



UNIVERSITY OF LEEDS

This is a repository copy of *Spatial dimension of impact, relief, and rescue of the 2014 flood in Kashmir Valley*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/196739/>

Version: Accepted Version

---

**Article:**

Malik, IH (2022) Spatial dimension of impact, relief, and rescue of the 2014 flood in Kashmir Valley. *Natural Hazards*, 110 (3). pp. 1911-1929. ISSN 0921-030X

<https://doi.org/10.1007/s11069-021-05018-8>

---

© The Author(s), under exclusive licence to Springer Nature B.V. 2021. This is an author produced version of an article published in *Natural Hazards*. Uploaded in accordance with the publisher's self-archiving policy.

**Reuse**

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.



[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>

# **Spatial Dimension of Impact, Relief and Rescue of the 2014 Flood in Kashmir Valley**

**Ishfaq Hussain Malik**

Department of Geography

Cluster University Srinagar

Email: mulikishfaq@gmail.com

## **Abstract**

Flood relief and rescue form an important basis of disaster management and the assessment of flood damage is a critical component of flood risk management. In its recent history, Kashmir Valley witnessed the floods in 2014, 2015, 2017, 2019, 2020 and 2021 but the worst flood in the living memory of the people was witnessed in the year 2014, which created widespread loss in economic and societal aspects. The present study discusses the spatial dimension of impact, relief and rescue of the flood of 2014 in the Kashmir Valley. It analyses the distribution of relief and politics of relief and rescue, and highlights the role of the communitarianism and the heroics of the community members in dealing with floods. The study provides the data of relief distribution under different government schemes and reveals that the relief was not distributed equally in various districts of the valley. The study relies on primary and secondary sources of data. Ethnographic approach was used for acquiring primary data because it provides the complex narratives of disasters and the political and social rupture experienced during the disasters. The data has been analysed with the help of Geographic Information System.

***Key words: Flood relief, politics, communitarianism, Kashmir, relief deprivation index***

## **Introduction**

Disasters are the aberrations from the normal life. Floods are widely regarded as the most devastating and recurring cause of most disasters, wreaking havoc on floodplain dwellers around the world (Dhar and Nandargi, 2003). Floods are responsible for one-third of all hydrological hazards on the earth (Adhikari et al. 2010). River flooding is one of the most devastating disasters in the world, causing widespread loss of life, infrastructure damage, and economic devastation. Societies are currently under threat from such floods, owing primarily to increased exposure of people and assets in flood prone areas, but also to changes in flood magnitude, frequency, and timing (Wilhelm et.al, 2019).

Floods affect billions of people around the world (Zarekarizi et al., 2020). Between 2009 and 2019, floods killed around 50000 people and affected approximately 10%

34 of the world's population, according to the Emergency Events Database (CRED, 2019).  
35 Floods are expected to become more frequent and widespread as a result of population  
36 growth and climate change (Leung et al., 2019). The global disaster dataset reveals that the  
37 number of disasters especially floods have increased in recent times and South Asia has seen  
38 a dramatic increase in flood disasters (Saharia, 2021). In a global survey of disasters,  
39 Jonkman (2005) found that Asian rivers are the most significant in terms of the number of  
40 persons killed and affected, with flash floods resulting in the highest average death per  
41 incident. The damage to crops, infrastructure and housing, and the negative impacts on health  
42 and sanitation caused by floods are particularly severe in the populous floodplains of many  
43 Third World states (Alexander, 2018).

44           The Kashmir Valley is vulnerable to all types of hazards due to its geographical,  
45 climatic, and geological configuration (Meraj et al. 2015). According to historical records, the  
46 Kashmir Himalayan region has suffered significant casualties and property loss as a result of  
47 recurring floods, avalanches, earthquakes, and several other hydro-meteorological disasters  
48 (Mohammed et al. 2015). Because of the valley's topography, low-lying areas are prone to  
49 flooding. In recent years, unchecked urbanization, the construction of roads and railways in  
50 the flood basin, a reduction in river carrying capacity, and the accelerated extinction of the  
51 valley's wetlands and lakes have exacerbated the valley's flood vulnerability (Iqbal, 2019),  
52 thus causing several floods. Floods devastated the Kashmir Valley in 1893, 1928, 1950, 1959,  
53 1992, 2010, and most recently in 2014, 2015, 2017, and 2019. All of these floods had varying  
54 effects, but the flood of 2014 was the most destructive flood in the recent history of Kashmir,  
55 affecting all socioeconomic and environmental aspects as well as causing political rupture in  
56 the Valley (Malik and Hashmi, 2020).

57           The catastrophic flood event of 2014, which was the biggest ever recorded on  
58 the river Jhelum and resulted in massive losses of assets and human life, is a recent example  
59 of the Kashmir basin's vulnerability to floods (Mishra 2015; Bhatt et al. 2016). The Kashmir  
60 flood of September 2014 inundated the majority of the floodplain in Kashmir, resulting in  
61 massive loss of life and property. The magnitude of this event was declared to be the highest  
62 ever instrumentally recorded on the Jhelum River, with an estimated discharge of 1, 15,218  
63 cusecs upstream at Sangam and 72,585 cusecs downstream at Ram Munshi Bagh in Srinagar  
64 city. During the flood, highest flood level (HFL) records obtained from a post-flood survey  
65 using Global Positioning System (GPS) revealed floodwater depths of up to 16 feet and a 25-  
66 day inundation period in various areas of Kashmir (Alam et al., 2018).

67                   The 2014 flood in Kashmir Valley had a devastating impact on the socio-  
68 economic, environmental and political conditions in Kashmir. It was the worst flood to strike  
69 the Valley in the last 100 years, killing 277 people in Jammu and Kashmir. The relief and  
70 rescue efforts were dispersed across the Valley in various districts and thus gave rise to the  
71 spatial dimension of such actions.

72                   The present study is significant because it gives a detailed account of relief  
73 provided to people under different governmental schemes and also rescue of the 2014  
74 Kashmir flood, and fills the research gap regarding relief provided to people. There is a lack  
75 of studies on Kashmir floods that give the detailed accounts of rescue and relief operations,  
76 and the current study is significant in order to explain the spatial distribution of relief and  
77 rescue operations. It explains various narratives witnessed during the flood in the Kashmir  
78 Valley and provides a deeper understanding of communitarianism in the Kashmiri society in  
79 terms of flood response. It also emphasises administrative laxity, as well as the bias and  
80 politics in rescue and relief operations.

81                   Ethnography is important for understanding how actors in various domains  
82 attach meaning to disasters and disaster response, as well as how they influence one another.  
83 Ethnography should not be limited to local domains; it can be equally useful and insightful  
84 when performed in and between other disaster response domains. It is worthwhile to consider  
85 recent developments in ethnography (Hilhorst, 2013) to study the flood situations like the  
86 recent floods in the Kashmir Valley.

