



FLOOD VULNERABILITY OF KARNATAKA, RIVER BASIN APPROACH

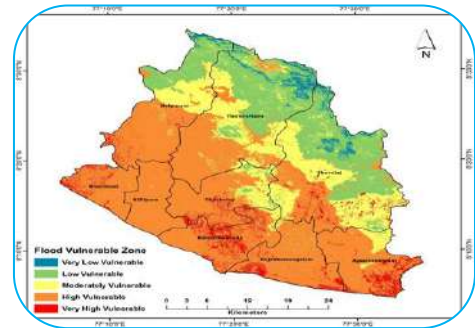
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ABSTRACT:

Flood impacts have gained immense importance and attention due to their adverse effects. More than half of global flood destruction and damages occur in the Asia region, which causes losses of life, damages infrastructure, and creates panic conditions among the communities. To provide a better understanding of flood hazard management, flood vulnerability assessment is the primary objective. In this case, vulnerability is the central construct in flood analysis and assessment. Many researchers have defined different approaches and methods to understand vulnerability assessment and how geographic information systems assess flood vulnerability and their associated risk. Geographic information systems track and predict the disaster trend and mitigate the risk and damages. This study systematically reviews the methodologies used to measure floods and their vulnerabilities by integrating geographic information systems.



Improving vulnerability measurement is a necessary initial stage towards studying its main causes and the formulation of more accurate descriptions that can better decrease loss of life, and possessions.

KEYWORDS: Flood Vulnerability, hazard management, geographic information system, vulnerability assessment.

1.1 INTRODUCTION:

The main aim of this paper is to evaluate the current knowledge of flood vulnerability in Karnataka state. Flooding is a natural event that causes widespread destruction, adversely affects daily life and raises vulnerability, including physical, social, economic, and environmental exposure. Flood has been identified as an upward condition of water levels in coastal areas, reservoirs, streams, and canals (Abah and Clement, 2013). About 350 million people in the world are affected by floods. It is also predicted that the flood destruction will be double by the end of 2050. It is one of society's most catastrophic environmental hazards and has drawn many researchers' interest to see it in the light of the growing effects of ecological alteration. The ever-increasing population and the combination of properties in built-up areas also increased flooding potential. In the future, the impact of flooding will increase as the population increases (Walker and Burningham, 2011).

1.2 FLOODS IN KARNATAKA

In past two decades Karnataka has been frequently confronted and faced extreme weather events with various disasters such as drought, flood, hailstorm, etc., causing enormous loss and damage

to life, property. Karnataka has experienced 8 years of flood situation including recent 4th consecutive years of floods of 2018, 2019, 2020 and 2021 in last decade. The rare severity floods carrying huge river flows were of rare severity.

The frequency range of flood in Karnataka is 2-8 years during 2005-2021. Floods are common in the districts of Coastal and Malnad region in the range 6-8 years followed by some taluks of north Karnataka in districts of Bidar, Yadgir, Kalaburagi and Raichur districts. North interior Karnataka districts more vulnerable flood compared to south interior districts, the flood frequency of Karnataka during 2005-2021 is shown in the **Map- 1**.

The rivers in Karnataka are not perennial in nature and they usually flow to their full capacity only when the catchment areas get good amount of rainfall during the SW Monsoon season. In the events of Excess rainfall during the season, an extreme volume of water is carried by rivers, creeks, and many other geographical features into areas where the water cannot be drained adequately therefore the flood occurs. The cause of flood mainly due formation low pressure with associated with upper air cyclonic circulation results very heavy to extremely heavy rainfall and also seasonal monsoon heavy rainfall in part of western Ghats and also associated with huge discharges released from the upper reservoirs of Maharashtra has compounded effects and damages and causing flood situation in Karnataka.

During 2005 State received moderate to heavy rainfall in the months of June and July. The spell of heavy rainfall in the State commenced from 23rd July, 2005 and lasted for about three weeks. These heavy rains filled up almost all reservoirs and caused unprecedented floods in the major rivers of the State.

All reservoirs in the State (KRS, Harangi, Kabini, Tungabhadra, Hemavathi, Almatti, Narayanpur, Hidkal, Bhadra) are overflowing and the excess water is being released into the rivers leading to flood in the villages downstream. A total of 1290 villages have been affected of which 184 villages are submerged, about 29.05 lakh population are affected and cause of 123 human death and loss of 11,596 cattles/livestock. Its estimated About 74,027 houses are damages and about 1.63 lakh ha. agriculture area affected by flood.

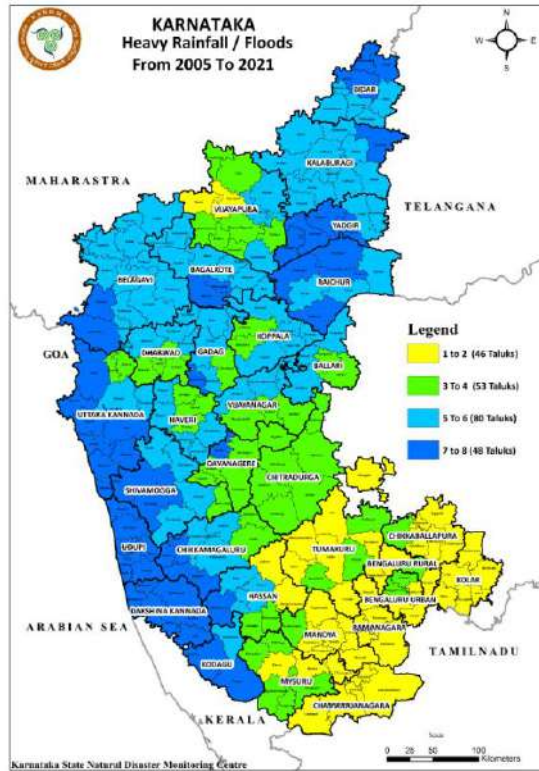
During 2006 the successive flood situation continued in the districts of Bagalakote, Belagavi, Vijayapura, Kalaburagi and Raichur and about 127 villages are flood affected in districts of Kalaburagi, Vijayapura, and Belagavi districts. About 21,017 people from 5,094 families have been evacuated. Road communication was cut off in approximately 21 villages.

Due to deep depression during 21st June 2007 create havoc flood situation in districts of Dakshina Kannada, Shimoga, Chickmagalur, Kodagu, Udupi, Hassan, Uttara Kannada, Raichur, Kodagu, Bagalkote, Mangalore, Mysore, & Koppal. 39 deaths were reported from districts of Belgaum, Madikeri, Bellary, Shimoga, Gulbarga, Karwar and Koppal. 831 houses were fully damaged.

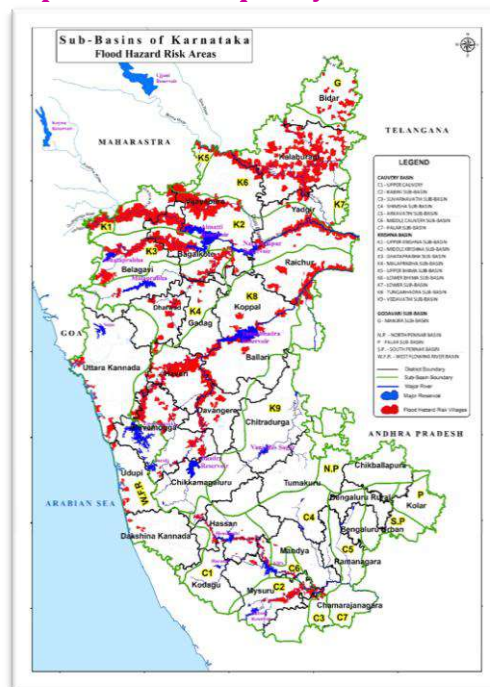
During 2009, the state received heavy rainfall of 377 mm in 24hrs which is highest in 100 years and 70% of the annual rainfall and departure ranges from 177 to 924% in five days in 15 districts of 84 taluks of north interior Karnataka which covers 63% of the state total area affected by heavy rainfall and severe flood and estimated loss of 19 thousand crores. Due to influence of well-marked low-pressure area over east central Arabian Sea and adjoining coastal areas of Karnataka during 2014 from 3rd week of August to till the end of August recorded high rainfall with 251% departure from normal which is highest in the last 43 years. During 2016 well marked low pressure area along with an associated upper air cyclonic circulation caused flood situation arises in north interior districts which comprises of black cotton soils which could not withstand the heavy downpour causes overland flows of rivers caused extreme damage for harvested crops to the farming community.

