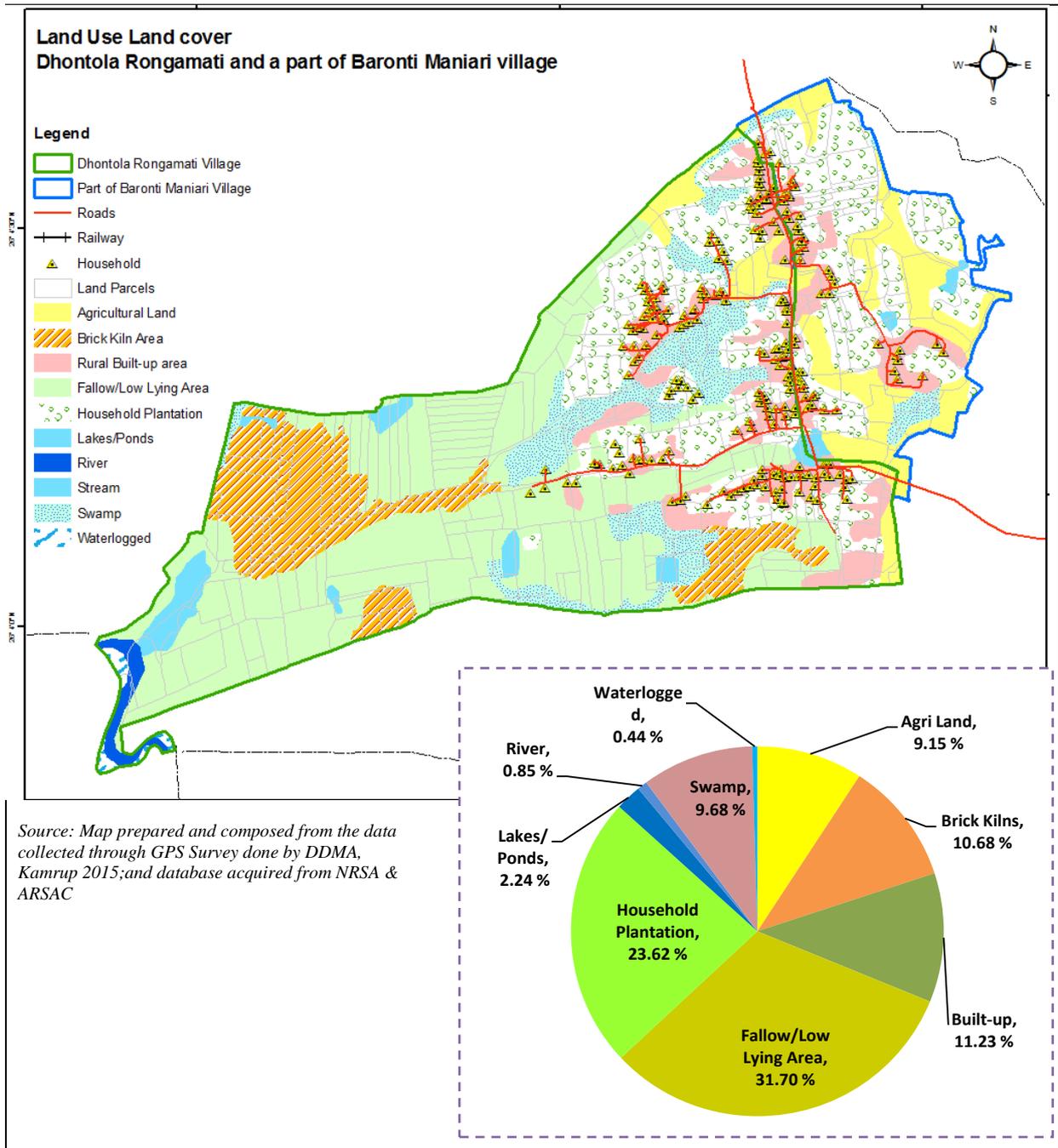
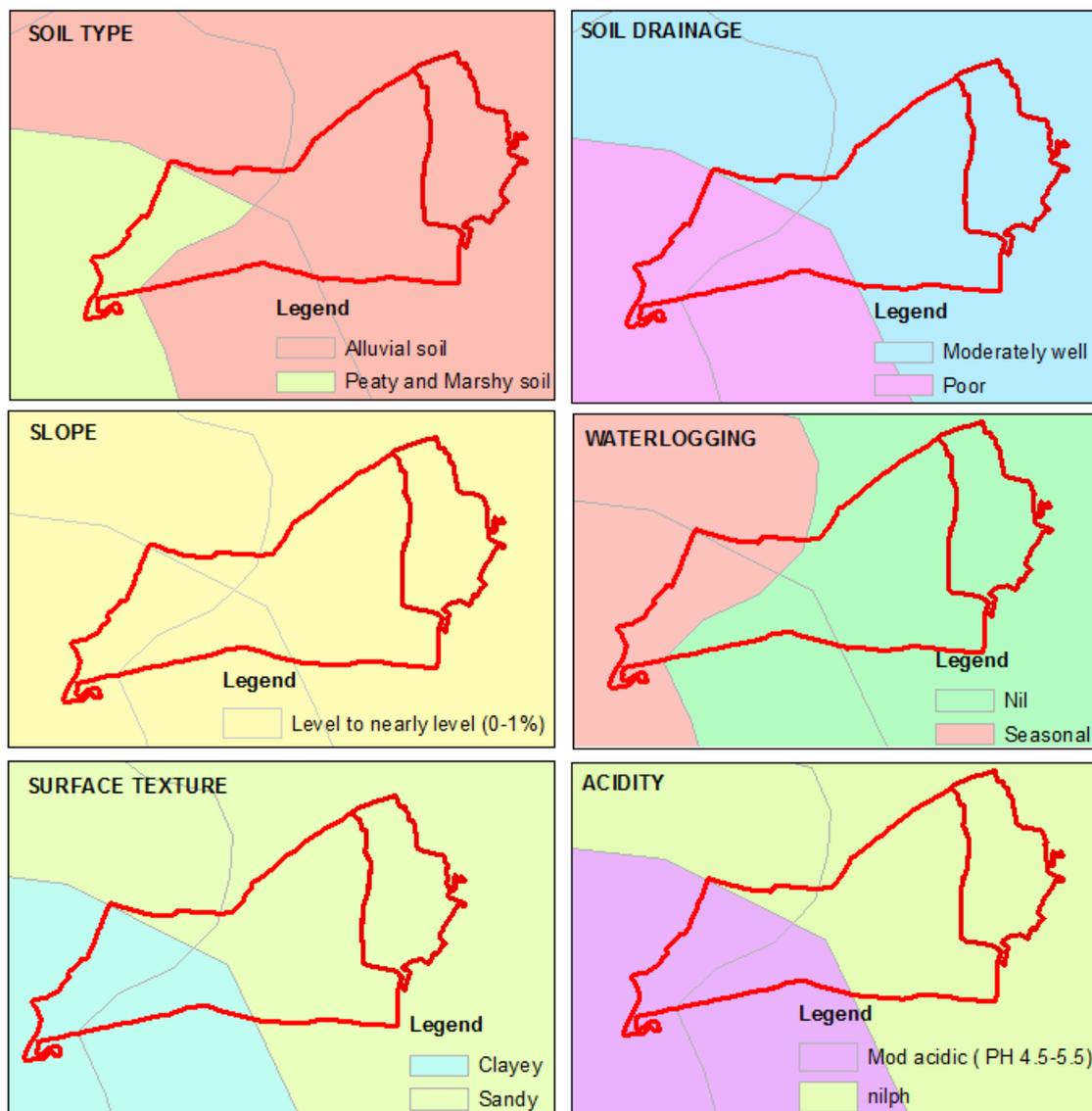


Fig-1.4: Land use land cover of the village area

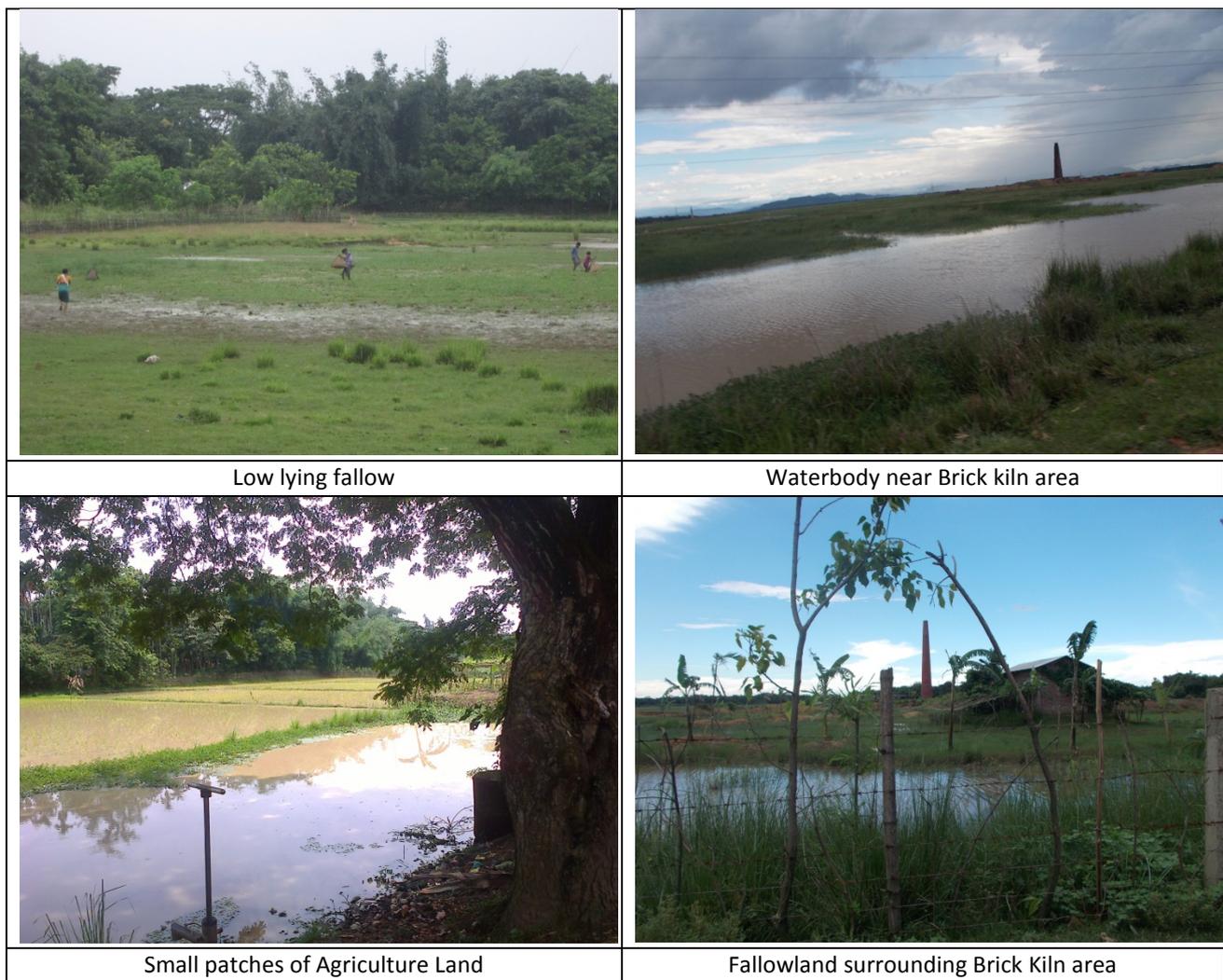
The soil of the village area is mostly alluvial in the east and middle, while extreme western part of the village constitutes peaty and marshy soil. The western part of the village characterises seasonal waterlogging, further, having poor drainage condition (Fig -1.5).