87                   In the light of the above, the study seeks to (i) assess the impact of the 2014  
88 flood in Kashmir Valley, (ii) analyse the spatial dimension of rescue and relief operations,  
89 (iii) highlight the emergence of communitarianism during the floods in the Kashmir valley,  
90 and (iv) emphasize the politics of rescue and relief.

### 91 **Data Sets and Methodology:**

92                   The current study relies on primary and secondary sources of data. Kashmir Valley has total  
93 10 districts and from every district 20 households were surveyed, which makes the total  
94 sample size as 200. Thus, a total of 200 households were surveyed to know the spatial  
95 dimension of impact, relief and rescue during and after the floods experienced in Kashmir  
96 Valley with a special focus on the 2014 flood. The analysis of previous studies and data  
97 helped in choosing the sampling method, and thus the samples were collected with the help of  
98 purposive sampling, which helped in acquiring the required information. Ethnographic

99 approach was used to know about different narratives regarding the impact, relief and rescue  
100 operations because ethnography provides the ground reality about social phenomena and the  
101 disaster scenario, and the researcher is better able to comprehend the research subjects'  
102 experiences and habits from the participant's point of view. The undisguised participant  
103 observation ethnographic method was used in which the ethnographer becomes the member  
104 of the group, which was also guided by the personal experiences of rescue and relief  
105 operations during the 2014 flood. The secondary data was collected from the Divisional  
106 Commissioner's Office, Srinagar. To process the data and create the maps, Arc GIS 10.2 was  
107 used.

108 Spatial deprivation is a common form of regional disparity among the various  
109 axes (Herbert, 1975). It implies a direct link between deprivation and regional inequality  
110 (Norris, 1979). Deprivation is commonly used to denote a lack of something considered  
111 necessary for having an acceptable quality of life (Brown and Madge, 1982). Taking  
112 inspiration from the deprivation index, the Relief Deprivation Index (RDI) was devised for  
113 the present study.

114 The Relief Deprivation Index (RDI) was used to determine the amount of loss and  
115 relief received and the district wise inequality in terms of relief received. It calculates how  
116 much money a household has been deprived of that it should have received. The greater the  
117 value of the deprivation index, the greater the level of deprivation. To create a composite  
118 deprivation index, researchers used a variety of methodologies. Their methodologies differ in  
119 terms of the indicators used. Different deprivation indices are developed to classify all  
120 districts in terms of multiple deprivations, and in the present study the RDI was used to  
121 examine the spatial dimension of relief received. Districts with high deprivation index scores  
122 have received less relief while as the districts with low deprivation index have received  
123 comparatively better relief.

124 The relief deprivation was calculated by the following formula;

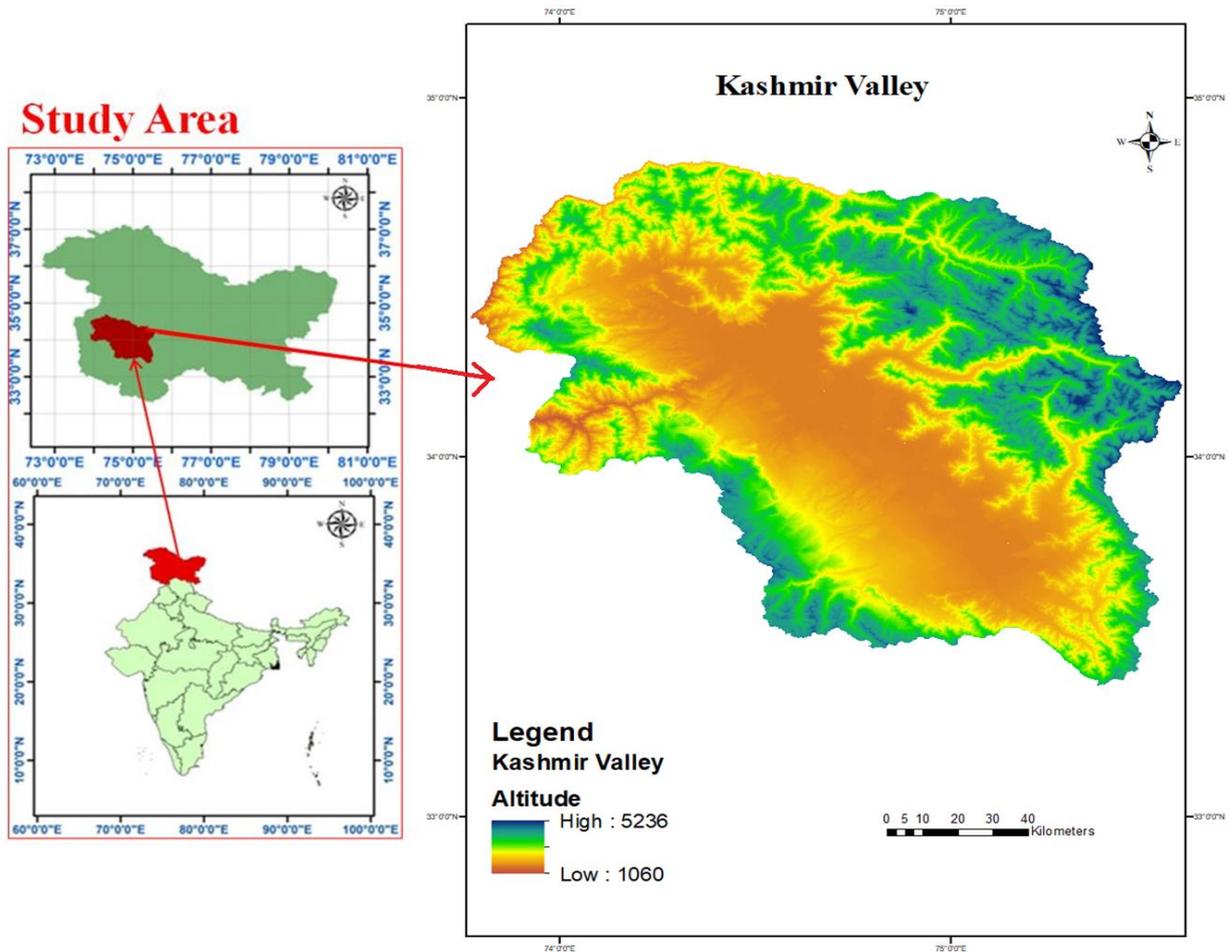
$$125 \quad \text{Relief Deprivation} = \frac{\text{Relief Received}}{\text{Loss}} \times 100$$

126

### 127 **Study Area:**

128 The current study's research area is the Kashmir Valley, which lies in the northern part of  
129 India (Fig. 1). It lies in the North-Western Himalayas and comprises of several beautiful

130 valleys and picturesque mountains. It is surrounded by Himalayas from all sides, which has a  
131 profound impact on its climate and weather phenomena. The Kashmir Valley has geopolitical  
132 significance and is a source of contention among India, China and Pakistan. It is one of the  
133 most volatile conflict regions of the world. The Valley is composed of several beautiful lakes  
134 like Wular and Dal lakes and is one of the world's best tourist destinations.