During 2018 the flood and rainfall induced Landslides occurred in Malnad (Kodagu, Chikmagaluru, Hassan, Shivamogga) and Coastal Districts (Dakshina Kannada, Udupi & Uttara Kannada) of Karnataka due to above the normal rainfall. After 2018 flood followed by 2019 flood incident due to heavy downpour of 224 mm (3rd to 10th August) and some of the district received more than 700% departure from normal especially in North interior, Malnad and coastal region the

situation further intensified by record discharge of water release caused extreme flooding and landslides in 103 taluks of 22 districts. Under the influence of cyclonic circulation, the state faced 3rd consecutive flood situation in part of north interior district, Malnad and coastal districts during 2nd fortnight of august, September and October 2020 as many 23 districts have been affected due to heavy rain, floods, and landslides.



Map -1 Flood Frequency of Karnataka



Map - 2 Flood risk areas of Karnataka

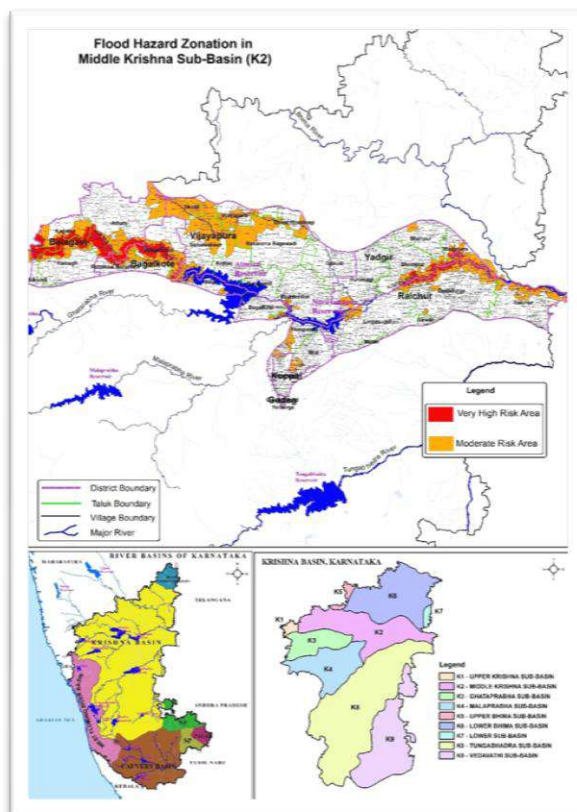
1.3 Flood hazard zonation Basin Approach

1.3.1 The Middle Krishna Sub-basin-K2:

The K2 Middle Krishna Sub Basin is a part of Krishna basin which comprises of 07 watersheds extending over an area of about 1438.60 Sq kms. The Middle Krishna Sub Basin is covered by Deccan Trap lava flows and laid in the districts of Belagavi, Vijayapura, Bagalakote, Koppala, Raichur and Yadgir districts of Karnataka. Groundwater and geohydrology is controlled by topography, geomorphology, and lithology. The basin is under rain shadow zone and having water scarcity. The annual rainfall in the basin varies between 488 mm to 544mm. Due to release of large amount of water from Koyna reservoir of Maharashtra and associated with heavy to very heavy rainfall cause flood situation in this basin. The Middle Krishna basin most vulnerable riverine flooding and its identified 274 villages are prone very high risk (90 villages) to moderate risk area (184 villages) prone to flood.

Middle Krishna Sub-basin-K2: Flood Prone Districts

Sl.No.	District Name	No. of Taluks	No. of Hoblis	No. of Gram Panchayats	No. of Villages		Total Villages
					Very High Risk	Moderate Risk	
1	Koppal	1	1	1	—	1	1
2	Raichur	3	8	23	49	11	60
3	Belagavi	4	7	48	51	14	65
4	Bagalkote	5	7	32	34	25	59
5	Vijayapura	7	9	32	19	33	52
6	Yadgir	4	7	14	31	5	36
Total		24	39	150	184	89	273



Map-3 Middle Krishna Sub-basin -K2

Table List of Flood Prone Villages in Middle Krishna Sub basin -K2

Middle Krishna Sub-Basin (K2)											
List of Flood Hazard Risk Villages											
Dist. Sl.No.	District Name	Taluk Sl.No.	Taluk Name	Hobli Sl.No.	Hobli Name	GP Sl.No.	Gram Panchayat Name	Sl.No.	Village Name	Flood Hazard Class	
1	2	3	4	5	6	7	8	9	10	11	
2	Koppal	1	Kushtagi	1	Hanamsagar	1	Antarathana	1	Kadoor	Moderate Risk Area	
							2	Antarathana	Moderate Risk Area		
						2	2	Karidigudda	3	Nilvanji	Very High Risk Area
							3	Karegudda	4	Anjal	Very High Risk Area
						5			Gopalpur	Very High Risk Area	
						6			Anchesugur	Very High Risk Area	
						7			Herur	Very High Risk Area	
						4	Gugal	8	Yatgal	Very High Risk Area	
								9	Wagadambli	Very High Risk Area	
						5	Dondambli	10	Huvinhadgi	Very High Risk Area	
								11	Joladhadi	Very High Risk Area	
								12	Dondambli	Very High Risk Area	
								13	Benkal	Very High Risk Area	
								14	Karkihalli	Very High Risk Area	
								15	Konchapli	Very High Risk Area	
	16	Mydargol	Very High Risk Area								
	17	Hunur	Very High Risk Area								
	6	Koppar	18	Kopper	Very High Risk Area						
			19	Kurkihalli	Very High Risk Area						
			20	Paratpur	Very High Risk Area						
			21	Baswantpur	Very High Risk Area						
	3	Gabbur	7	Hemnal	22	Appahal	Very High Risk Area				
				23	Madarkal	Very High Risk Area					
			8	Shavantagera	24	Hireraikumpi	Very High Risk Area				
					25	Chickraikumpi	Very High Risk Area				
					26	Itagi	Very High Risk Area				
			27	Gugal	Very High Risk Area						
			4	Jalihalli	10	Palkanmaradi	28	Devergud	Moderate Risk Area		
	29	Veergot				Moderate Risk Area					
	11	Chinchodi			30	Bunkaldoddi	Very High Risk Area				
					31	Chinchodi	Very High Risk Area				
					32	Lingadhalli	Very High Risk Area				
	12	Amarapur			33	Suladgud	Moderate Risk Area				
	14	Karidigudda			34	Chapalki	Very High Risk Area				
					35	Bagur	Very High Risk Area				
			36	Mudgot	Very High Risk Area						
			37	Herundi	Very High Risk Area						
			38	Buddinni	Very High Risk Area						
			39	Roudal Banda	Very High Risk Area						
	5	Lingasuguru	15	Rodalbanda U.K.P.	40	Jungi-Rampur	Very High Risk Area				
					41	Upperi (Small)	Very High Risk Area				
					42	Sunkal	Very High Risk Area				
					43	Halbhavi	Very High Risk Area				
	6	Gurgunta	17	Guntgol	44	Jaldurga	Very High Risk Area				
			18	Yapaldinni	45	Budidipad	Moderate Risk Area				
	7	Chandrabanda	19	Atkoor	46	Athkur	Very High Risk Area				
					47	Dongarapur	Moderate Risk Area				
					48	Korvakala	Moderate Risk Area				
					49	Korvakhurd	Moderate Risk Area				
					50	Agrahar	Moderate Risk Area				
					51	Wadloor	Moderate Risk Area				
					52	Ganjhalli	Very High Risk Area				
					53	Yedlapur	Very High Risk Area				
					54	Korvihali	Very High Risk Area				
					55	Korthkunda	Very High Risk Area				
					56	Deosugur	Very High Risk Area				
	8	Devarsugur	22	Devasugur	57	Shaktinagar (CT)	Moderate Risk Area				
					58	Kadlur	Very High Risk Area				
					59	Gurjapur	Very High Risk Area				
			23	Kadlur	60	Arshanagi	Very High Risk Area				
					61	Karekal	Very High Risk Area				
					62	Chicksugur	Moderate Risk Area				
9	Kalmali	24	Chikkasugur	62	Chicksugur	Moderate Risk Area					
Raichur	2	2	Devadurga	2	Devadurga	2	Devadurga	9	Wagadambli	Very High Risk Area	
								10	Huvinhadgi	Very High Risk Area	
								11	Joladhadi	Very High Risk Area	
								12	Dondambli	Very High Risk Area	
								13	Benkal	Very High Risk Area	
								14	Karkihalli	Very High Risk Area	
								15	Konchapli	Very High Risk Area	
								16	Mydargol	Very High Risk Area	
								17	Hunur	Very High Risk Area	
								18	Kopper	Very High Risk Area	
								19	Kurkihalli	Very High Risk Area	
								20	Paratpur	Very High Risk Area	
								21	Baswantpur	Very High Risk Area	
								22	Appahal	Very High Risk Area	
								23	Madarkal	Very High Risk Area	
24	Hireraikumpi	Very High Risk Area									
25	Chickraikumpi	Very High Risk Area									
26	Itagi	Very High Risk Area									
27	Gugal	Very High Risk Area									
28	Devergud	Moderate Risk Area									
29	Veergot	Moderate Risk Area									
30	Bunkaldoddi	Very High Risk Area									
31	Chinchodi	Very High Risk Area									
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34	Chapalki	Very High Risk Area									
35	Bagur	Very High Risk Area									
36	Mudgot	Very High Risk Area									
37	Herundi	Very High Risk Area									
38	Buddinni	Very High Risk Area									
39	Roudal Banda	Very High Risk Area									
40	Jungi-Rampur	Very High Risk Area									
41	Upperi (Small)	Very High Risk Area									
42	Sunkal	Very High Risk Area									
43	Halbhavi	Very High Risk Area									
44	Jaldurga	Very High Risk Area									
45	Budidipad	Moderate Risk Area									
46	Athkur	Very High Risk Area									
47	Dongarapur	Moderate Risk Area									
48	Korvakala	Moderate Risk Area									
49	Korvakhurd	Moderate Risk Area									
50	Agrahar	Moderate Risk Area									
51	Wadloor	Moderate Risk Area									
52	Ganjhalli	Very High Risk Area									
53	Yedlapur	Very High Risk Area									
54	Korvihali	Very High Risk Area									
55	Korthkunda	Very High Risk Area									
56	Deosugur	Very High Risk Area									
57	Shaktinagar (CT)	Moderate Risk Area									
58	Kadlur	Very High Risk Area									
59	Gurjapur	Very High Risk Area									
60	Arshanagi	Very High Risk Area									
61	Karekal	Very High Risk Area									
62	Chicksugur	Moderate Risk Area									