However, the remaining part of the village area also characterises only moderately well drainage condition. While the surface textures of the soil in the east are sandy, the western part is entirely clayey. While the clayey soils exhibit pH value between 4.5 - 5.5 characterising moderately acidic, the entire sandy soils in the eastern and middle part of the village area exhibits nil pH value.



Source: Soil Maps prepared and composed from database acquired from ARSAC

Fig-1.5: Maps showing soil conditions of the Dhontla Rongamati and a part of Baronti Maniari village considered for preparation of Village Disaster Plan for Disaster Management



Source: Photographs taken during HH Survey

Photographs-1.1. A glimpse to the Land use land cover of the village

1.7.1.4 Wetlands

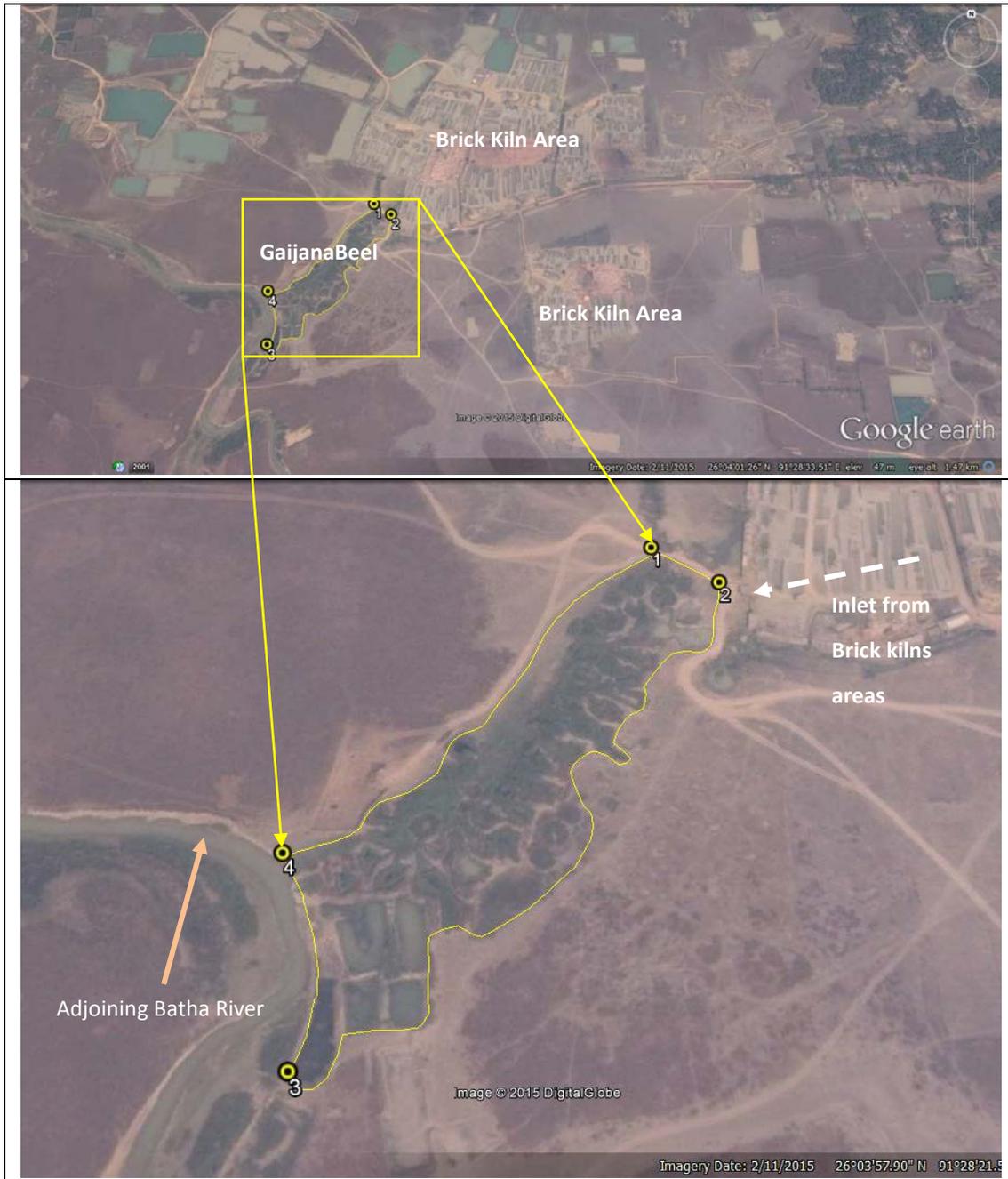
As the village is situated in a low-lying area, 12.17 per cent of the areas basically in the western part are covered with swamps and water logged areas. Dhontola Rangamati village has the Gaijana beel situated to the west forming a part of the western boundary of the village and two other ponds. The part of Baronti Maniari village has one pond. The details of the wetland found in the village are outlined below in the Table-1.1.

Table-1.1: Wetland details

Wetland	Name	Area	Daag No.	Uses	Location/Distance
	1.Gaijana Beel, Dhontola Rongamati village	8 bigha 2 kotha 17 lessa	51	Fishing by Community	1.5 km from the inhabited area of Dhontola village
	2.Pond, Dhontola Rongamati village	3 bigha 1 kotha 10 lessa	94	Community use	
	3. Pond, Dhontola Rongamati village	1 bigha 5 lessa	205	Community use	
	3. Pond, Baronti Maniari village	2 bigha 4 kotha 9 lessa	294	Community use	
Nature of the Wetland		Beel – 1 no.; Pond – 4 nos.		Public owned & used by community	
Encroachment free area around the wetlands		<ul style="list-style-type: none"> the entire surrounding area of the beel is uninhabited area, north western side is covered by Brick Kiln areas 			
Usage of the Wetland i.e. for what purpose it is being utilized		<ul style="list-style-type: none"> thickly covered with <i>Birina</i> Plants in its major part, only patches of the beels area have water which are used by the community for fishing 			
Nature of water inlets		Inlet from Agri-field and Brickkilns areas			
Volume of Water					
Average depth (during different parts of the year)					
Difference in the actual area and area in land records		Same			
Width and Area of upland buffer		No upland Buffer area is there. It is surrounded by Low lying fallow and Open land			
Width of Greenbelt around wetland		None			
Major fish varieties, fauna found as Wetland		Puthi, Goroi, Barali			
Nature of Vegetative buffer around the Wetland		No vegetative Buffer area is there. It is surrounded by Low lying fallow and Open land			
Chemical composition of the Water					
Nature of Industrial/ Commercial activity near Wetland		Brick Kiln areas are situated adjacent to the beel			
The adjoin drainage systems etc		Batha River			
Nature of invasive vegetation, if any		<i>Birina</i> Plants			

Source: o/o Revenue Circle Office; Community interaction, WRD Department

It has been observed that the Gaijana *beel* is surrounded by Brick kiln areas in its two sides, mainly in the north and eastern sides. The other sides are surrounded by low-lying areas mostly comprised of swamps and waterlogged areas. River Batha flows along the extreme south western side of the beel. Fig-1.6 shows the nature of water inlets and adjoining drainage system in the village area.

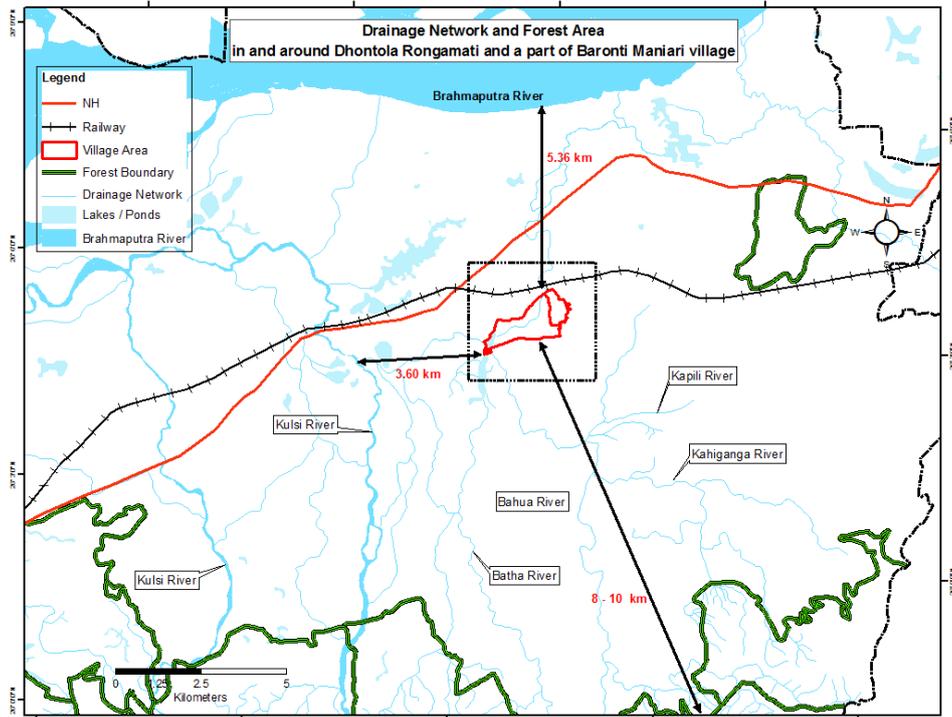


Source: Google Earth Image

Fig-1.6: Nature of water inlets and adjoining drainage system in the village area

1.7.1.5. Rivers and Rivulets

The village is situated at a distance of 5.36 km from the Brahmaputra river in the north. The south bank tributaries of Brahmaputra and their sub-tributaries viz. Kushi, Kapili, Kahiganga, Bahua and Batha rivers flows in and around the village area. The Kushi River is flowing at a distance of 3.60 km from the western boundary of the village. A sub-tributary of Kushi, River Batha flows along the extreme south western side of the village. The village is a flood prone area as it is situated in the low-lying areas fetched by several rivers and rivulets, in and around, originating in the Meghalaya Hill Ranges in the south. A glimpse to the drainage network of the village area is given in the Fig-1.7.