135

136

**Figure 1: Study Area (Kashmir Valley)**

137

138

139

140

141

The Kashmir valley is a 15,220 km<sup>2</sup> NW–SE Graben-type basin that formed in the late Miocene (Bhat, 1982; Burbank, 1983; Alam et al. 2017). The Valley is located in the Jhelum Basin and has a well-developed drainage system led by the Jhelum River. It is surrounded by two major mountain ranges, the Pir Panjal in the south–southwest and the Great Himalaya in the east–northeast (Bhat et al., 2017).

142

143

144

The 2014 extreme flooding in Kashmir Valley was caused by a complex interplay of atmospheric disturbances that caused widespread extreme rainfall for seven days prior to the event, with a peak discharge of 3256437405000 cubic mm per second and the

145 Jhelum River overflowing its banks (Romshoo et al, 2018). The valley experienced  
146 unprecedented rainfall in early September 2014 (September 04–06) as a result of the  
147 combined effects of mid-latitude Westerlies and pressure systems typical of the Indian  
148 summer monsoon (Kumar and Acharya, 2016). Rainfall totals of 415 mm and 140 mm were  
149 recorded at Kokernag station in south Kashmir and Rambagh station in Srinagar,  
150 respectively, during this time (Ray et al. 2015), resulting in widespread flooding across the  
151 valley (Gulzar et al., 2020). Hospitals, communication lines, buildings, water and energy  
152 supply facilities, and cultural heritage places all suffered significant damage. The situation  
153 triggered an emergency declaration, with over a hundred people killed and thousands of  
154 families affected and massive economic loss (Venugopal and Yasir, 2017).

## 155 **Results and Discussion**

156 Kashmir Valley witnessed several floods in its recent history. The flooding of September  
157 2014 in Kashmir Valley was anthropogenic in nature rather than a natural calamity. As per  
158 the Jammu Kashmir Coalition of Civil Society (JKCCS), 2015, “This is a sentiment so often  
159 repeated, that it has taken on the shades of a cliché, with everyone from civil society activists  
160 to politicians being in seeming agreement that the Jammu and Kashmir government's  
161 administrative laxity and negligence and its peoples' irresponsible development practices  
162 were the cause of the floods. Recent understandings of disasters and development, including  
163 that of the United Nations, emphasise that human actions and socio-economic inequalities  
164 influence the causes of, and vulnerabilities to natural events, and often determine whether a  
165 particular 'hazard' takes on disastrous proportions or not.”

## 166 **Socio-Economic Impact**

167 Flooding in J&K and Pakistan was the most expensive weather event of 2014 (Annual Global  
168 climate and catastrophe report, 2015). Floods in Kashmir in 2014 wreaked havoc on  
169 agriculture, trade, infrastructure, tourism, and the handloom sector. According to the  
170 government of Jammu and Kashmir, the state suffered a loss of Rs. 1.0 trillion as a result of  
171 the floods in September 2014. (Yaseen, 2014). The flood had a negative impact on the  
172 tourism industry as it is one of the important economic activities in Kashmir Valley (Malik,  
173 2015). Over a million people were displaced, and over 3,000 settlements were inundated,  
174 resulting in a \$6,560 million economic loss (Carpenter et.al, 2020). In terms of cropped area  
175 and people affected, the Anantnag district was the worst affected by the flood. The flood  
176 affected 153140 acres of land and 159507 people in the Anantnag district. It was followed by  
177 Baramulla, where the flood affected 132052 acres of land and 159200 people. Kupwara was

178 the least affected district in terms of cropped area, with 3218 acres of land affected. The total  
179 cropped area affected by the 2014 flood in Kashmir Valley was 694389 acres, and a total of  
180 906091 people were affected, excluding the district Srinagar (Malik and Hashmi, 2021).

181 The 2014 flood in Kashmir had disastrous consequences on environment, society  
182 and politics. It created death, poverty, environmental damage and health problems in the  
183 Valley, which resulted into rise of diseases like cholera and malaria.

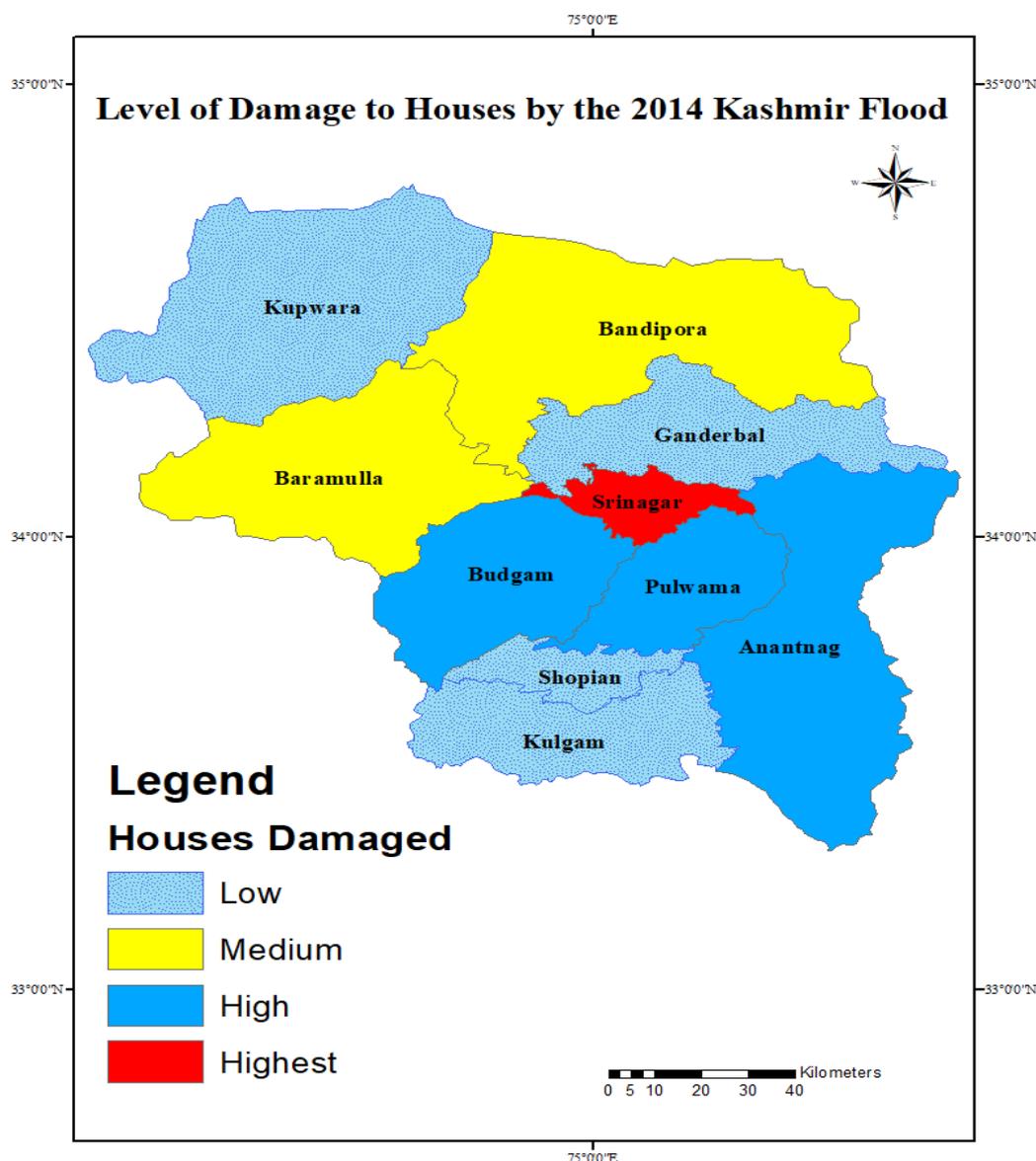
184 **Table 1: Total number of Houses Damaged in Kashmir Valley due to**  
185 **2014 Flood**