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1	2	3	4	5	6	7	8	9	10	11					
3	Belagavi	8	Kagwad	16	Kagwad	25	Mahishawadagi	63	Mahishwadgi	Very High Risk Area					
						26	Nandeshwar	64	Janawad	Very High Risk Area					
						27	Shegunashi	65	Nandeshwar	Very High Risk Area					
						28	Satti	66	Shegunshi	Very High Risk Area					
						29	Naganur -Pk	30	Shankarhatti	31	Savadi	67	Satti	Very High Risk Area	
												68	Dodwad	Very High Risk Area	
												69	Naganur P.K.	Very High Risk Area	
												70	Avarkhod	Very High Risk Area	
												71	Khavatkoppa	Very High Risk Area	
												72	Savadi	Very High Risk Area	
												73	Chikkud	Moderate Risk Area	
												74	Saptasagar	Very High Risk Area	
												75	Teerth	Very High Risk Area	
												76	Darur	Very High Risk Area	
						77	Radderahatti	Moderate Risk Area							
						78	Nadi-Ingalgaon	Very High Risk Area							
						79	Halyal	Moderate Risk Area							
						80	Hulagabali	Very High Risk Area							
						10	Athani	11	Telsang	12	Chikkodi	81	Shinal	Very High Risk Area	
												82	Tangadi	Very High Risk Area	
												83	Junjarwad	Very High Risk Area	
												84	Shirahatti	Very High Risk Area	
												85	Nandagaon	Moderate Risk Area	
												86	Telsang	Moderate Risk Area	
												87	Bannur	Moderate Risk Area	
												88	Kakamari	Moderate Risk Area	
												89	Kottalgi	Moderate Risk Area	
												90	Ankali	Very High Risk Area	
						5	Athani	11	Telsang	12	Chikkodi	91	Manjari	Very High Risk Area	
												92	Yadur	Very High Risk Area	
												93	Hosa Yedur	Very High Risk Area	
												94	Yadurwadi	Very High Risk Area	
												95	Manjariwadi	Very High Risk Area	
												96	Ingali	Very High Risk Area	
												97	Chandur	Very High Risk Area	
												98	Chandur - Tek	Very High Risk Area	
												99	Kallol	Very High Risk Area	
												100	Nasalapur	Very High Risk Area	
						6	Chikkodi	13	Sadalg	14	Raibagh	101	Diggewadi (Old)	Very High Risk Area	
												102	Soundatti	Very High Risk Area	
												103	Jalalpur	Very High Risk Area	
												104	Chinchali	Moderate Risk Area	
												105	Bhiradi	Very High Risk Area	
												106	Khemalapur	Very High Risk Area	
												107	Paramanandwadi	Very High Risk Area	
												108	Siddapur	Very High Risk Area	
												109	Kudachi (Rural)	Very High Risk Area	
												110	Kudchi (TP)	Moderate Risk Area	
						7	Raibagh	15	Kudchi	16	Kagwad	111	Shiragur	Very High Risk Area	
												112	Gundwad	Very High Risk Area	
												113	Molwad	Very High Risk Area	
												114	Kusnal	Very High Risk Area	
												115	Shahapur	Very High Risk Area	
												116	Shiraguppi	Moderate Risk Area	
												117	Krishna Kittur	Very High Risk Area	
												118	Ugar Budruk	Very High Risk Area	
												119	Ugar Khurd	Very High Risk Area	
												120	Jugul	Very High Risk Area	
						3	Belagavi	8	Kagwad	16	Kagwad	121	Mangavati	Very High Risk Area	
												122	Banajawad	Very High Risk Area	
												123	Shedbal	Moderate Risk Area	
												124	Ainapur	Very High Risk Area	
												125	Katral	Very High Risk Area	
												126	Kagawad	Moderate Risk Area	
												127	Mole	Moderate Risk Area	