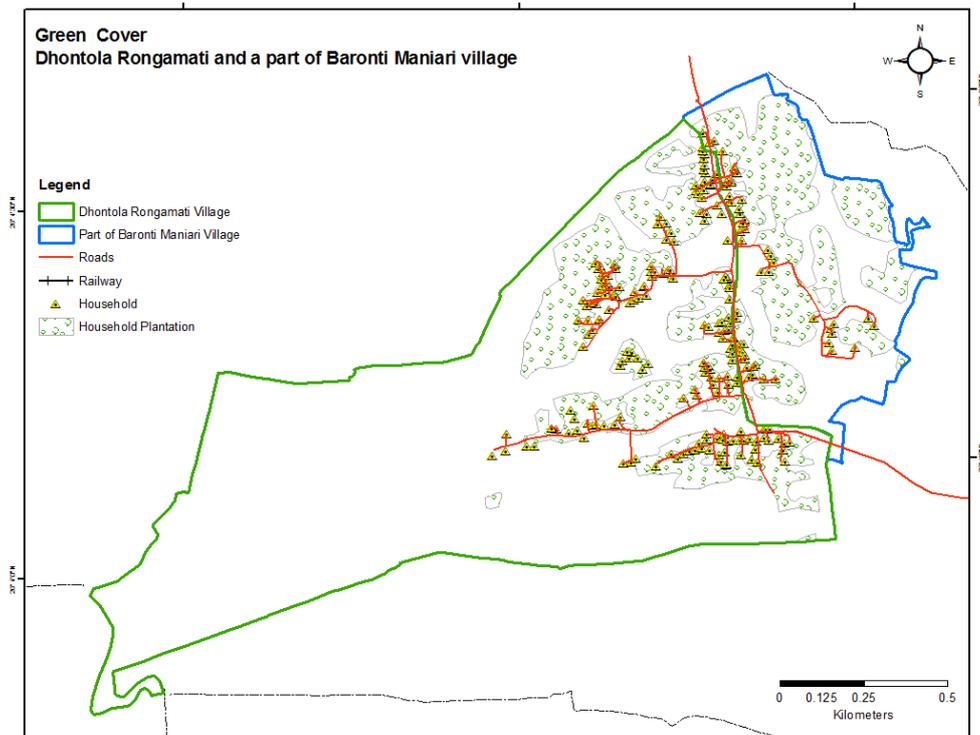


Source: Database acquired from NRSA & ARSAC

Fig-1.7: Drainage Network in and around the Village area

1.7.1.6. Green Cover

The green cover found in the village mainly covers the household plantation covering 23.62 per cent of the area of the village area (Fig-1.8). The household plantations mainly cover the local varieties of trees viz. bamboo, banana, mango, arecanut, jackfruit, coconut etc.

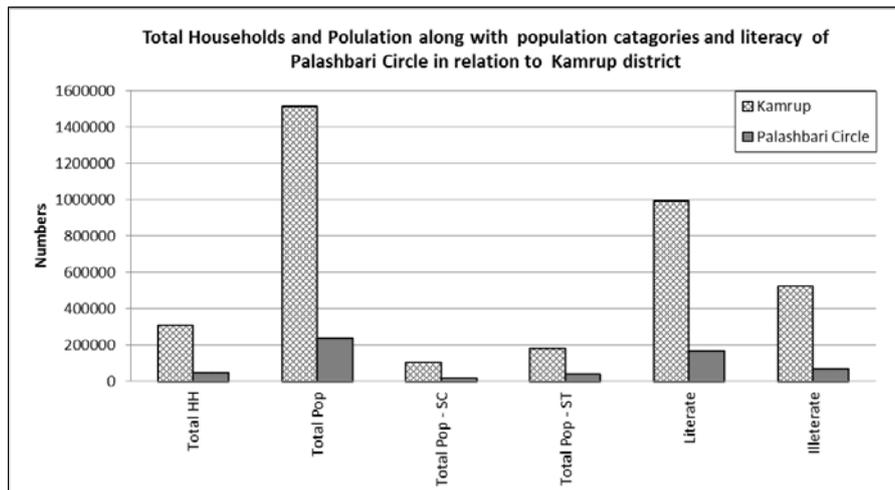


Source: Database acquired from ARSAC

Fig-1.8: Green Cover in the Village area

1.7.2. DEMOGRAPHIC PROFILE

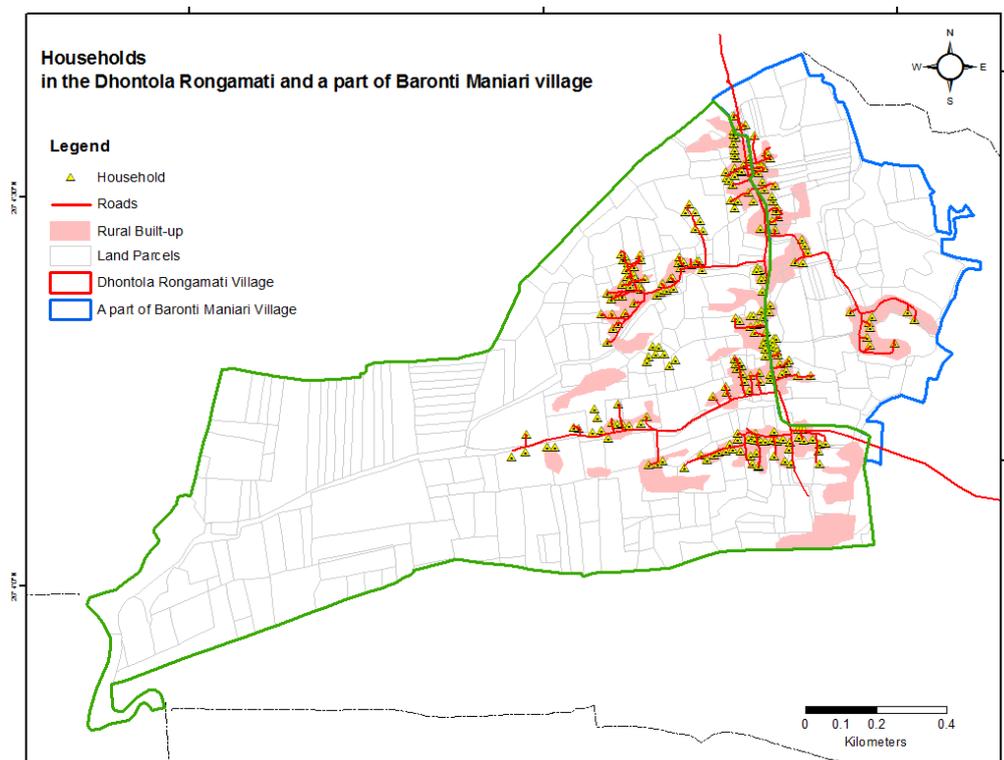
1.7.2.1. Households: The Palashbari circle in the Kamrup district where the Dhontola Roangamati village is situated is a home to 50418 households (16.21 per cent of the district) and a population of 239026 (15.75 per cent of the district) as per census of India, 2011. To get the background picture of the number of households and population along with their categories and literacy status, Fig – 1.9 of the Palashbari Revenue Circle in relation to that of the district is given below.



Source: Census of India, 2011

Fig-1.9: Demographic Profile of the Palashbari Revenue Circle with respect to the district of Kamrup

Households in the Village area: A number of 241 households (Fig-1.10) are found in the village area considered for the preparation of Master Plan for Disaster Management which comprises 0.48 per cent of the total households of the Palashbari Circle.



Source: GPS Survey, ARSAC

Fig-1.10: Households in the village area considered for the preparation of VMP for DM

1.7.2.2. Population: In the village, a number of 241 households give accommodation to a population of 1217 which constitutes 0.51 per cent of the total population of the Palashbari Revenue Circle. Of the total population of the village 52.18 per cent is male while 47.82 per cent is female.

1.7.2.3. Household size : The average household size found in the village area is 5. The composition of the households' size showed that an average number of male people in the household are 3 and female is 2. It has been observed that the average household size is less than 5 in case of the population belonging to General Category while it is little higher in case of the population belonging to SC category, i.e. more than 5 persons per households.

1.7.2.4. Age-Group : It has been found from the household survey that population below 6 years of age constitutes 8.95 per cent and between 6-10 years is 6.98 per cent. Almost equal number of male (55 nos.) and female (54 nos.) below 6 years of age, is found in the village while a higher percentage of male population (49 nos.) than the female population (34 nos.) between 6-10 years has been found. Population above 60 years of age is 92 which are 7.56 percent of the total population. Thus, the analysis of the vulnerable age group showed that about 23.50 per cent are found to be in the group, the details of which is outlined below in Table-1.2.

Table-1.2: Population of the village in vulnerable age groups

Sl.No	Particulars	Below 01 year		01 – 03 years		03-06 years		06 – 10 years		Above 60 years		Total Nos.
		M	F	M	F	M	F	M	F	M	F	
1	Population Nos.	9	6	19	23	27	25	51	34	45	47	286
2	Percentage to total Population	0.74	0.49	1.56	1.89	2.22	2.05	4.19	2.79	3.70	3.86	23.50

Source: Household Survey

1.7.3. SOCIO –ECONOMIC BACKGROUND

1.7.3.1. Social Composition: It has been found that the SC population forms the majority, comprising 75.10 per cent of the households of the village basically belonging to *Koiborta and Hira* community. It has been found that 24.90 per cent of the households belong to the General category.

It has been found that about 237 households in the village area are landless and 4 are homeless.

1.7.3.2. Literacy: As per the household survey undertaken in the study area, literate population constituted about 74.20 per cent of the total population whereas illiterates constituted 25.80 per cent of the same.