<b>District</b>	<b>Total Number of Houses Damaged</b>
<b>Anantnag</b>	19985
<b>Bandipora</b>	7703
<b>Baramulla</b>	8630
<b>Budgam</b>	16963
<b>Ganderbal</b>	429
<b>Kulgam</b>	3365
<b>Kupwara</b>	89
<b>Pulwama</b>	15200
<b>Shopian</b>	1336
<b>Srinagar</b>	93536
<b>Total</b>	<b>167236</b>

186

Source: Divisional Commissioner's Office, Srinagar

**Figure 2: Impact of 2014 Flood in Kashmir Valley**



188

189

190

191

192

193

194

195

196

197

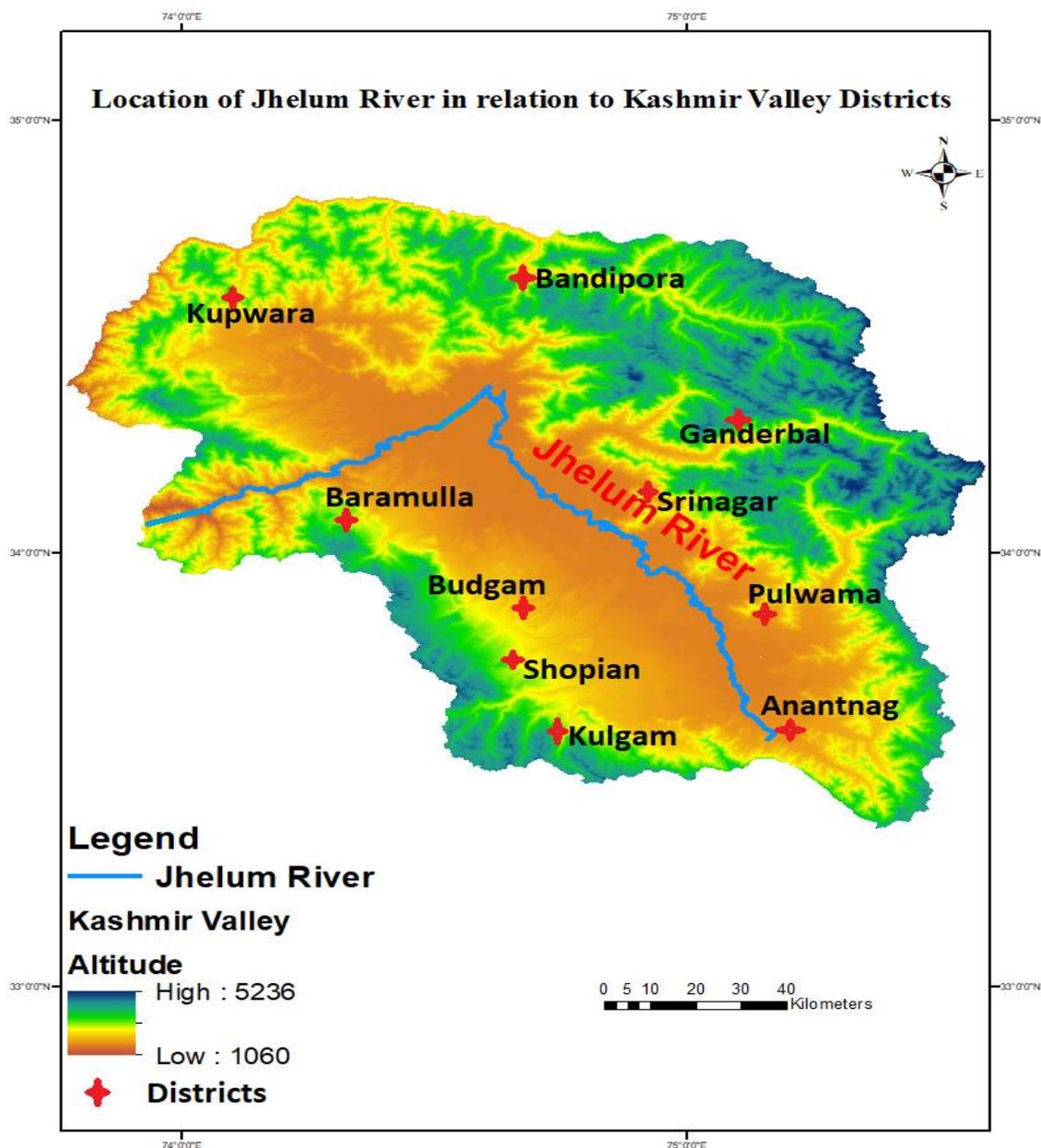
198

199

The total number of houses damaged in the Kashmir Valley by the 2014 flood was 167236 (Table 1 & Figure 2). In terms of house damage, the Srinagar district suffered the most with 93536 damaged houses, followed by Anantnag (19985), Budgam (16963), Pulwama (15200), Baramulla (8630), Bandipora (7703), Kulgam (3365), Shopian (1336), Ganderbal (429), and Kupwara (89). The damaged houses indicate massive economic and social loss as floods have the intrinsic characteristic of causing socio-economic loss. The districts of the valley were affected differently due to their location in relation to Jhelum River and levels of urbanization. Srinagar and Anantnag districts were affected greatly because these districts lie at the banks of the Jhelum River and are also the most urbanized districts in the Kashmir Valley. As per the 2011 census of India, Srinagar has 95.3% urban population out of its total population and constitutes 61.1% of the total urban population of

200 the Kashmir Valley while as Anantnag has 25.6% urban population out of its total population  
 201 and constitutes 13.8% of the total urban population of the Kashmir Valley. The percentage of  
 202 urban population of Srinagar and Anantnag districts is followed by Baramulla (8.3%),  
 203 Kulgam (3.9%), Pulwama (3.6%), Bandipora (3.2%), Budgam (2.4%), Kupwara (1.6%),  
 204 Ganderbal (1.4%) and Shopian (0.7%), thus revealing that Srinagar and Anantnag districts  
 205 are the most urbanized districts in the Kashmir Valley. The location of the districts in relation  
 206 to the Jhelum River is shown in Figure 3. Due to high urbanization and poor drainage in the  
 207 Srinagar city, the water during the flood was accumulated for longer durations and led to the  
 208 inundation of thousands of houses. Kupwara district was the least affected because it is  
 209 situated at higher altitude.