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1	2	3	4	5	6	7	8	9	10	11						
4	Bagalkote	9	Bilgi	17	Bilgi	73	Badagi	128	Gulbal	Moderate Risk Area						
								129	Budihal(S.G.)	Moderate Risk Area						
								130	Budihal(S.G.)	Moderate Risk Area						
								131	Badgi	Moderate Risk Area						
								132	Ballur	Moderate Risk Area						
								133	Galagali	Very High Risk Area						
						76	Inam-Hanchinal	134	Hanchinal(Inam)	Moderate Risk Area						
								135	Gudadinni	Moderate Risk Area						
								136	Girgaon	Very High Risk Area						
								137	Rabkavi	Very High Risk Area						
								138	Chowdapur	Very High Risk Area						
								139	Chickhanchinal	Very High Risk Area						
						17	Anagvadi	77	Kolur	140	Kolur	Very High Risk Area				
								78	Girisagar	141	Mundaganur	Very High Risk Area				
						10	Hungund	19	Hungund	18	Hungund	79	Girisagar	142	Girisagar	Moderate Risk Area
												80	Nagur	143	Nagur	Moderate Risk Area
												81	Hungund (Rural)	144	Hungund (Rural)	Moderate Risk Area
												82	Hungund (TP)	145	Hungund (TP)	Moderate Risk Area
		83	Kudalasangam	146	Hungund (TP)							Moderate Risk Area				
		84	Sangam	147	Sangam							Very High Risk Area				
		85	Valakaladinni	148	Valakaladinni							Very High Risk Area				
		86	Bisaladinni	149	Bisaladinni							Very High Risk Area				
		87	Jamkhandi (Rural)	150	Jamkhandi (Rural)							Moderate Risk Area				
		88	Jamkhandi (CMC)	151	Jamkhandi (CMC)							Moderate Risk Area				
		11	Jamakhandi	21	Savalagi	20	Jamakhandi	89	Chingundi	152	Chingundi	Moderate Risk Area				
								90	Jakanur	153	Jakanur	Moderate Risk Area				
								91	Kunchanur	154	Kunchanur	Very High Risk Area				
								92	Kumbarhal	155	Kumbarhal	Moderate Risk Area				
								93	Jamkhandi (Rural)	156	Jamkhandi (Rural)	Very High Risk Area				
								94	Sanal	157	Sanal	Moderate Risk Area				
								95	Alagur	158	Alagur	Very High Risk Area				
								96	Kankanawadi	159	Kankanawadi	Very High Risk Area				
								97	Kadacol	160	Kadacol	Very High Risk Area				
								98	Shiraguppi	161	Shiraguppi	Very High Risk Area				
								99	Maigur	162	Maigur	Very High Risk Area				
								100	Muttur	163	Muttur	Very High Risk Area				
		12	Ilkal	22	Ilkal	23	Ilkal	101	Bidari	164	Bidari	Very High Risk Area				
								102	Janawad	165	Janawad	Very High Risk Area				
								103	Kavatagi	166	Kavatagi	Very High Risk Area				
								104	Chikkpadasalagi	167	Chikkpadasalagi	Very High Risk Area				
								105	Naganur	168	Naganur	Moderate Risk Area				
								106	Hirepadasalagi	169	Hirepadasalagi	Very High Risk Area				
107	Jambagi.(B.K.)							170	Jambagi.(B.K.)	Very High Risk Area						
108	Takkalaki							171	Takkalaki	Very High Risk Area						
109	Jambagi-B.K							172	Takkod	Very High Risk Area						
110	Shurpali							173	Shurpali	Very High Risk Area						
13	Rabakavi Banahatti	23	Terdal	23	Terdal	111	Jambagi.(K.D.)	174	Jambagi.(K.D.)	Moderate Risk Area						
						112	Tubachi	175	Tubachi	Very High Risk Area						
						113	Ishwarnagar	176	Ishwarnagar	Moderate Risk Area						
						114	Hireupnal	177	Hireupnal	Moderate Risk Area						
						115	Balakundi	178	Balakundi	Moderate Risk Area						
						116	Hire Kodagali	179	Hire Kodagali	Moderate Risk Area						
13	Rabakavi Banahatti	23	Terdal	23	Terdal	117	Hanamanal	180	Hanamanal	Moderate Risk Area						
						118	Ilkal (CMC)	181	Ilkal (CMC)	Moderate Risk Area						
						119	Madanamatti	182	Madanamatti	Very High Risk Area						
						120	Asangi	183	Asangi	Very High Risk Area						
						121	Halingali	184	Halingali	Very High Risk Area						
						122	Kulahalli	185	Kulahalli	Very High Risk Area						
13	Rabakavi Banahatti	23	Terdal	23	Terdal	123	Tamadaddi	186	Tamadaddi	Very High Risk Area						
						124	Hipparagi	187	Hipparagi	Very High Risk Area						

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1	2	3	4	5	6	7	8	9	10	11				
5	Vijayapura	14	Basavana Bagewadi	24	Managuli	105	Managuli	187	Managuli	Very High Risk Area				
						106	Ukkali	188	Ukkali	Moderate Risk Area				
						107	Markabbinalli	189	Bisanal	Moderate Risk Area				
								190	Bommanahalli	Moderate Risk Area				
						108	Donur	191	Donur	Moderate Risk Area				
								192	Mullal	Moderate Risk Area				
								193	Neginal	Moderate Risk Area				
						194	Yambatnal	Moderate Risk Area						
						15	Vijayapura	25	Vijayapura	109	Jumanal	195	Jumnal	Moderate Risk Area
										110	Hitnalli	196	Hittinahalli	Very High Risk Area
										111	Sarwad	197	Khatijapur	Moderate Risk Area
										112	Bijapur (Rural)	198	Bijapur (Rural)	Very High Risk Area
												199	Bijapur (Rural)	Moderate Risk Area
										113	Hegadihal	200	Ukumanal	Moderate Risk Area
		16	Muddebihal	26	Muddebihal	114	Kumatagi	201	Kumatagi	Moderate Risk Area				
						115	Kolur	202	Devoor	Moderate Risk Area				
						203	Handargall	Moderate Risk Area						
		204	Kandaganur	Moderate Risk Area										
		17	Babaleshwar	28	Mamdapur	117	Khakandaki	205	Kakhandaki	Very High Risk Area				
						118	Karjol	206	Tonsyal	Very High Risk Area				
						119	Babaleswar	207	Babaleshwar	Very High Risk Area				
								208	Adavisangapur	Very High Risk Area				
						120	Honaganahalli	209	Honaganahalli	Very High Risk Area				
						121	Sarwad	210	Dadamatti	Very High Risk Area				
								211	Sarwad	Very High Risk Area				
						122	Nidoni	212	Nidoni	Very High Risk Area				
						27	Babaleshwar	123	Tajpur.H	213	Kanamuchanal	Moderate Risk Area		
								214	Dhanyal	Very High Risk Area				
								215	Jambagi(H)	Very High Risk Area				
								216	Chikka-Galagali	Very High Risk Area				
								217	Hosur	Very High Risk Area				
								218	Kanabur	Very High Risk Area				
		219	Jainapur	Moderate Risk Area										
		126	Gunadal	220	Babalad	Moderate Risk Area								
				221	Shirabur	Very High Risk Area								
				222	Sutagundi	Moderate Risk Area								
				223	Lingadalli	Moderate Risk Area								
				224	Devara-Gennur	Moderate Risk Area								
18	Tikota	29	Tikota	127	D.Gennur	225	Atalatti	Very High Risk Area						
				128	Toravi	226	Toravi (Part)	Moderate Risk Area						
				129	Kotyal	227	Kotyal	Moderate Risk Area						
				130	Tajpur.H	228	Harnal	Moderate Risk Area						
						229	Ratnapura	Moderate Risk Area						
						230	Malakandevarahatti	Moderate Risk Area						
				131	Honawad	231	Honawad	Moderate Risk Area						
				132	Tikota	232	Rampur	Moderate Risk Area						
						233	Tikota	Moderate Risk Area						
				19	Kolhar	30	Kolhar	133	Mulawad	234	Mulawad	Very High Risk Area		
134	Jalawad	235	Jalwad					Moderate Risk Area						
20	Devar Hipparagi	32	Huvinhiprgi	135	Yalawar	236	Yalwar	Moderate Risk Area						
				136	Satihah	237	Nagaraldon	Moderate Risk Area						
				238	Satihah	Moderate Risk Area								