Table-1.3: Demographic and Social Profile of the villagers

Sl.No.	Particulars of Demographic Profile	Nos.	%
1	Total households	241	
2	Total population	1217	
	Total male population	635	54.93
	Total female population	582	50.35
3	Population below 6 yrs	109	8.96

		Population below 6 yrs, Male	55	50.46
		Population below 6 yrs, Female	54	49.54
4	Literacy Status	Literate population	903	74.20
		Illiterate population	314	25.80
5	Population Category	General category	60	24.90
		Schedule caste category (Koiborta and Hira Community)	181	75.10

Source: Household Survey

1.7.3.3. Occupation: As majority of the population in the village belong to *Koiborta and Hira* community comprising about 75.10 percentages of population, traditionally they are involved in fish-sale and pottery respectively. Villagers from Hira community are also found to be involved in weaving and spinning, most of which are for household use. The General category of population comprising about 24.90 per cent are basically involved in farming, business, service, weaving & spinning and other works. Moreover, the villagers domesticate animals like cow, pig and goat and poultry comprising of duck, cock, hen and pigeons both for household consumption and livelihood purposes.

Table-1.4: No. Of households domesticating animals and poultry

Sl. No.	Animals/Birds domesticated by the villagers	Households having these animals/birds	
		Nos.	Percentage
1	Cow	104	43.15
2	Pig	63	26.15
3	Goat	68	28.22
4	Duck	23	9.54
5	Cock/Hen	57	23.65
6	Pigeon	12	4.98

Source: Household Survey

As agricultural lands area only found in scattered parts, only 17 nos. of households are involved in farming as small farmers. About 10 nos. of households are found to be involved in agriculture as marginal farmers

1.7.3.3.1. Income pattern in different occupation: It has been observed that majority of the population, i.e. 31.54 per cent are working as daily labourers either in others houses or in the brick kilns. The details of occupation, number and percentage of the households involved in different types of occupation, and the range of lowest and highest income earned from the particular occupation is given in the Table-1.5. It has been found that majority of the households (31.54 per cent) are engaged as daily labour earning between Rs.1000/- to Rs. 12000/-; followed by 25.31 per cent fisherman earning between Rs. 1500/- to Rs. 9000/-; and 20.33 per cent others involving Tailor, Mason, Potter, Weaver, Shopkeeper, Cook, Mechanic, Plumber earning about Rs. 500/- to Rs. 9500/- per month. The remaining households of about 22.82 per cent are found to be involved in different occupation viz. farming, business and govt. service. It has been found 1.24 per cent of households who have Govt. Service holders well as business in the family earns between Rs.25000/- to Rs. 50000/- per month.

Table-1.5: Occupation and income pattern of the villagers

Sl. No.	Occupation	Households involved		Income pattern (in Rs) per month		Remark
		Nos.	%	Lowest	Highest	
1	Business	15	6.22	1500	40000	Selling of pigs for meat, poultry for eggs and meat and selling of milk of cow
2	Daily Labour	76	31.54	1000	12000	Works in others houses, brick kilns etc.
3	Service (Govt/Private)	9	3.73	2500	35000	Anganbadi School, Company, Govt. Service etc.
4	Farmer	17	7.05	2000	6000	Majority of them belong to General Category
5	Ex-Serviceman	11	4.56	1000	20000	Govt. & others
6	Fisherman	61	25.31	1500	9000	All involved belong to SC category
7	Others (SC)	49	20.33	500	9500	Working as Tailor, Mason, Potter, Weaver, Shopkeeper, Cook, Mechanic, Plumber. Majority (91 per cent) of them belong to SC category
8	Govt Service & Business	3	1.24	25000	50000	

Source: Household Survey



Fisnets for fishing

Ducks in the households

Pigs in the households

Cattle grazing on the open lands

Source: Photographs taken during Household survey

Photographs-1.2. Different domesticated animal and poultry in the village

1.7.3.3.2. Number and percentage of households in different range of income:

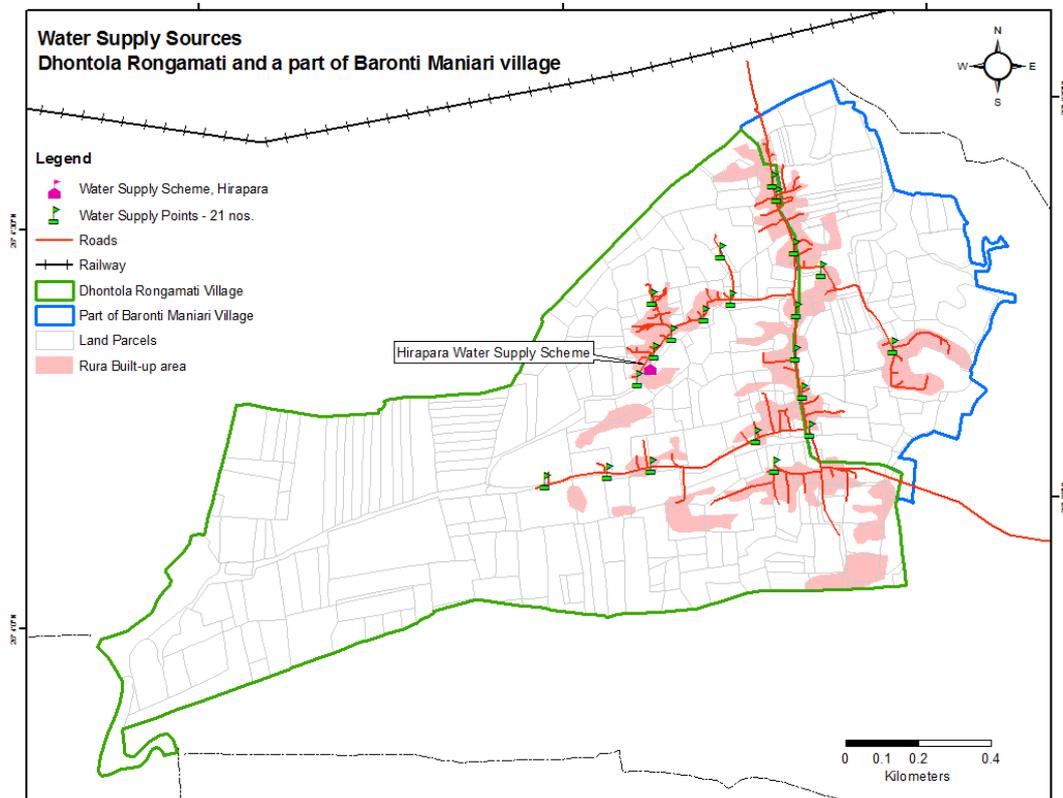
Another analysis of number and percentage of households in different range of income in the village showed that there are about 5 households , i.e. 2.07 per cent who is earning less than Rs.1500/-. About 29.05 per cent of the households (70 nos.) earn between Rs. 1500/- to Rs. 3000/-. More than half of the households, i.e. 129 nos. (53.53 per cent) earns an income of Rs.3000/- to Rs. 6000/- per month. About 8.71 per cent of households (21 nos.) earn a monthly income of Rs.6000/- to Rs. 10000/-. And 6.64 per cent (16 nos.) of households are found to be in the in the highest range of monthly income, i.e. Rs.10000/- to Rs. 40000/-.

Table-1.6: Percentage of Household in the different Income Groups

Sl. No.	Income Earned per month (in Rs)	No. of Households	%
1	< 1500	5	2.07
2	1500-3000	70	29.05
3	3000-6000	129	53.53
4	6000-10000	21	8.71
5	10000-40000	16	6.64

Source: Household Survey

1.7.3.4. Drinking Water: According to the HH survey, the villagers depend both on tube well as well as supply water for drinking purpose. There are 21 numbers of water supply tapes in different parts of the village situated mostly by the roadsides (Fig-1.11). The water is supplied through the Hirapara Water Supply Scheme located at Hirapara. Almost 94.61 per cent of the households use tube well for drinking purpose. They also use water from water supply sources. Only 3.09 per cent of the households are totally dependent on supply water.



Source: GPS Survey & ARSAC

Fig-1.11: Water Supply Sources in the village area

1.7.3.5. Electricity: About 79.25 per cent (191 households) of the households in the village have electricity connection at their houses while 20.75 per cent (50 households) do not.

1.7.3.6. House Type: The village do not have fully pucca houses, by tradition they have 3-4 houses in the campus comprising of Assam Type (Semi-Pucca) and Mud Houses. While 79 nos. (32.78 per cent) of the households have only mud houses, 57 nos. of households (23.65 per cent) have semi –pucca houses and 105 nos. of households (43.57 per cent) have both Assam Type (Semi-pucca) and Mud Houses.



Source: Photographs taken during Household survey

Photographs-1.3. House type of the village

1.7.3.7. Sanitation: It has been found that in the village area about 121 nos. of household (51.21 per cent) have latrine facility while 120 nos. do not have (49.79 per cent).

1.7.3.8. Water Quality

Water Quality of Dhontola Rongamati and Hirapara as per report no. SDLL/KAM/BOKO/CHE-BAC/1047/2048/1049 dated 18/07/2015 provided by PHE, Boko div are as follows:

Sl. No.	Pinpoint Location (DhontolaRongamati and Hirapara)	Source	PH	Residual Chlorine	Iron	Total Hardness	Turbidity	Nitrate	Fluoride	Arsenic	Bacteria
			6.5-8.5	0.1-0.2	0.3-0.3	200-600	0-5	45-45	1-1.5	0.01-0.05	
				Mg/Lt	Mg/Lt	Mg/Lt	NTU	Mg/Lt	Mg/Lt	Mg/Lt	
1	Near Bazar (Vill Road)	H/T	7.9	0	1.01	268	5	40	0.61	0	Nil
2	Near Mandir	H/T	7.1	0	0.79	270	4	41	0.63	0	Nil
3	Delivery Point (Vill Road, Hrapara PWSS)	DTW	7.15	0.1	0.22	252	2	41	0.6	0	Nil
4	Tupura Das	SHP	6.89	0	0.3	260	5	40	0.66	0	Nil
5	Thaneswar Das	SHP	6.97	0	0.21	268	2	42	0.59	0	Nil
6	Thandabala Das	SHP	7	0	0.91	258	4	44	0.61	0	Nil
7	Jiban Das	SHP	6.97	0	0.79	264	4	40	0.7	0	Nil
8	Ananta Das	SHP	7.04	0	0.91	268	3	39	0.69	0	Nil
9	Dharmeswar Das	H/P	7.09	0	0.03	262	2	39	0.61	0	Nil
			64.11	0.1	5.17	2370	31	366	5.7	0	
			7.12	0.01	0.57	263.33	3.44	40.67	0.63	0.00	

1.7.3.9. Household Assets:

1.7.3.8.1. Radio: Only 30 nos. of households (12.45 per cent) possess radio in the village.

1.7.3.8.2. Television: A no. of 108 households (44.81 per cent) has Television while 133 household (55.19 per cent) do not have.