210 **Fig. 3: Location of Jhelum River in relation to Kashmir Valley Districts**



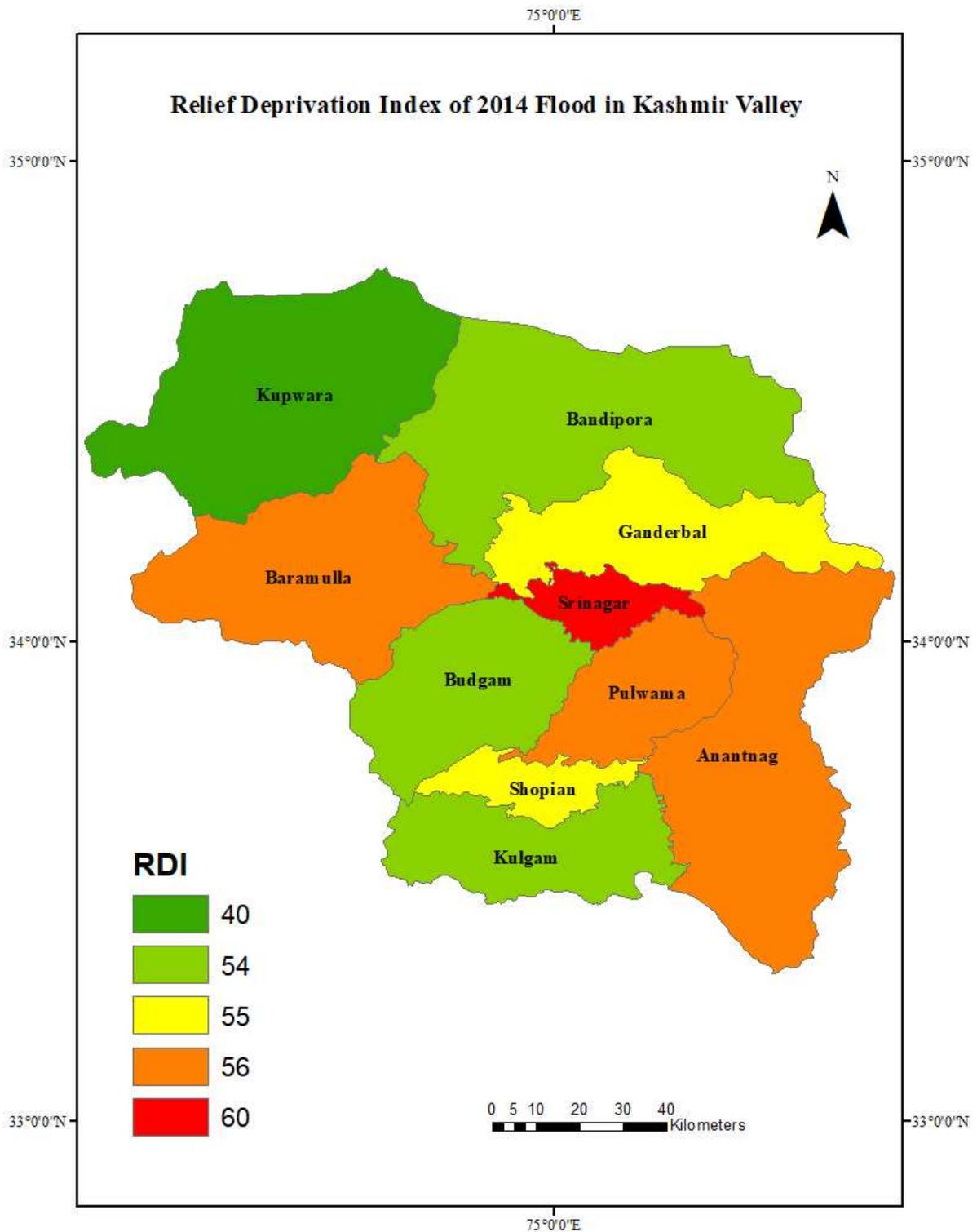
212 The 2014 flood in Kashmir Valley had a tremendous impact on the socio-  
 213 economic aspects in the Valley. The relief deprivation of the surveyed households reveals  
 214 that most of the people incurred a heavy loss in the form of damage of houses and  
 215 infrastructure, loss of crops and agricultural land, damage to horticulture and livestock. It also  
 216 reveals that most of the people did not get adequate relief from the government.

217 **Table 2: Relief Deprivation Index (RDI) of the 2014 Kashmir Flood**

S.No.	District	Houses Surveyed	Relief Received (₹)	Loss (₹)	Ratio (Relief/Loss)
1	Anantnag	20	31,15,258	55,62,962	56
2	Bandipora	20	29,97,509	55,50,943	54
3	Baramulla	20	30,83,110	55,05,555	56
4	Budgam	20	27,84,565	51,56,603	54
5	Ganderbal	20	29,03,000	52,78,181	55
6	Kulgam	20	29,78,660	55,16,037	54
7	Kupwara	20	22,02,162	55,05,405	40
8	Pulwama	20	29,49,332	52,66,666	56
9	Shopian	20	29,32,000	53,30,909	55
10	Srinagar	20	40,67,796	67,79,661	60
	<b>Total</b>	<b>200</b>	<b>3,00,13,392</b>	<b>5,54,52,922</b>	<b>54</b>

218 **Source: Primary Survey**

**Figure 4: Relief Deprivation Index (RDI) of the 2014 Flood in Kashmir**



220

221

222

223

224

Table 2 and Figure 4 analysis shows that the highest relief deprivation index was experienced by Srinagar (60 percent), which means that the Srinagar district has received least relief as districts with high deprivation index scores have received less relief. It was followed by the districts of Anantnag (56%), Pulwama (56%), Baramulla (56%), Ganderbal

225 (55%), Shopian (55%), Bandipora (54%), Kulgam (54%), and lastly Kupwara (40 percent).  
226 These figures show that the people of Kashmir experienced heavy economic loss, which  
227 resulted into poverty and economic distress among thousands of people. The economic loss  
228 of lower class people, which are mostly engaged in agricultural activities, created food  
229 scarcity. It also affected their economic conditions to a great extent as the flood occurred in  
230 the month of September 2014 and continued till October, which is the harvesting season in  
231 Kashmir. Thousands of families depend on horticulture in Kashmir. The whole agricultural  
232 setup including horticulture was adversely affected by the flood and resulted into loss of  
233 apple production worth millions of dollars.