Middle Krishna Sub-Basin (K2)														
List of Flood Hazard Risk Villages														
Dist. Sl.No.	District Name	Taluk Sl.No.	Taluk Name	Hobli Sl.No.	Hobli Name	GP Sl.No.	Gram Panchayat Name	Sl.No.	Village Name	Flood Hazard Class				
1	2	3	4	5	6	7	8	9	10	11				
6	Yadgir	21	Shahpur	33	Gogi	137	Gogi (K)	239	Gogikona	Moderate Risk Area				
								240	Markal	Very High Risk Area				
								241	Tonnur	Very High Risk Area				
								242	Chandral	Very High Risk Area				
								243	Goudoor	Very High Risk Area				
								244	Kollur	Very High Risk Area				
				22	Shorapur	34	Hayyalbuzurg	35	Shorapur	138	Kollur (M)	245	Mushtalli	Very High Risk Area
												246	Kagarhal	Very High Risk Area
												247	Shalgi	Very High Risk Area
												248	Aralhalli	Very High Risk Area
												249	Kampapur	Very High Risk Area
												139	Devapur	250
		251	Bevinhal											Very High Risk Area
		252	Hemwadgi											Very High Risk Area
		253	Sugur											Very High Risk Area
		140	Sugoor									254	Adwadgi	Very High Risk Area
				255	Choudeshwarhal	Very High Risk Area								
				256	Karnal	Moderate Risk Area								
				257	Hemnoor	Very High Risk Area								
		36	Kakkeri	141	Hemanoor	142	Tinthni	258	Tinthni	259	Kodal	Very High Risk Area		
										260	Kadrapur	Very High Risk Area		
		23	Wadagera	37	Wadagera	143	Bendebembli	144	Tumakura	261	Habshihal	Moderate Risk Area		
										262	Itga Simt Wadgera	Very High Risk Area		
										263	Tumkur	Very High Risk Area		
										264	Channur Jagir	Very High Risk Area		
										265	Konkal	Very High Risk Area		
										266	Gondenoor	Very High Risk Area		
267	Ekchinti									Very High Risk Area				
268	Hayyal (B)									Very High Risk Area				
269	Aneksugur									Very High Risk Area				
270	Alkur									Very High Risk Area				
38	Hayyala Buzurg	146	Haiyal (B)	147	Konkal	271	Jangangaddi	272	Kotigud	Moderate Risk Area				
								273	Rayangola	Very High Risk Area				
								274	Jogandabhavi	Moderate Risk Area				
24	Hunasagi	39	Kodekal	150	Jogundbhavi	274	Jogandabhavi	Moderate Risk Area						

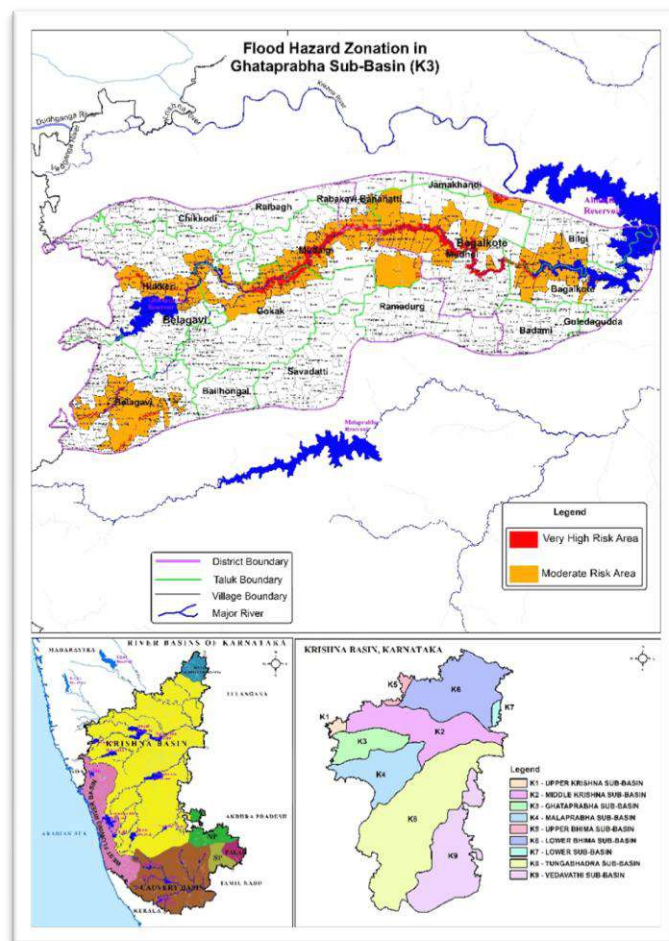
1.3.2 Ghataprabha Sub-basin-K3:

The Ghataprabha River originates in the Western Ghats at an altitude of 884 meters and flows eastward for a distance of 283 kilometers before its confluence with the Krishna River at Almatti. The catchment area of Ghataprabha lies between latitude 15° 45' and 16° 25' N and longitude 74° 00' and 75° 55' E. The Ghataprabha River flows eastwards for a distance of 283 km before joining Krishna at Kudalasangama, about 35 km north-east of Kaladgi at an elevation of 500 m. The river flows for about 60 km in the Ratnagiri and Kolhapur Districts of Maharashtra before entering the Belgaum District of Karnataka. In Karnataka, it flows through Belgavi and Bagalakote districts and joins the Krishna about 16 km from Almatti. The catchment area of Ghatprabha including its tributaries is 8,829km². The Ghatprabha sub basin is also high variable in rainfall ranging from 6500mm in upper catchment and 500 mm in lower catchment. There are 12 watershed and major project in sub basin. The basin experienced flash floods in last decades and also heavy release of water from the upper basin of Krishna basin cause flood situation all along the adjacent regions and villages of Belagavi and Bagalakote district. In Belagavi district the taluks of Belagavi, Gokak, Hukkeri, Mudalagi, and in Bagalakote district taluks of Bagalakote, Bilagi, Jamakandi, Mudhol, Rabakavibanahatti taluks are prone to flood conditions and also the storage of huge flood water and backwater of Alamatti reservoirs inundates a large portion

of villages and create flood situation. The flood hazard zonation of high risk area to moderate risk area are depicted in **Map-4**. There are 45 villages are prone high risk and 117 villages are prone moderate risk, flood prone villages.

Ghataprabha Sub-basin-K3: Flood Prone Districts

Sl.No.	District Name	No. of Taluks	No. of Hoblis	No. of Gram Panchayats	No. of Villages		Total Villages
					Very High Risk	Moderate Risk	
1	Belagavi	4	11	56	20	72	92
2	Bagalkote	5	7	36	25	45	70
Total		9	18	92	45	117	162