1.7.3.8.3. Fan: It has been found that in the village area about 119 nos. of household (49.38 per cent) have fan while 122 nos. do not have (50.62 per cent).

1.7.3.8.4. Cooking Gas: A no. of 64 households (26.56 per cent) has cooking gas while 177 household (73.44 per cent) do not have. The households who do not have cooking gas either depend on kerosene for lighting lamps or *saki and* firewood. The villagers used to buy firewood as the village is devoid of trees to provide firewood for the year round. However the household who own cooking gas also use kerosene and firewood as alternative source for cooking and lighting purpose.

1.7.3.8.5. Mobile Phones: It has been found that in the village area about 155 nos. of household (64.32 per cent) have mobile phones while 86 nos. do not have (35.68 per cent).

1.7.3.8.6. Boats: 36 nos. households have of one boat each which is about 15 per cent of the total household.

1.7.4. INSTITUTIONS& INFRASTRUCTURE

1.7.4.1. Educational Institutions: Dhontola L.P school and three Anganbadi centres viz. (i) Dhontola Koiborta Para Anganbadi Centre , No.19; (ii) Dhontola Anganbadi Centre, No.20 and (iii) Dhontola

Hirapara Anganbadi, No.21 are located in the village area. The villagers have to send their children to the KHanapara Haropara High School at about 1.5 km away from the village to avail high school education. Moreover, they also send their children to Jarobari Anchalik Girls school at about 2 km distance and Rampur H. S. at about 6 km from the village.

1.7.4.2. Health Facilities: Jarobari Micro PHC is the nearest health centre, situated at about 2.5 km distance from the village. Another nearest health centre is the Rampur PHC of Rampur situating at a distance of 5 km from the village. Likewise, Jarobari Veterinary Centre is situated at Jharobari at about 2.5 km from the village.

1.7.4.3. Roads: The village is situated at a distance of 5.28 km from Revenue Circle office, Palashbari. From the National Highway, the village is situated at a distance of 1.54 km. The road connected from NH-37 at Bhagawatipara that routes to the village is a gravelled one till about 1.17 km to the intersection point of the railway line that pass in an east west direction to north of the village. From the intersection point of the railway line near the village, about 1km of the road passing by the village is mostly composed of mud, stones and brick and not gravelled. The soils are mostly clayey and so roads become muddy esp. during rainy season. The roads have been greatly damaged by the trucks that commute regularly from the brick kiln situated at the western side of the village. The villagers have to travel on foot 1.5 – 2 km to take the public transports either at Bhagawatipara or at Jarobari to come out to Bijoy Nagar and Mirza .Majority of the households (i.e. 84.42 per cent)of the village own cycles. Table-1.4 gives the details of transport facility of the households in the village.

Table-1.7: Means of Transport owned by the households

Sl. No.	Means of Transport owned by the households	No. of Households	%
1	Cycle	195	84.42
2	2-wheeler	15	6.49
3	3-wheeler	2	0.87
4	4-wheeler	3	1.30
5	Not own any transport facility at all	16	6.93

Source: Household survey

1.7.4.4. Market: The nearest market of the village is the Jarobari Market situated at about 1.4 km and at Bhagawatipara Market at about 1.54 km from the village.

1.7.4.5. Industrial/ Others Installation: Brick kilns

Brick kiln area in the west and few patches in the southern part of the village area.

Table-1.8: Industrial Installation in the village area

Nature of Business/ Production	Brick Kiln
Nature of emission & effluents	Smoke
Steps taken by the Industry/ business to prevent harmful effects	<ul style="list-style-type: none"> Chimney was made of tin in the initial stages which causes pollution , but since last 7/8 years concrete chimney has been built to reduce air pollution Pollution checks is done every year by Pollution Board
Likely impacts of emission & effluents	

Visible evidences of air, water, land pollution	<ul style="list-style-type: none"> • Cultivation has come to an end in and around Brick Kiln area • Cattle avoid grazing on the grasses that is available in and around Brick Kiln area • Villagers alleged death of fish in some ponds and swamps due to inlets from brick kilns • Death of human being has been reported caused by drowning in the deep pond like areas excavated for the purpose of extracting land for brick making.
Steps taken by the Industry/ business to sensitize the people about the harmful impacts of emission & effluents	None

1.7.4.6. High Tension Wires

High tension wire passes through the village in the western and southern part of the village.



Photographs 1.4: High Tension wires passing through west, and running on the southern part of the village

CHAPTER- 2: SOURCES OF THREATS TO THE VILLAGE COMMUNITY

2. 1. An assessment of the Problems

The participation of the rural community in planning for disaster management has led the community to have an understanding of the threats and hazards to their own village and the need of remedial measures for addressing the same. The community who remains detached towards proper utilization of the existing land and water resources either due to the lack of knowledge or indifference towards these, participated in the self-appraisal of existence of the natural resources in their own village; an understanding of the threats to these; and the need of conserving the same and finally realizing the basics of disaster preparedness at their own community level.

The assessment of the village in terms of its physical condition, demographic and socio-economic condition of the villagers, the available assets with the households, existing infrastructures and facilities in the village has given an understanding of the problems the villagers ; the threats and hazards to the village community. Further, the assessment of the village has given a strong understanding of the root causes of the respective problems and threats and also their possible root causes. The identified problems and threats/hazards are outlined below:

2.1.1. Poverty

Root Cause/ Possible Root Cause

1. The village is inhabited by a majority of 75.10 per cent households belonging to SC category (*Koiborta and Hira* community).
2. Most parts of lands in the village area are not cultivable and so majority of them are working as daily labourers in others houses, brick kilns etc.
3. It has been found that about 227 households in the village area are landless and 4 are homeless.
4. Villagers eligible for IAY houses have not received at all.

2.1.2. Non-Utilization of Land

Root Cause/ Possible Root Cause

1. Entire area is a low lying area and gets inundated very easily during rainy season
2. Agriculture is not possible due to waterlogging and marshy nature of the land, so vast lands are remaining fallow all the year round
3. In the western part of the village vast tracts of lands where people cultivated different varieties of rice earlier have been sold to the brick kiln proprietors, since the introduction of brick kiln industries in 2004 in the village.
4. High tension wire passes through the village



Brick Kiln Areas

Source: Photographs taken during HH Survey

Photograph -2.1: High Tension wires passing through the village

2.1.3. The village is in the threat of air pollution and degradation of soil health

Root Cause/ Possible Root Cause

1. Brick kilns are the major sources for air pollution and degradation of soil health.
2. The villagers alleged that the trucks that carry the bricks and soil out of the village move through the major inhabited area by the main village road. The trucks are not covered and the movement of trucks makes the entire environment full of dust and noise.
3. It can be observed that no vegetation or agriculture is there in the vast tracts of land in the western part of the village in and around the brick kiln areas and lying fallow all the year round. But earlier, as said by the villagers, people used to carry out *Sali* as well as *Bau* rice cultivation in some parts of the land. The soil health is facing degradation as burning soil decreases the soil pH making it acidic, increase sand and decrease the clay content.

(A study on the Environment and Health Impact for Brick Kilns in Kathmandu Valley has found the brick kilns are deteriorating air quality and degrading people's health nearby the brick kilns. It has been found that the concentrations of particulate matter (PM) in air around the brick kilns zones are three times higher than the off season of brick kilns. Particulate matter does not consist of one compound or element but rather, it is a complex mixture of different organic and inorganic substances, many of those are harmful to human health (WHO, 2000). Other environmental costs of the brick kilns are reduction in soil fertility, reduced visibility, drying the ground water sources. As environmental rules, brick kilns should not be set up on arable lands and minimum three kilometres distance away from any housing area, reserve forest, and educational institution. However, no rule is maintaining for setup brick kilns. As a result a brick kiln produces black smoke which ultimately moves away the species which are involved pollination process. This ultimately declines the agricultural and farming production. The effects of brick kilns have both long term and short-term impacts in

the environment. In short term the vegetation process hampers, crops production decreases, plants fruits falls down etc. and long term impacts are ozone depletions, global warming, photochemical smog's, land fertility decreases, ground water level down etc. For the brick production, top soil is removed from the land and it takes between 25 to 30 years for those lands to be fertile as earlier. The period can be longer if vast quantities of toxic wastes such as in the form of carbon monoxide and sulphur oxide will mix into the land. On average each kiln burn 350 tons of woods a year, so more kilns means having a devastating effect on the forests (Morley, 2012). Brick kiln removes on an average of 1500 MT of soil per ropani (0.05 ha) per year. Burning soil decreases the soil pH making it acidic, increase sand and decrease the clay content. It has serious impacts on soil physical, biological, and chemical properties resulting sharp declination in soil fertility and productivity. ')

2.1.4. Poor Transport facility

Root Cause/ Possible Root Cause

1. The village road is composed of mud, stones and bricks. The soils are mostly clayey and so roads becomes muddy esp. during rainy season
2. The roads have been greatly damaged by the trucks that commute regularly from the brick kiln situated at the western side of the village.
3. Roads have been greatly damaged by the floods of 2014
4. No means of public transport is available in the village. The villagers have to travel 1.5 – 2 km to take the public transports.
5. The people are not well off to own vehicle or any means of transport of their own. Bicycles forms only means of transport for almost every household.



Source: Photographs taken during HH Survey

Photograph-2.2: Village Road

2.1.5. Lack of Electricity

Root Cause/ Possible Root Cause

1. As the villagers are poor, about 44 households do not have electricity connection.
2. The L.P School and the three Anganbadi Schools have no electricity connection
3. Neither there is any provision for lighting facilities on the roads.

2.1.6. Poor Environment

Root Cause/ Possible Root Cause

1. Most of the villagers rear pigs and duck, hen etc. in the house premise. This makes the entire house premise muddy and unhygienic.
2. Little awareness on hygiene and so villagers who rear pigs may be prone to JE and other diseases.
3. During rainy season, the villagers keep the pigs and the cattle on the village roads as most of the low lying areas gets inundated with rainwater.