234 Abdul Rashid, an apple grower in district Anantnag, while recollecting the  
235 memories of the 2014 flood, said *“We lost almost one thousand boxes of apples worth one  
236 million rupees. We are 10 family members and horticulture is our main source of income. We  
237 lost everything in the flood which created a sense of hopelessness and economic distress in  
238 the family. My daughter was getting married in the month of November and we had high  
239 hopes on the horticultural production to support the marriage ceremony of my daughter but  
240 now we postponed the marriage till next November because of unavailability of money.”*  
241 Mohd. Ayub of district Kulgam narrated, *“Our house worth 20 lakh rupees got totally  
242 damaged due to the flood. We lived in a temporary tent for three months.”* Manzoor Ahmad  
243 of Srinagar district narrated his horrific flood memories and stated, *“The flood water came  
244 from all sides and our house was filled with water within ten minutes and we rushed to the  
245 third floor. We lived on the third floor of our house for 15 days with little food and water. The  
246 two storeys of our house were inundated for 15 days and we had to use the water motors to  
247 draw out the water from our house. We incurred a loss of 15 lakh rupees and it took us two  
248 years to cope-up with the economic loss.”*

249 While recollecting the memories of recent floods in the Kashmir Valley,  
250 Abdul Samad of Srinagar said, *“The recent floods of Kashmir Valley like the floods in 2014,  
251 2015, 2017, 2019 and 2020 caused huge impact. The floods of 2015, 2017, 2019 and 2020  
252 were not so much devastating as compared to the flood of 2014. We thought that we are all  
253 going to die and nothing will be left out there.”*

## 254 **Spatial Dimension of Relief**

255 Which areas are vulnerable, and why the people who live there are vulnerable, are frequently  
256 part of a political discourse elicited by both international agencies and national governments  
257 in order to decide who should receive assistance and in what form. The politization of relief

258 and rescue, as well as the power dynamics that underpin it (Bankoff et al., 2013) determine  
 259 the distribution of relief.

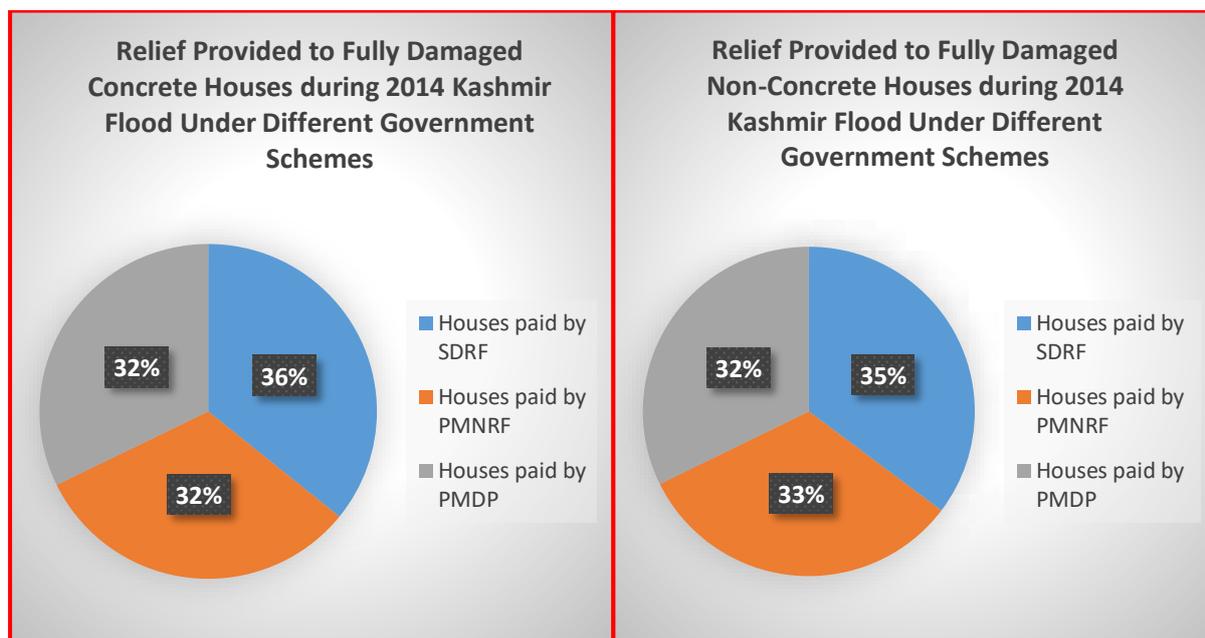
260 Floods affect different sections of society differently. Vulnerability to floods  
 261 depends upon the location of the settlement and the socio-economic conditions of the people.  
 262 Thus, different classes are vulnerable to a different degree to floods. Floods expose the  
 263 political setup of a region or a state. It shows the kind of political setup that governs the  
 264 people and projects the political scenario of a region or a nation.

265 **Table 3: Relief Provided to Fully Damaged Houses during Kashmir’s 2014 Flood under**  
 266 **Prime Minister's Development Package (PMDP), Prime Minister's National Relief Fund**  
 267 **(PMNRF) and State Disaster Response Fund (SDRF)**

District	Pucca (Concrete)				Kacha (Non Concrete)			
	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP
<b>Srinagar</b>	6048	5839	5537	5495	113	112	101	95
<b>Budgam</b>	875	861	714	857	26	24	24	24
<b>Anantnag</b>	1542	1534	1307	1304	272	270	246	246
<b>Baramulla</b>	190	190	190	190	149	149	149	149
<b>Kulgam</b>	231	231	231	226	108	108	108	105
<b>Shopian</b>	203	203	123	123	11	11	7	7
<b>Pulwama</b>	1957	1890	1565	1565	58	58	42	42
<b>Bandipora</b>	544	544	404	402	243	241	218	222
<b>Ganderbal</b>	2	2	2	2	1	1	1	1
<b>Kupwara</b>	1	1	1	1	1	1	1	1
<b>Total</b>	<b>11593</b>	<b>11295</b>	<b>10074</b>	<b>10165</b>	<b>982</b>	<b>975</b>	<b>897</b>	<b>892</b>