Map-4 Ghataprabha Sub-basin -K3

Table- List of Flood Prone Villages in Ghatpraba Sub basin -K3

Ghataprabha Sub-Basin (K3)												
List of Flood Hazard Risk Villages												
Dist. Sl.No.	District Name	Taluk Sl.No.	Taluk Name	Hobli Sl.No.	Hobli Name	GP Sl.No.	Gram Panchayat Name	Sl.No.	Village Name	Flood Hazard Class		
1	2	3	4	5	6	7	8	9	10	11		
1	Belagavi	1	Belagavi	1	Belagavi	1	Peeranwadi	1	Peeranwadi (CT)	Moderate Risk Area		
						2	Belgaum (M Corp. + OG)	2	Belgaum (M Corp. + OG)	Moderate Risk Area		
				2	Hirebagevadi	3	Mutaga	3	Mutaga (CT)	Moderate Risk Area		
						4	Nilaji	4	Nilaji	Moderate Risk Area		
						5	Balekundari Kh	5	Balekundri (K.H)	Moderate Risk Area		
						6	Sulebhavi	6	Sulebhavi (CT)	Moderate Risk Area		
						7	Sulebhavi	7	Khanagaon (B.K)	Moderate Risk Area		
						8	Sulebhavi	8	Chandur	Moderate Risk Area		
				3	Kakti	7	Mucchandi	9	Muchandi	Moderate Risk Area		
						8	Kalakhamba	10	Kalakhamb	Moderate Risk Area		
						9	Ashte	11	Aste	Moderate Risk Area		
						10	Kangrali Kh	12	Chandgad	Moderate Risk Area		
						11	Kangrali Bk	13	Alatage	Moderate Risk Area		
						12	Kangrali Bk	14	Goundawad (Part)	Moderate Risk Area		
						13	Kadoli	15	Jafarwadi	Moderate Risk Area		
						14	Kakti	16	Kadoli	Moderate Risk Area		
				4	Uchagaon	15	Honaga	17	Devagiri	Moderate Risk Area		
						16	Honaga	18	Kakati (CT)	Moderate Risk Area		
						17	Honaga	19	Honaga	Moderate Risk Area		
						18	Sulaga (U)	20	Kallehol	Moderate Risk Area		
		19	Turmuri			21	Sulge (Uchagaon)	Moderate Risk Area				
		20	Turmuri			22	Bachi	Moderate Risk Area				
		21	Kangrali Kh			23	Turamari	Moderate Risk Area				
		22	Uchagaon			24	Kangrali (KH) (CT)	Moderate Risk Area				
		2	Gokak	5	Gokak	23	Ambewadi	25	Uchagaon	26	Mannur	Moderate Risk Area
						24	Ambewadi	27	Ambewadi	Moderate Risk Area		
						25	Kangrali Bk	28	Kangrali (BK) (CT)	Moderate Risk Area		
				6	Kowjalgi	29	Kolavi	29	Gokak (Rural)	Moderate Risk Area		
						30	Melavanki	30	Gokak (CMC)	Very High Risk Area		
						31	Melavanki	31	Adibatti	Very High Risk Area		
						32	Melavanki	32	Melavanki	Very High Risk Area		
						33	Melavanki	33	Chigadolli	Very High Risk Area		
						34	Melavanki	34	Kalarkoppa	Very High Risk Area		
				7	Arbhavi	35	Udagatti	35	Hadiginal	Very High Risk Area		
						36	Udagatti	36	Udagatti	Very High Risk Area		
						37	Talakatnal	37	Talakatnal	Very High Risk Area		
		38	Talakatnal			38	Molmanatti	Moderate Risk Area				
		39	Lolasur			39	Shingalapur	Moderate Risk Area				
		40	Lolasur			40	Lolasur	Moderate Risk Area				
		3	Hukkeri	8	Hukkeri	41	Nallanatti	41	Basaligundi	41	Basaligundi	Moderate Risk Area
						42	Nallanatti	42	Shivapur	Moderate Risk Area		
						43	Nallanatti	43	Nallanatti	Moderate Risk Area		
						44	Dhupadal	44	Dhupadal	Moderate Risk Area		
						45	Dhupadal	45	Mutnal	Moderate Risk Area		
46	Nandagaon					46	Nandagaon	Moderate Risk Area				
47	Nandagaon					47	Khanapur	Moderate Risk Area				
48	Nandagaon					48	Balobal	Very High Risk Area				
9	Sankeswar			49	Balobal	49	Beerangaddi	Moderate Risk Area				
				50	Hospet	50	Shindhatti	Moderate Risk Area				
				51	Hospet	51	Hospet	Moderate Risk Area				
				52	Mavanur	52	Ankalgudikettra	Moderate Risk Area				
				53	Godageri	53	Nadigudikettra	Moderate Risk Area				
				54	Hosur	54	Yamal	Moderate Risk Area				
				55	Hosur	55	Ingali	Moderate Risk Area				
				56	Hosur	56	Hosur	Moderate Risk Area				
57	Badakundri	57	Yargatti	Moderate Risk Area								
58	Badakundri	58	Badkundri	Moderate Risk Area								
59	Badakundri	59	Goudawad	Moderate Risk Area								
60	Bastawad	60	Bastawad	Moderate Risk Area								
61	Bastawad	61	Bastawad	Moderate Risk Area								
62	Beniwad	61	Madamakkanal	Moderate Risk Area								
63	Beniwad	62	Beniwad	Moderate Risk Area								
64	Beniwad	63	Noginhal	Moderate Risk Area								
65	Sultanapur	64	Sultanpur	Moderate Risk Area								
66	Sultanapur	65	Awargol	Moderate Risk Area								
67	Kotabagi	66	Kotabagi	Moderate Risk Area								
68	Shiradaana	67	Zangatihah	Moderate Risk Area								
69	Gudas	68	Gudas	Moderate Risk Area								
70	Hanchinal	69	Chikalgud	Moderate Risk Area								
71	Kurani	70	Kurni	Moderate Risk Area								
72	Kochari	71	Arjunwad	Moderate Risk Area								
73	Kochari	72	Kochari	Moderate Risk Area								
74	Hebbal	73	Hebbal	Moderate Risk Area								

Ghataprabha Sub-Basin (K3)																
List of Flood Hazard Risk Villages																
Dist. SI.No.	District Name	Taluk SI.No.	Taluk Name	Hobli SI.No.	Hobli Name	GP SI.No.	Gram Panchayat Name	SI.No.	Village Name	Flood Hazard Class						
1	2	3	4	5	6	7	8	9	10	11						
2	Bagalkote	4	Mudalgi	10	Arbhavi	45	Hunashyal.P.G	74	Hunshyal (P.G.)	Very High Risk Area						
						46	Waderahatti	75	Waderatti	Moderate Risk Area						
						47	Masaguppi	76	Fulagaddi	Very High Risk Area						
						48	Patagundi	77	Masaguppi	Very High Risk Area						
								78	Patagundi	Moderate Risk Area						
								79	Kamaladinni	Very High Risk Area						
				5	Bagalkote	5	Bagalkote	12	Kaladgi	49	Munyal	80	Rangapur	Moderate Risk Area		
												81	Munyal	Very High Risk Area		
												82	Yadwad	Moderate Risk Area		
												83	Tigadi	Very High Risk Area		
												84	Kamanakatti	Moderate Risk Area		
												85	Sunadhohli	Very High Risk Area		
		6	Bagalkote					6	Bilgi	13	Bilgi	50	Yadwad	86	Bairanatti	Moderate Risk Area
														87	Hunshyal (P.Y.)	Very High Risk Area
														88	Bisanakoppa	Moderate Risk Area
														89	Hale Yaragudri	Moderate Risk Area
														90	Avaradi	Very High Risk Area
														91	Dhavaleshwar	Very High Risk Area
				7	Bagalkote	7	Jamakhandi			14	Anagvadi	52	Kaladagi	92	Aralimatti	Very High Risk Area
														93	Gaddankeri	Moderate Risk Area
														94	Kaladgi	Very High Risk Area
														95	Chikkashelikeri	Moderate Risk Area
														96	Murana	Moderate Risk Area
														97	Kesanur *	Moderate Risk Area
		8	Bagalkote					8	Mudhol	15	Jamakhandi	57	Gaddanakeri	98	Yadahalli	Moderate Risk Area
														99	Chebbi	Moderate Risk Area
														100	Ankalagi	Moderate Risk Area
														101	Sharadal	Very High Risk Area
												102	Udagatti	Moderate Risk Area		
												103	Devanal	Moderate Risk Area		
9	Rabakavi Banahatti			9	Rabakavi Banahatti	16	Mudhol			58	Kaladagi	104	Sokanadgi	Moderate Risk Area		
												105	Chikk-Sansi	Moderate Risk Area		
												106	Hire-Sansi	Moderate Risk Area		
												107	Yadahalli	Very High Risk Area		
												108	Amalzari	Moderate Risk Area		
												109	Lingapur(S.K)	Moderate Risk Area		
		9	Rabakavi Banahatti			9	Rabakavi Banahatti	17	Lokapur	59	Chikkashelikeri	110	Kataraki	Very High Risk Area		
												111	Shiraguppi	Moderate Risk Area		
												112	Kundargi	Moderate Risk Area		
												113	Venkatapura	Moderate Risk Area		
												114	Anagawadi	Moderate Risk Area		
												115	Budhihal(S.H)	Moderate Risk Area		
9	Rabakavi Banahatti			9	Rabakavi Banahatti			18	Mudhol	60	Murana	116	Bavalatti	Moderate Risk Area		
												117	Kovalli	Moderate Risk Area		
												118	Koppa(S.K)	Moderate Risk Area		
												119	Algundi	Moderate Risk Area		
												120	Gani	Moderate Risk Area		
												121	Rugi	Very High Risk Area		
		9	Rabakavi Banahatti			9	Rabakavi Banahatti	18	Mudhol	61	Yadahalli	122	Uttur	Moderate Risk Area		
												123	Jaliber	Very High Risk Area		
												124	Ranjanagi	Very High Risk Area		
												125	Mallapur(P.J)	Moderate Risk Area		
												126	Mirji	Moderate Risk Area		
												127	Vantigodi	Very High Risk Area		
9	Rabakavi Banahatti			9	Rabakavi Banahatti			18	Mudhol	62	Khajjidoni	128	Channal	Moderate Risk Area		
												129	Mudhol (TMC)	Moderate Risk Area		
												130	Akkimaradi	Very High Risk Area		
												131	Nagaral	Very High Risk Area		
												132	Malali	Very High Risk Area		
												133	Mudhol(Rural)	Moderate Risk Area		
		9	Rabakavi Banahatti			9	Rabakavi Banahatti	18	Mudhol	63	Devanal	134	Belagali	Moderate Risk Area		
												135	Bhantnur	Moderate Risk Area		
												136	Hebbal	Very High Risk Area		
												137	Chitrabankoti	Moderate Risk Area		
												138	Timmapur	Moderate Risk Area		
												139	Petlur	Moderate Risk Area		
9	Rabakavi Banahatti			9	Rabakavi Banahatti			18	Mudhol	64	Chikkashelikeri	140	Chikkur	Moderate Risk Area		
												141	Badnur	Moderate Risk Area		
												142	Junnur	Very High Risk Area		
												143	Muddapur	Moderate Risk Area		
												144	Kasba Jambgi(B.K)	Very High Risk Area		
												145	Budni Khurd	Very High Risk Area		
		9	Rabakavi Banahatti			9	Rabakavi Banahatti	18	Mudhol	65	Yadahalli	146	Antapur	Moderate Risk Area		
												147	Baragi	Very High Risk Area		
												148	Bidri	Moderate Risk Area		
												149	Machaknur	Moderate Risk Area		
												150	Budni (B.K.)	Very High Risk Area		
												151	Alagundi(B.K)	Very High Risk Area		
9	Rabakavi Banahatti			9	Rabakavi Banahatti			18	Mudhol	66	Kataraki	152	1501006017002	Moderate Risk Area		
												153	Chinchakhandi(K.D)	Very High Risk Area		
												154	Jambgi(K.D)	Very High Risk Area		
												155	Gulgal Jambagi	Very High Risk Area		
												156	Ingalagi	Very High Risk Area		
												157	Yadahalli	Moderate Risk Area		
		9	Rabakavi Banahatti			9	Rabakavi Banahatti	18	Mudhol	67	Kundaragi	158	Vajjaramatti	Moderate Risk Area		
												159	Marapur	Very High Risk Area		
												160	Nandagaon	Very High Risk Area		
												161	Dhavaleshwar	Very High Risk Area		
												162	Mahalingpur (TMC)	Moderate Risk Area		
												162	Mahalingpur (TMC)	Moderate Risk Area		