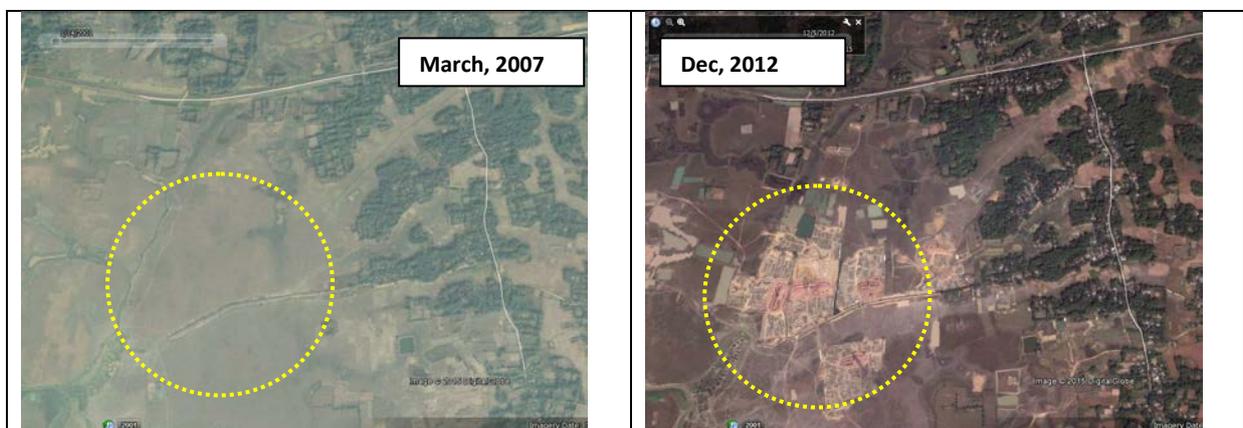
Source: Photographs taken during HH Survey

Photograph-2.3: Pigs and cattle on the roags during rainy season

2.1.7. Poor Soil Health

Root Cause/ Possible Root Cause

Brick Kiln industries were started back in the year 2004 in some parts of the village. In about 10 years, number of Brick Kilns increased to 5. It can be observed that no vegetation or agriculture is there in the vast tracts of land in the western part of the village in and around the brick kiln areas and lying fallow all the year round. But earlier, as said by the villagers, people used to carry out *Sali* as well as *Bau* Rice cultivation in some parts of the land. The soil health is facing degradation as burning soil decreases the soil pH making it acidic, increase sand and decrease the clay content.



Source: Google Earth Image

Fig-2.1. Brick Kiln Industries in different years

2.1.8. Lack of grazing lands for the cattle

Root Cause/ Possible Root Cause

1. The available lands in the brick kiln areas and low lying areas are not suitable for grazing.
2. Dust from the Brick Kilns covers the grasses that grows on the lands surrounding the same

2.1.9. Flood

Root Cause/ Possible Root Cause

1. Since the area is low lying and there is no any embankment, so during monsoon most of the area remain inundated.
2. Flood has been devastating in the year 2004; and recently in 2014 where more than 3 feet flood water inundated the village causing damage to most of the houses
3. Some of the villagers repaired and reconstructed their houses, while most of them still live in the damaged houses.
4. The Gaijana *beel* in the extreme western part of the village area has become shallow and as plants like *birina* has engulfed it, it has limited capacity to retain the flood water.



Source: Photographs taken during HH Survey

Photograph-2.4: Flood Damaged houses

2.1.10. House gets damaged every year due to storm

Root Cause/ Possible Root Cause

1. Most of the houses are made of bamboo and mud and surrounded by tall trees. These houses are vulnerable to storms.
2. Almost every year houses get damaged due to heavy storms

2.1.11. Poor communication with Emergency Services like 108

Root Cause/ Possible Root Cause

1. As alleged by the villagers there were instances of non-response from the emergency services like 108, people are not really ready to call emergency services thinking that they will not respond
2. Due to the poor condition of the road, vehicles of 108 service refuse to come to the village.

2.1.12. Reluctance to avail Relief Camps during flood time

Root Cause/ Possible Root Cause

1. During floods of 2014, although some of the people took shelter in the relief camp opened at R.P.Joshi School at Mirza, most of them were reluctant to leave their homes and so stayed back at their home places;
2. They preferred to stay back at their homes to look after their belongings and domestic animals and poultry;
3. Total lack of awareness on the benefits of availing relief camp.

2.1.13. Lack of Designated Raised Platform

Root Cause/ Possible Root Cause

1. As the village is situated in a low lying area, more than 3 feet flood water inundated the village during floods of 2014 causing damage to most of the houses and killing many of their pigs and poultry.
2. Due to lack of designated raised platform villagers had to keep the animals on the uplands of the Brick Kiln area and on the beds at their home which were raised with the help of bamboo, wood and bricks during 2014 floods.

2.1.14. Loss of school and household belongings/materials/stuffs due to flood

Root Cause/ Possible Root Cause

1. The villagers, although, very much prone to floods, have little or no awareness on flood preparedness.
2. Inadequate protection to school materials/ stuffs before the occurrence of flood. Books, Toys and other materials of Anganbadis lost during flood.

2.1.15. Non allocation of Govt. assistance

Root Cause/ Possible Root Cause

As alleged by the villagers, IAY houses have been allotted as per requirement of the villagers.

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2.1.16. Difficulty to avail Higher Education facilities and Health facilities

Root Cause/ Possible Root Cause

1. The villagers have to send their children to the Kanapara Haropara High School at about 1.5 km away from the village to avail high school education. Moreover, they also send their children to Jarobari Anchalik Girls school at about 2 km distance and Rampur H. S. at about 6 km from the village.
2. Jarobari Micro PHC is the nearest health centre, situated at about 2.5 km distance from the village. Another nearest health centre is the Rampur PHC of Rampur situating at a distance of 5 km from the village.

2.1.17. Inundation of Water supply tapes during rainy season

Root Cause/ Possible Root Cause

As most of the water supply tapes are installed by the side of the village roads, in the rainy season it has been observed that base of some of the water supply tapes remained inundated. At times of floods the tapes are likely to be inundated entirely.



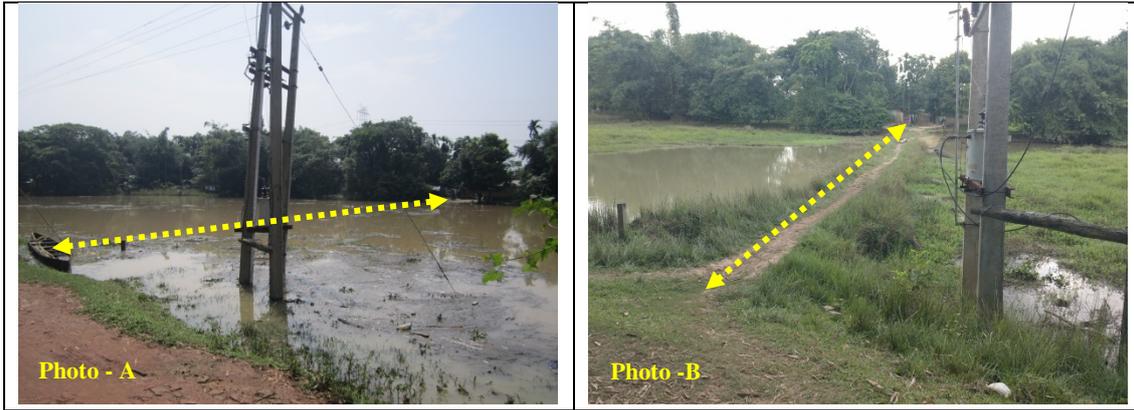
Photograph-2.5. Inundation of Water Supply Tape by the side of the road in rainy season

Source: Photographs taken during HH Survey

2.1. 18. Not self-sufficient with country boats

Root Cause/ Possible Root Cause

It has been found that 36 nos. of household have country boats. As the village is situated in a low lying area and recently experienced very high floods, it is necessary that the village has to be self-sufficient in keeping boats to be used immediately at the time of occurrence of flood.



Source: Photograph taken during HH Survey

Photograph 2.6. Boat positioned by villagers to commute through low lying areas during rainy season (September, 2015) and (Photo-A). The same road in October, 2015 (Photo- B)

2.1.19. Lack of total sanitation

Root Cause/ Possible Root Cause

1. A no. of 120 households do not have latrine facility, they uses kutcha latrine or go for open defecation.
2. It has been observed that some parts of the village roads remain waterlogged and greatly muddy during the rainy season.
3. The villagers have not left spaces for the drain to drain off the accumulated water on the roads.
4. Villagers keep pigs, cattle or poultry on the road during rainy season and it makes the roads all the more muddy and unhygienic.
5. The shops by the side of the village roads dump the wastes nearby, when water accumulates during rainy season, the area gets unhygienic.



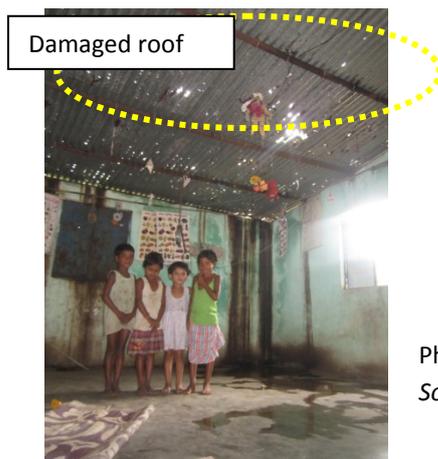
Source: Photographs taken during HH Survey

Photograph -2.7: Wastes dumped by Shops

2.1.20. Anganbadi students to attend school amid dilapidated condition

Root Cause/ Possible Root Cause

1. Poor infrastructure of Anganbadi School with damaged roof causing unhygienic condition for the children during rainy season.
2. As books and other learning materials got damaged due to the floods of 2014, non-availability of the same.
3. As books and other learning materials got damaged due to the floods of 2014, and allocation of books again from the Government take a long process, the students have to carry out learning without the use of the same.



Photograph-2.8: Damaged roof condition of Anganbadi School
Source: Photographs taken during HH Survey

ⁱSuman Kumar Pariyar, Tapash Das, Tanima Ferdous, MAY 2013 Environment And Health Impact For Brick Kilns In Kathmandu Valley, published in the INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH VOLUME 2, ISSUE 5, ISSN 2277-8616

CHAPTER 3: PLAN OF ACTION

The problems, threats and hazards to the village community that have been identified needs to be addressed by developing a plan of action. Community participation in developing the plan of action has been highly sought along with support and guidance of the Government Departments and agencies. For the purpose a series of meeting, discussion and consultation were held with the community along with the participation of officials of Government departments. For implementation of the plan of action, Village Land Management and Conservation Committee (VLMCC) of the village have to take a strong and major role representing the community. Further, the community too needs to provide support for successful implementation of the plan of action. The plan of action for possible remedial measures for prevention, mitigation and response for the identified problems are outlined below. Some of the actions proposed in the plan of action for addressing disaster management are shown with the help of Fig-3.1.