268  
269

**Fig. 5: Relief provided to Concrete and Non-Concrete Fully Damaged Houses during 2014 Kashmir Flood**

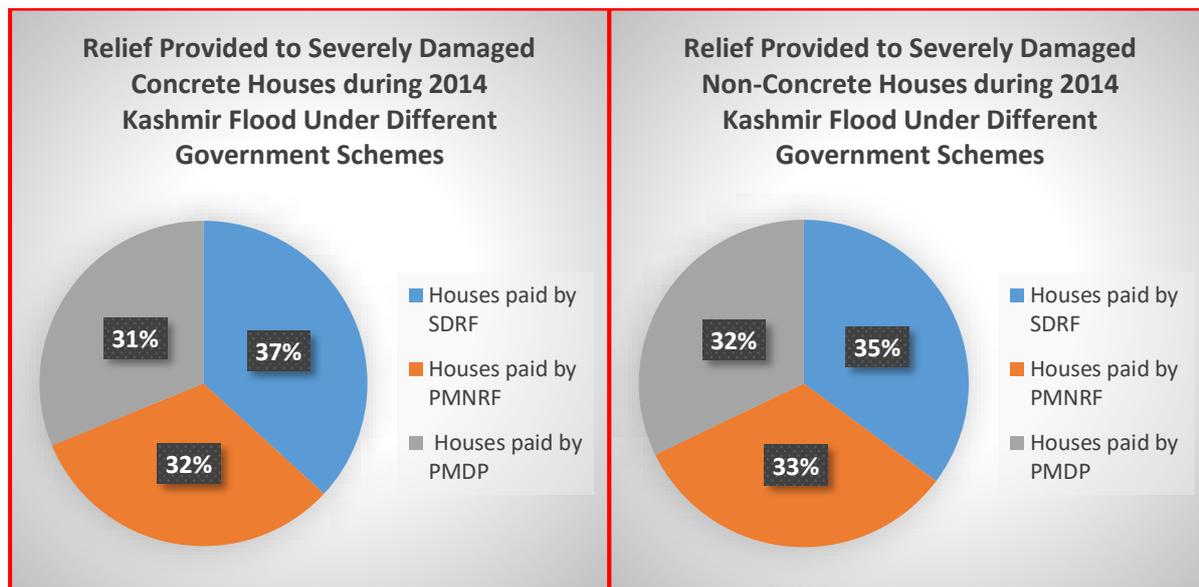


270  
271  
272

**Table 4: Relief Provided to Severely Damaged Houses under SDRF, PMNRF & PMDP during Kashmir's 2014 Flood**

District	Pucca (Concrete)				Kacha (Non Concrete)			
	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP
Srinagar	25426	24759	20359	19588	78	62	58	54
Budgam	3538	3493	3304	3410	3	2	2	1
Anantnag	3923	3888	3672	3656	232	228	203	202
Baramulla	1288	1288	1288	1288	146	146	146	146
Kulgam	639	639	639	617	76	76	76	71
Shopian	181	181	181	181	5	5	5	5
Pulwama	1926	1612	1609	1609	16	16	16	16
Bandipora	1488	1487	1290	1288	71	71	57	59
Ganderbal	1	1	1	1	4	4	4	4
Kupwara	0	0	0	0	0	0	0	0
<b>Total</b>	<b>38410</b>	<b>37348</b>	<b>32343</b>	<b>31638</b>	<b>631</b>	<b>610</b>	<b>567</b>	<b>558</b>

273 **Fig. 6: Relief provided to Concrete and Non-Concrete Severely Damaged Houses during**  
 274 **2014 Kashmir Flood**

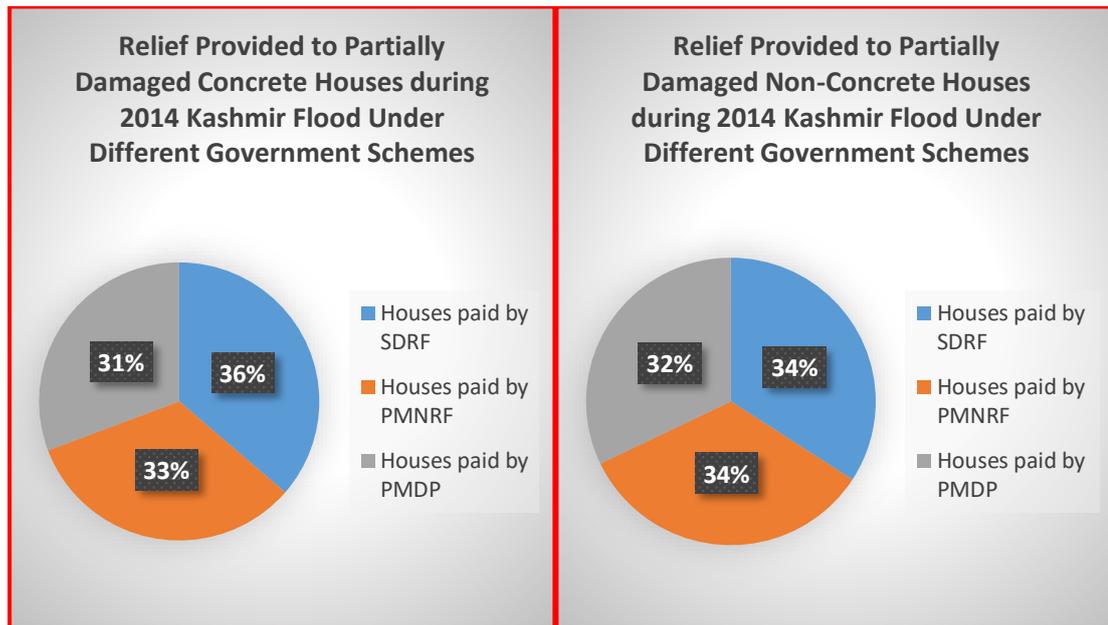


275  
 276 **Table 5: Relief Provided to Partially Damaged Houses under SDRF, PMNRF & PMDP**  
 277 **during Kashmir's 2014 Flood**

District	Pucca (Concrete)				Kacha (Non Concrete)			
	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP	Total Houses Damaged	Houses paid by SDRF	Houses paid by PMNRF	Houses paid by PMDP
Srinagar	61798	58402	53021	49750	73	73	55	55
Budgam	12485	9703	9462	6916	36	30	27	0
Anantnag	13482	12579	8246	8237	534	525	481	481
Baramulla	5969	5969	5969	5969	888	888	888	888
Kulgam	2111	2111	2111	2062	200	200	200	194
Shopian	911	911	911	911	25	25	25	25
Pulwama	11203	9691	9536	9536	40	40	40	40
Bandipora	5039	4917	5110	4747	318	317	353	285
Ganderbal	328	328	328	328	93	93	93	93
Kupwara	87	87	87	87	0	0	0	0
<b>Total</b>	<b>113413</b>	<b>104698</b>	<b>94781</b>	<b>88543</b>	<b>2207</b>	<b>2191</b>	<b>2162</b>	<b>2061</b>

278 Source: Divisional Commissioner's Office, Srinagar.

279 **Fig. 7: Relief provided to Concrete and Non-Concrete Partially Damaged Houses during**  
 280 **2014 Kashmir Flood**



281  
 282 Table 3, 4, and 5 and Figure 5, 6 and 7 provide the spatial dimension of relief of  
 283 the flood of 2014 in Kashmir Valley and show relief provided to total number of fully  
 284 damaged houses under the government schemes like State Disaster Response Fund (SDRF),  
 285 Prime Minister's National Relief Fund (PMNRF) and Prime Minister's Development Package  
 286 (PMDP), relief provided to total number of severely damaged houses under SDRF, PMNRF  
 287 and PMDP and relief provided to total number of partially damaged houses under SDRF,  
 288 PMNRF and PMDP respectively. These tables show that some people have been  
 289 compensated for the loss incurred during the flood while as some people have not been  
 290 compensated for their losses. The reports from field survey show that some people have been  
 291 fairly compensated while as some people have been discriminated in terms of relief. It is also  
 292 revealed that the relief was not uniformly distributed in the districts of the Valley, thus giving  
 293 rise to the spatial dimension of the relief.