1.3.3 Malaprabha Sub-basin -K4:

Malaprabha sub basin is a right bank tributary of Krishna River. The Malaprabha catchment lies between North latitudes 15° 00' and 16° 12' and east longitudes 74° 14' and 76° 05'. The Malaprabha River originates from the Chorla Ghats, a section of the Western Ghats, at an elevation of about 792m about 35m south-west of Belgaum District of Karnataka. The river flows east and north-west and joins Krishna at Kapila Sangam in the Bijapur District at an elevation of about 488 m. Malaprabha traverses a length of 306 km before meeting the Krishna River.

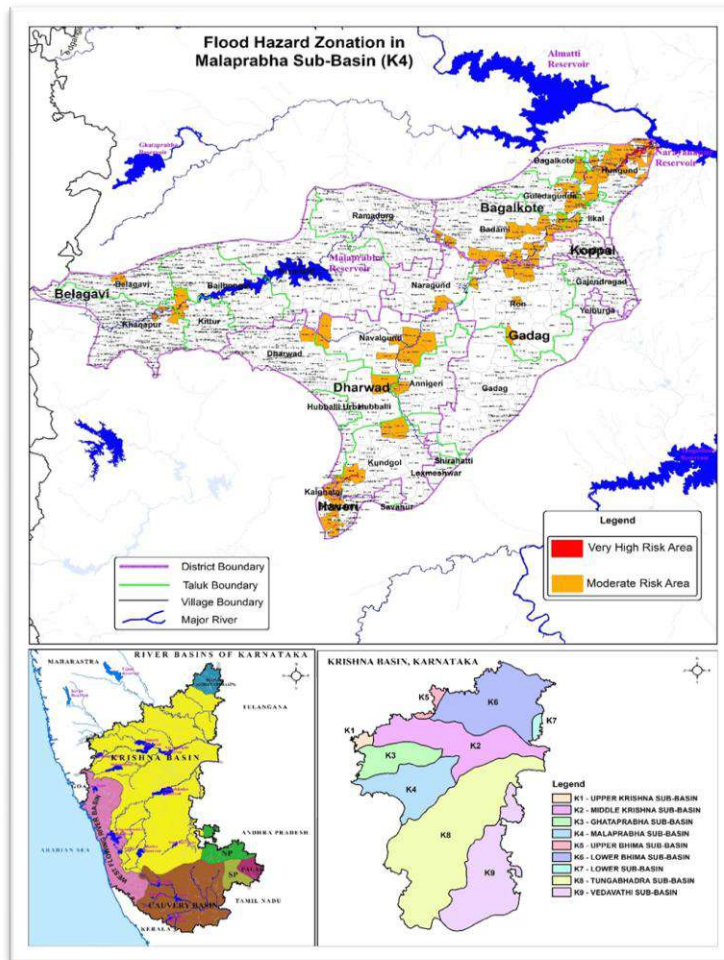
The Bennihalla and the Hirehalla are the principal tributaries of the river Malaprabha. The total catchment area of the Malaprabha including its tributaries is 11,549 sq. km, which lies wholly in the State of Karnataka. It flows for a distance of 304 km and joins the Krishna river at an altitude of 488 meters near Kudal Sangama in Bagalkot district in Karnataka. It also flows through Dharwar District. Hubli city gets the drinking water from this reservoir. The Naviluteertha Dam is constructed near Munavalli in Belgaum District with a storage capacity of 1.07 km³. It irrigates more than 2,000 square kilometres of land. This reservoir is called Renukasagar.

The flood situation is commonly noticed in main tributaries of Bennihalla and Hirehalla during the southwest monsoon season due to heavy to very heavy rainfall associated with release of water from the upper basins of Krishna basin and also the storage of Alamatti reservoir and Narayanapura reservoir at full capacity create back water inannaduation of villages all along the basin of Malaprabha.

From the flood hazard zonation map its depicted that the Malaprabha sub basin lies districts Bagalakote, Dharwad, Gadag, Haveri and Belagavi districts. Bagalakote district is most vulnerable district compare to other districts. In Malaprabha sub basin its identified that 8 villages are high risk and about 114 villages are under moderate risk its shown in the **Map-5** .

Malaprabha Sub-basin -K4: Flood Prone Districts

Sl.No.	District Name	No. of Taluks	No. of Hoblis	No. of Gram Panchayats	No. of Villages		Total Villages
					Very High Risk	Moderate Risk	
1	Belagavi	3	3	7	–	9	9
2	Bagalkote	3	6	31	8	55	63
3	Gadag	2	5	12	–	16	16
4	Haveri	1	1	5	–	9	9
5	Dharwad	5	6	16	–	25	25
Total		14	21	71	8	114	122