3.1. Plan of action related to Infrastructure and Facilities of the village

3.1.1	Problem to be addressed	:	Poverty
	Probable Actions	:	<ol style="list-style-type: none"> 1. Making land available for agriculture to be self-sufficient to a large extent. 2. Provision of houses to the poorest. 3. Forming of SHG groups to start entrepreneurial activities related to their occupation (piggery, pottery, weaving, fishery) and resources available in the village 4. Making community aware of the livelihood and social protection measures through conduct of meetings and with the help of audio-visual materials in local language, so that the all section of the villagers can understand the critical issues 5. Provision of Govt. assistance to the villagers through National Social assistance Programme (NSAP) comprising of Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS) and Annapurna.
	Role of Community	:	<ol style="list-style-type: none"> 1. Community to resist themselves from selling of lands to Brick Kiln proprietors for liquid money. 2. VLMCC to make the community aware of making themselves self-sufficient by utilization of land for different agricultural purposes for the benefit of economic gain. 3. VLMCC to organize meetings in the village with : <ol style="list-style-type: none"> (a) SRLM/NRLM for receiving guidance and awareness on livelihood and social protection measures; (b) Agriculture Department for gaining knowledge on innovative ways of cultivation based on the terrain, soil and drainage condition of the village;

			(c) Fishery department for gaining knowledge of the steps taken by the Department for fishery development and other scientific ways to develop fishery (d) Consistent communication with the Circle Officer to support and help to conduct the meetings/consultations of
	Role of the Government, Departments and agencies	:	<ol style="list-style-type: none"> 1. NRLM/SRLM to make villagers aware to strengthen their livelihoods 2. Agriculture department to make people aware of rising of crops based on the land, water and soil conditions 3. P&RD to ensure allocation of IAY Houses to the poorest; livelihood and social protection through MGNREGS and NSAP 4. P&RD to ensure and monitor forming of SHG groups and their activities 5. Fishery Department to make villagers aware of scientific fish cultivation 6. Circle Office to support VLMCC for organising meetings with the concerned departments and agencies.
3.1.2.	Problem to be addressed	:	Poor Transport facility
	Probable Actions	:	<ol style="list-style-type: none"> 1. The main village road of 1.37 km and stretch of 0.78 km road towards Gajana Beel to be constructed to a metalled one. The two wooden bridges of the main village road to be converted to RCC ones. 2. Regular repairing and maintenance of roads 3. Notification of time schedules for movement of heavy vehicles belonging to the Brick Kilns.
	Role of Community	:	<ol style="list-style-type: none"> 1. VLMCC to notify time schedules for commuting of the trucks from the Brick Kilns.
	Role of the Government, Departments and agencies	:	<ol style="list-style-type: none"> 1. All weather road to be constructed under MGNREGS 2. Proper maintenance of the roads by PWD (R)
3.1.3.	Problem to be addressed	:	Lack of Electricity
	Probable Actions	:	<ol style="list-style-type: none"> 1. 50 Households to be connected with Electricity 2. L. P School and three Anganbadi schools to be provided with Electricity connection. 3. Provision to lighting for the roads.
	Role of Community	:	<ol style="list-style-type: none"> 1. VLMCC to pursue the matter through Circle Officer
	Role of the Government, Departments and agencies	:	<ol style="list-style-type: none"> 1. Power Department to provide electricity connection to the households through Rajib Gandhi Boiddyutikaran Achoni (Deen Dayan Upadhaya Achoni). 2. Elementary Education/ Social Welfare department to take action

			for providing lighting facility in the L.P.School and 3 Anganbadi Centres.
3.1.4.	Problem to be addressed	:	Lack of total Sanitation
	Probable Actions	:	<ol style="list-style-type: none"> 1. Latrine facilities have been allotted for 201 nos. of households; 96 nos. has been completed as on 10/12/2015 and construction of 105 nos. is going on. Construction of the ongoing Latrines needs to be expedited for achieving of total sanitation. 2. Shops to use dustbins/buckets for dumping wastes 3. Roadside drains to be constructed to drain off water accumulated on the road during rainy season
	Role of Community		<ol style="list-style-type: none"> 1. Villagers to avoid open defecation 2. Villagers to leave land area by the sides of the main village road for the construction of drains 3. VLMCC to make the community aware of the adverse effects of open defecation 4. Every household to drain off the waste water to drains in a proper way avoiding waterlogging in the roadsides
	Role of the Government, Departments and agencies		<ol style="list-style-type: none"> 1. PHE to conduct awareness programme for total sanitation 2. PHE/ P&RD to allot latrine facility. 3. Road side drains to be constructed with the village main road under MGNREGS
3.1.5	Problem to be addressed		Water supply tapes inundated during rainy season to be raised
	Probable Actions		Base of the inundated water supply tapes to be raised
	Role of Community		VLMCC to take action to make the area where water supply tapes are located free of waterlogging with the help of community
	Role of the Government, Departments and agencies		PHE to take action for raising the base of the water supply tapes
3.1.6	Problem to be addressed		Non availability of Cooking gas connection
	Probable Actions		<ol style="list-style-type: none"> 1. As 177 households do not have cooking gas connection they have to depend on kerosene and firewood. These households to be provided with clean and safe cooking fuel. 2. As the villagers have to buy firewood for cooking purpose due to non-availability of the same locally, planting of trees to be carried out to serve the purpose in the long run.
	Role of Community		<ol style="list-style-type: none"> 1. VLMCC to pursue for ensuring receipt of Cooking gas connection Providing clean and safe cooking fuel to the poor with the help of Circle Officer 2. As most of the villagers use kerosene for cooking, they need to be careful in using the same

	Role of the Government, Departments and agencies	<ol style="list-style-type: none"> 1. Circle officer to take action for providing subsidized, clean and safe cooking gas to the poor. 2. Agriculture department to help villagers to develop their <i>Bari</i> in their house campus. Planting trees will help to avail firewood in the long run. 3. Planting of trees on a large scale under MGNREGS to make firewood available in the long run.
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3.2. Plan of action related to Conservation & Management of Land Resources; and Environment

3.2.1	Problem to be addressed	: Non-Utilization of Land
	Probable Actions	<ol style="list-style-type: none"> 1. Scientific drainage system may be provided to overcome the problem of water logging in the low lying areas 2. Appropriate measures to be adopted for reclaiming the waterlogged areas of the village for making the land suitable for agricultural purposes.
	Role of Community	<ol style="list-style-type: none"> 1. Community not to sale any more lands to Brick Kiln proprietors. 2. VLMCC to make the community aware of utilization of land for different agricultural purposes for economic gain with the help of Agriculture Department and Circle Officer.
	Role of the Government, Departments and agencies	<ol style="list-style-type: none"> 1. Cultivation to be developed by Agriculture Department by providing: <ol style="list-style-type: none"> a. Assured irrigation by providing Shallow Tube well and Low Lift Pumps b. High yielding variety seeds in the months of Nov-Feb c. Introducing Fish cum paddy cultivation d. Introducing <i>Bari</i> Development with cultivation of black pepper, bettle vine, ginger, turmeric etc . e. Introducing integrated culture of Piggery, Fishery and Agriculture f. Introducing organic cultivation. Vermi-composting may be taken up by the villagers for commercial purpose. g. Sensitization to transfer the knowledge to the villagers on all the above
3.2.2	Problem to be addressed	Lack of awareness for wetland conservation
	Probable Actions	<ol style="list-style-type: none"> 1. As the Gaijana <i>beel</i> has become shallow and plants like <i>birina</i> has engulfed it, digging of the <i>beel</i> is necessary for restoring water during rainy season which also help to control waterlogging and flood.

		<ol style="list-style-type: none"> 2. Treating of the water coming out from Brick Kilns through small channels and at places blocking of some of the inlets 3. Creating buffer areas of open land removing the structures belonging to Brick kilns by the side of the beel. 4. Installing signboards by the side of the beel for making people aware of the presence of the beel 5. Scientific fish farming in the beel and community ponds
	Role of Community	<ol style="list-style-type: none"> 1. Community to dig beel and make it free from the plants that has engulfed the beel, 2. VLMCC to create awareness for conservation of beel, its aesthetic values and economic gain.
	Role of the Government, Departments and agencies	<ol style="list-style-type: none"> 1. Circle Officer to help the community with man and materials from the concerned departments for digging the beel 2. Fishery Department to make VLMCC aware of the need, process and economic gain of scientific farming. 3. However a project has been undertaken by Fishery Deptt. under MGNREGA for digging an area of 1.35 ha of the Gajana beel. 4. Circle Officer, Fishery Deptt and Community to jointly ensure proper implementation of the work and work on further conservation of the <i>beel</i>.
3.2.3	Problem to be addressed	: Probable hazards from the Brick Kilns
	Probable Actions	<ol style="list-style-type: none"> 1. checking out illegal Brick Kilns 2. shutting down illegal kilns, 3. introduction of cleaner technologies (substitution of traditional kilns with newer technologies for standard emission which significantly reduces air pollution as well as reducing impact on environment and human health) <p><i>(World bank report have shown that compared to mass emission load of 8.06 kg of SPM (Suspended Particulate Matter) per 1000 bricks produced by Moving Chimney Bulls Trench Kilns, but Fixed Chimney kilns produce only 1.71 and VSBK produces 0.55 kg of SPM per 1000 bricks. Therefore, the VSBK is more than 14 times cleaner and Fixed Chimney is almost five times cleaner than the traditional kilns (World Bank, 2007). Technology modification has resulted in improved air quality. According to records from the Bhaktapur air quality monitoring station the PM10 concentration in Bhaktapur, Kathmandu around brick kilns zones went down by 26.5 percent between 2003 and 2005 (UNEP,2007). Survey reports showed that due to air pollution from brick kilns, community people are facing breath problem, nasal problem, eye burning and others diseases. Other environmental costs of the brick kilns are reduction in soil</i></p>

			<i>fertility, reduced visibility, drying the ground water sources)</i> ¹
	Role of Community	:	1.VLMCC to check regularly the norms followed by the Brick kilns 2.Reporting non-conformity to Circle Officer
	Role of the Government, Departments and agencies	:	Revenue Circle Officer (1) to check existence of any illegal brick kilns, (2) taking action for flouting the existing norms by the brick kilns (3) issue of direction to use safe technology
3.2.4	Problem to be addressed	:	Lack of grazing lands for the cattle
	Probable Actions	:	Suitable land to be reclaimed for raising grass for grazing
	Role of Community	:	VLMCC to identify lands for grazing
	Role of the Government, Departments and agencies	:	Agriculture Department to guide villagers on raising of grasses for the cattle
3.2.5	Problem to be addressed	:	Poor Soil Health
	Probable Actions	:	1. Testing of Soil health from time to time 2. Conservation of soil and utilization of land on a sustained basis for productive purpose
	Role of Community	:	1. VLMC to take active part in ensuring timely testing of soil 2. Circle Officer to help the community with effective measures for ensuring sustainable utilization of land with the help of Agriculture and Soil Conservation deptt
	Role of the Government, Departments and agencies	:	1. Agriculture Department to assess soil condition of the village from time to time 2. Agriculture and Soil Conservation Deptt. to take steps for ensuring sustainable utilization of land
3.2.6.	Problem to be addressed	:	Poor Environment
	Probable Actions	:	As 63 households in the villagers have pigs in their houses, they should take precautionary measures to keep the pigs in a proper manner as it adds to the JE problems.
	Role of Community	:	1. VLMCC to ensure that the community do the following: i. making provision for keeping pigs 100-200 m away from dwelling areas ii. demarcating confined area for the movement of the pigs away from dwelling area iii. covering the confined areas for pigs with nets iv. community to take proper healthcare and vaccination 2. VLMCC to conduct meeting with the community of the health hazards from pig rearing and the safety tips for rearing the same.
	Role of the Government, Departments and	:	1. Veterinary Department to hold Vet- health camps thrice a year to make the people aware of scientific pig rearing,

	agencies	<p>health care, vaccination and the ways to increase economic gain from pig rearing.</p> <p>3. Circle Officer to help conduct of joint meeting with the VLMCC, Health and Veterinary department on the health hazards from pig rearing and the safety tips for rearing the same.</p>
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3.3. Plan of action related to Flood Hazard

3.3.1	Problem to be addressed	:	Flood Hazard
	Probable Actions	:	<ul style="list-style-type: none"> • Preparedness measures by the community • Reporting and availing relief camps during flood • Ensuring cleanliness and hygiene of the flood affected homesteads
	Role of Community	:	<p>Preparedness :</p> <ol style="list-style-type: none"> 1. VLMCC to keep contact details of Emergency Services/ Locally available boats 2. VLMCC to form flood vigil committee with active youths 3. Community to keep bamboo and other materials ready to be used to make raised structure to keep household goods and pet animals and poultry undamaged by flood water 4. Community to raise plinth level of houses <p>During Flood:</p> <ol style="list-style-type: none"> 1. VLMCC to report flood occurrence & house damage to Lot Mandal and Circle Officer 2. Community to avail relief Camps during high flood 3. Community to maintain hygiene in the relief camps 4. VLMCC to contact Circle Officer asking for rescue operation through SDRF, NDRF, if necessary <p>After Flood:</p> <ol style="list-style-type: none"> a. VLMCC to report of house damage to Circle Officer b. Community to avail facilities from PHE for cleaning and keeping hygiene flood affected homesteads c. Community to avail health facilities/ medicines
	Role of the Government, Departments and agencies	:	<ol style="list-style-type: none"> a. PHE , Heath, Social Welfare, Veterinary department and Circle office to be prepared with local level planning reg. imparting their services with man and material, identification of Relief Camps before the flood b. Health Deptt. to provide health facility /medicines during and after flood

		<p>c. PHE to ensure cleanliness, hygiene and drinking water facility during and after flood.</p> <p>d. Veterinary Department to open vet camp during flood and provide fodder to cattle of the affected area during and after flood</p>
3.3.2	Problem to be addressed	: Lack of Designated Raised Platform
	Probable Actions	<p>: 1. The land parcels bearing Daag No. 42,43, and 44 whose total area is 10 bigha, in the southern part of Baronti Maniarai village to the south of Dhontola Rongamati village has been used as public cemetery by the villages. Now, the villagers have proposed that a part of the land can be used for construction of raised platform. This is the part of land that has been used by the villagers to keep the animals safely during flood.</p> <p>2. The villagers have a land area of 14 bigha as community land out of the total land area of 25 bigha in the land parcel bearing Daag no.41 in the Dhontola Rongamati village. This community land was initially used by the villagers for raising paddy, but this land is lying fallow since several years. Now they have proposed that this area of 14 bigha land can be used for construction of raised platform in the village.</p>
	Role of Community	: VLMCC to provide details for construction of raised platform
	Role of the Government, Departments and agencies	: DRDA
3.3.3	Problem to be addressed	: Poor communication with Emergency Services like 108
	Probable Actions	: Active services to be provided by 108 service
	Role of Community	: VLMCC to report of non-response from 108 service to Circle Officer
	Role of the Government, Departments and agencies	<p>: 1. Health department to ensure response from 108 services</p> <p>2. Circle Officer to direct 108 service to act promptly to the needs of the villagers</p>
3.3.4	Problem to be addressed	: Lack of awareness on flood preparedness
	Probable Actions	: Awareness on flood preparedness involving all section of people
	Role of Community	: VLMCC to conduct community meeting on flood preparedness
	Role of the Government, Departments and agencies	: DDMA to conduct flood preparedness programmes for Students, Teachers, Community

3.3.5	Problem to be addressed	:	Reluctance to avail Relief Camps during Flood time
	Probable Actions	:	Lot Mandal to make people aware of availing relief camps
	Role of Community	:	VLMCC to ensure availing of relief camps by the community
	Role of the Government, Departments and agencies	:	Circle office to maintain register of the people availing relief camps

3.4. Plan of action related to Storm Hazard

3.4.1	Problem to be addressed	:	Storm
	Probable Actions	:	1.To make people aware how to make themselves safe from the dangers of high tension wires 2. Regular maintenance of the high tension wires
	Role of Community	:	1.During a storm, villagers to avoid going to the areas where high tension wire passes through 2. VLMCC to report any kind of accidents, failure of high tension wires to Circle Officer 3.VLMCC to report any kind of house damage due to storm to the Circle Officer
	Role of the Government, Departments and agencies	:	1.Power department to ensure safety of villagers

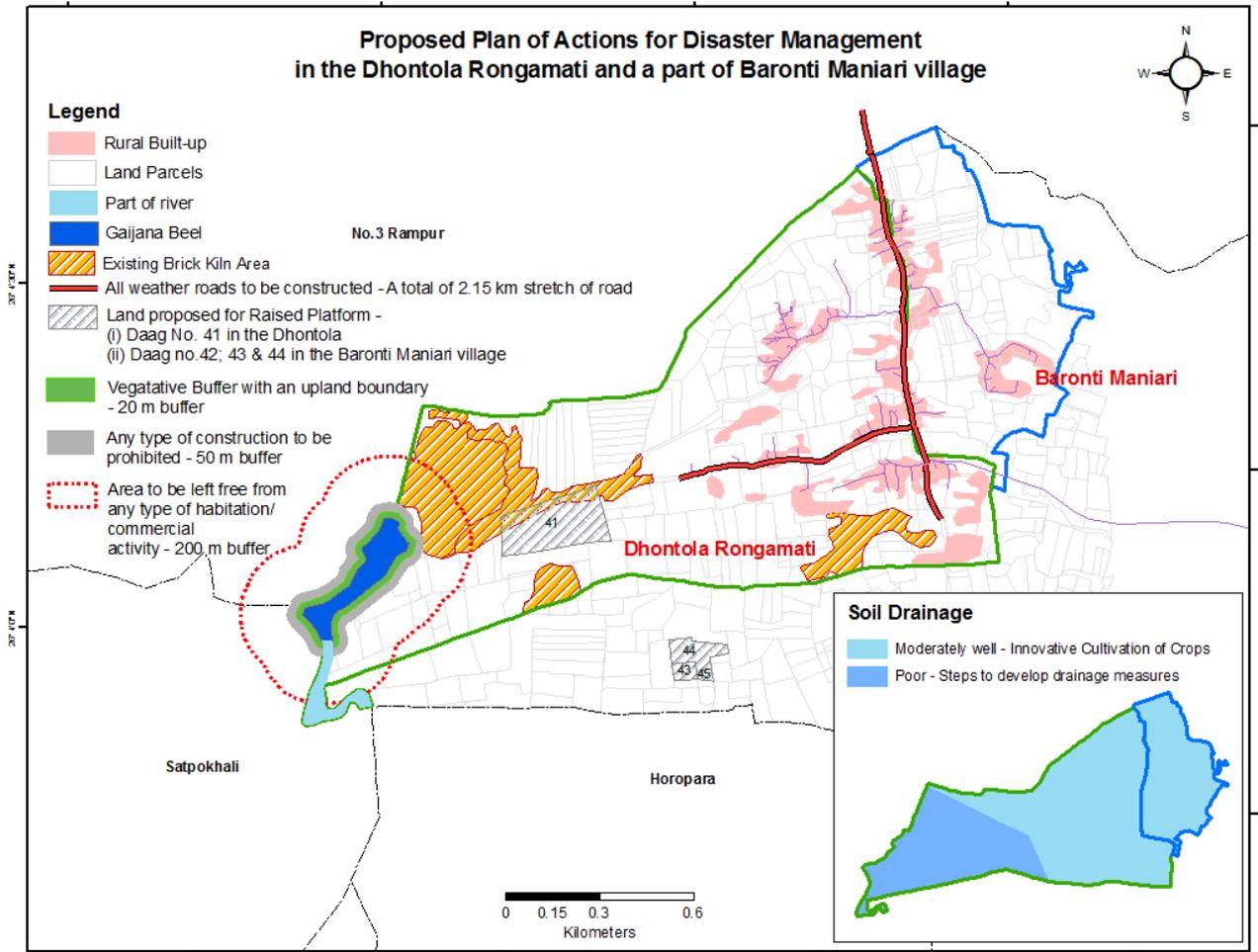


Fig-3.1. Map showing some of the actions proposed in the plan of action for addressing disaster management

ⁱ Suman Kumar Pariyar, Tapash Das, Tanima Ferdous, MAY 2013 Environment And Health Impact For Brick Kilns In Kathmandu Valley, published in the INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH VOLUME 2, ISSUE 5, ISSN 2277-8616, p.186