Map-5 Malaprabha Sub basin -K4

Table – List of Flood Prone Villages in Malprabha Sub-basin -K4

Malaprabha Sub-Basin (K4)										
List of Flood Hazard Risk Villages										
Dist. Sl.No.	District Name	Taluk Sl.No.	Taluk Name	Hobli Sl.No.	Hobli Name	GP Sl.No.	Gram Panchayat Name	Sl.No.	Village Name	Flood Hazard Class
1	2	3	4	5	6	7	8	9	10	11
1	Belagavi	1	Belagavi	1	Belagavi	1	Yallur	1	Yellur (CT)	Moderate Risk Area
						1	Kodachawad	2	Kagganagi	Moderate Risk Area
								3	Chikadinkop	Moderate Risk Area
		2	Khanapur	2	Khanapur	2	Itagi	4	Itagi	Moderate Risk Area
						3	Hirehattiholi	5	Hire-Hattiholi	Moderate Risk Area
						4	Devarashighalli	6	Marganakoppa	Moderate Risk Area
		3	Kittur	3	Kittur	5	Dastikoppa	7	Veerapur	Moderate Risk Area
						6	M.K.Hubli	8	Dastikoppa	Moderate Risk Area
						9	M.K.Hubli	9	M.K.Hubli	Moderate Risk Area
2	Bagalkote	4	Badami	4	Badami	7	Kataraki	10	Manneri	Moderate Risk Area
								11	Jakanur	Moderate Risk Area
								12	Neeralagi	Moderate Risk Area
								13	Katharaki	Moderate Risk Area
								14	Thaminal	Moderate Risk Area
						15	Chikkanasabi	Moderate Risk Area		
						8	Beloor	16	Dhanakashirur	Moderate Risk Area
						9	Cholachagudd	17	Cholachagudda	Moderate Risk Area
						10	Mangalur	18	Hirenasabi	Moderate Risk Area
								19	Mangalur	Moderate Risk Area
								20	Gonal	Moderate Risk Area
						21	Shirabadagi	Moderate Risk Area		
						11	Badami (TMC)	22	Badami (TMC)	Moderate Risk Area
						12	Nandikeshwar	23	Nelwagi	Moderate Risk Area
						13	Badami (Rural) *	24	Badami (Rural) *	Moderate Risk Area
14	Nandikeshwar	25	Nandikeshwar	Moderate Risk Area						
15	Pattadakall	26	Bachinagudd	Moderate Risk Area						
		27	Pattadakall	Moderate Risk Area						
5	Kulgeri	16	Hebballi	28	Hebballi	Moderate Risk Area				
				29	Mumaraddikoppa	Moderate Risk Area				
		17	Kittali	30	Sulla	Moderate Risk Area				
				31	Kittali	Moderate Risk Area				
		18	Alur-Sk	32	Beeranur	Moderate Risk Area				
				33	Talakawad	Moderate Risk Area				
		34	Alur .S.K.	Moderate Risk Area						
19	Kakanur	35	Karalakoppa	Moderate Risk Area						

Malaprabha Sub-Basin (K4)												
List of Flood Hazard Risk Villages												
Dist. Sl.No.	District Name	Taluk Sl.No.	Taluk Name	Hobli Sl.No.	Hobli Name	GP Sl.No.	Gram Panchayat Name	Sl.No.	Village Name	Flood Hazard Class		
1	2	3	4	5	6	7	8	9	10	11		
		5	Hungund	6	Hungund	20	Chittaragi	36	Chittaragi	Very High Risk Area		
						21	Hiremalagavi	37	Chickmagi	Moderate Risk Area		
								38	Khairwadgi	Moderate Risk Area		
								39	Chickmalagavi	Very High Risk Area		
						22	Belagall	40	Belgal	Very High Risk Area		
								41	Medinapur	Very High Risk Area		
								42	Huvanur	Very High Risk Area		
						23	Hiremalagavi	43	Hiremalagavi	Moderate Risk Area		
						24	Dhannur	44	Iddalgi	Moderate Risk Area		
						25	Ganjihal	45	Nandanoor	Very High Risk Area		
								46	Ganjihal	Very High Risk Area		
						26	Kudalasangam	47	Sangam	Very High Risk Area		
						27	Bisaladinni	48	Chowdakamaladinni	Moderate Risk Area		
						7	Amingarh	28	Ihole	49	Nimbalgundi	Moderate Risk Area
				50	Aiahole					Moderate Risk Area		
				29	Huvinahalli			51	Ramathal	Moderate Risk Area		
				30	Hiremagi			52	Hiremagi	Moderate Risk Area		
								53	Bevinal	Moderate Risk Area		
								54	Budihal (Inam)	Moderate Risk Area		
				31	Kamatgi (CT)			55	Kamatgi (CT)	Moderate Risk Area		
				32	Muganur			56	Kadiwal Kallapur	Moderate Risk Area		
								57	Suralikal	Moderate Risk Area		
								58	Basawanal	Moderate Risk Area		
						59	Basarikatti	Moderate Risk Area				
						60	Budihal (S.K.)	Moderate Risk Area				
				6	Guledagudda	8	Karadi	33	Dhannur	61	Kamadatta	Moderate Risk Area
						34	Mangalagudda	62	Katapur	Moderate Risk Area		
		63	Mangalagudda					Moderate Risk Area				
		64	Chimmalagi					Moderate Risk Area				
		35	Layadagundi			65	Kataginahalli	Moderate Risk Area				
						66	Layadagundi	Moderate Risk Area				
						67	Kotnalli	Moderate Risk Area				
						68	Asangi	Moderate Risk Area				
		36	Nagaral-S.P			69	Subbalahunashi	Moderate Risk Area				
		37	Haladur			70	Allur. S.P.	Moderate Risk Area				
						71	Haradolli	Moderate Risk Area				
						72	Haladur	Moderate Risk Area				

Sub Basin wise Flood prone Districts

Sub Basin	Sl. No.	District Name	No. of Taluks	No. of Hoblis	No. of Gram Panchayats	No. of Villages		Total Villages
						Very High Risk	Moderate Risk	
Upper Krishna - K1	1	Belagavi	2	3	26	16	19	35
Middle Krishna - K2	1	Koppal	1	1	1	–	1	1
	2	Raichur	3	8	23	49	11	60
	3	Belagavi	4	7	48	51	14	65
	4	Bagalkote	5	7	32	34	25	59
	5	Vijayapura	7	9	32	19	33	52
	6	Yadgir	4	7	14	31	5	36
	Total			24	39	150	184	89
Ghataprabhs - K3	1	Belagavi	4	11	56	20	72	92
	2	Bagalkote	5	7	36	25	45	70
	Total			9	18	92	45	117
Mallaprabha - K4	1	Belagavi	3	3	7	–	9	9
	2	Bagalkote	3	6	31	8	55	63
	3	Gadag	2	5	12	–	16	16
	4	Haveri	1	1	5	–	9	9
	5	Dharwad	5	6	16	–	25	25
	Total			14	21	71	8	114
Upper Bhima - K5	1	Belagavi	2	2	7	2	13	15
Lower Bhima - K6	1	Kalaburagi	11	31	134	89	149	238
	2	Bidar	2	3	4	–	7	7
	3	Vijayapura	4	5	16	16	13	29
	4	Yadgir	3	6	10	7	11	18
	Total			20	45	164	112	180
Tunghabadra - K8	1	Davangere	7	6	46	57	30	87
	2	Ballari	6	13	33	29	24	53
	3	Koppal	3	6	19	6	21	27
	4	Raichur	4	13	35	38	39	77
	5	Gadag	2	2	6	10	–	10
	6	Haveri	5	10	87	62	105	167
	7	Shivamogga	6	24	74	65	75	140
	8	Chikkamagaluru	2	2	3	1	2	3

Sub Basin	Sl. No.	District Name	No. of Tehsil	No. of Blocks	No. of Gram Panchayat	No. of Villages		Total Villages
	9	Uttara Kannada	3	4	11	10	20	30
	Total		38	80	314	278	316	594
Vedavati - K9	1	Ballari	1	2	6	1	11	12
Cauvery Basin	1	Chamarajanagara	2	3	7	4	7	11
	2	Mysuru	5	12	34	30	35	65
	3	Mandya	1	1	2	1	2	3
	4	Hassan	2	5	13	16	12	28
	5	Chikkamagaluru	1	2	4	-	11	11
	6	Kodagu	1	1	3	3	3	6
	Total		12	24	63	54	70	124
West Flowing River	1	Shivamogga	1	2	2	1	1	2
	2	Dakshina Kannada	2	4	11	7	7	14
	3	Udupi	4	5	17	19	3	22
	4	Uttara Kannada	5	14	38	33	25	58
	Total		12	25	68	60	36	96

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