294 The total number of fully damaged pucca houses (Concrete houses) by the 2014  
 295 flood in Kashmir Valley was 11593, in which 11295 houses were provided relief under  
 296 SDRF, 10074 houses were paid under PMNRF and 10165 were paid under PMDP. The total  
 297 number of fully damaged kacha houses (Non Concrete houses) is 982, in which 975 were  
 298 provided relief under SDRF, 897 were paid under PMNRF and 892 were paid under PMDP.  
 299 A total of 38410 pucca and 631 kacha houses were severely damaged, in which 37348 pucca houses  
 300 and 610 kacha houses were provided relief under SDRF. A total of 113413 pucca and 2207 kacha

301 houses were partially damaged, in which 104698 pucca houses and 2191 kacha houses were provided  
302 relief under SDRF.

### 303 **Politics of Rescue and Relief**

304 Disasters serve as flashpoints for political and social revelations. Pelling & Dill (2006) say,  
305 “The way in which the state and other sectors act in response and recovery is largely  
306 predicated on the kind of political relationships that existed between sectors before the  
307 crisis.” Despite the disruption and chaos that tend to occur in the immediate aftermath of  
308 catastrophes, anti-social forms of behaviour, panic and apathy are uncommon reactions.  
309 Individual actions are likely to be rational and socially oriented, although potentially  
310 uncoordinated. People who end up as leaders in disaster usually have a well-defined role,  
311 which they play with the benefit of prior experience, appropriate skills and a certain sense of  
312 detachment from the proceedings (Fritz, 1957). Politicians and civil servants spin their own  
313 tales, explaining the links between vulnerability, hazards and disaster. These narratives reflect  
314 political interests and motivations, but they are also influenced by cultural patterns of  
315 governance, such as risk governance (Bankoff et al., 2013). Responses to risk and disaster  
316 have an impact on state-society relations (Bankoff, 1999).

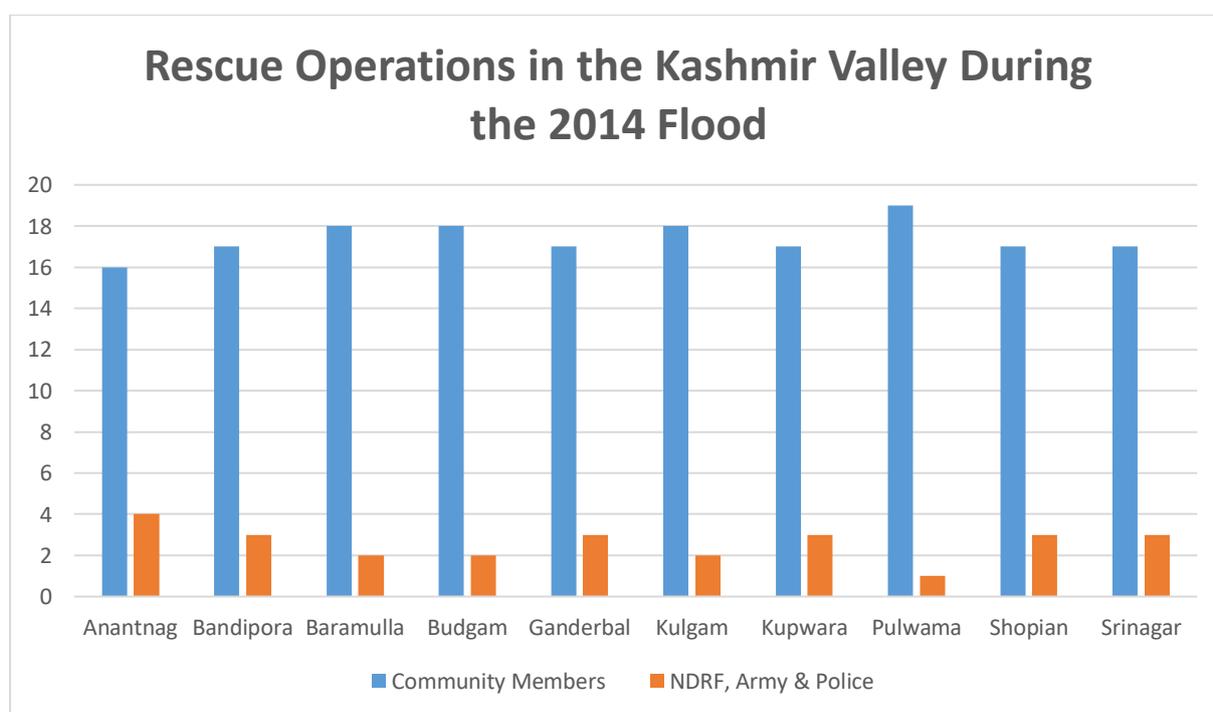
317 Floods are the moments of social and political rupture. They give an  
318 opportunity for deep rooted political narratives that have transcended over the years. The  
319 2014 flood in Kashmir Valley was the most devastating flood in the Valley's living memory,  
320 affecting nearly everyone. The relief and rescue operations witnessed a strange scenario  
321 during the deluge which created wide animosity among the people towards the  
322 administration. There is an increasing concern of the politicization of the disaster relief as the  
323 most vulnerable people often receive less relief.

324 Disasters act as moments of political and social exposure. It was clearly  
325 evident during the 2014 flood in Kashmir. The abrupt suspension of normal life in Kashmir  
326 due to the flood lifted the veil of projected political normalcy in the Valley. It showed the  
327 broken and distrusted relationship between the people of Kashmir and the state. The rise of  
328 volunteerism of the community members and dysfunctionality of the state exposed the  
329 inability of the administration to deal with the flood. The flood in Kashmir revealed the  
330 political rupture in the valley to a great extent and showed how deep this rupture is.  
331 The political stakes during the flood were high. The ethnographic work on the 2014 flood in  
332 Kashmir discusses the spatial dimension of relief and rescue operations and highlights the  
333 role played by the people and the government during and after the flood as ethnography  
334 provides the grassroots level information of the narratives and issues during the disasters.

**Table 6: Rescue during 2014 Kashmir Flood**

Rescue Operation			
District	Houses Surveyed	Rescue	
		Community Members	NDRF, Army & Police
Anantnag	20	16	4
Bandipora	20	17	3
Baramulla	20	18	2
Budgam	20	18	2
Ganderbal	20	17	3
Kulgam	20	18	2
Kupwara	20	17	3
Pulwama	20	19	1
Shopian	20	17	3
Srinagar	20	17	3
<b>Total</b>	<b>200</b>	<b>74</b>	<b>26</b>

336 Source: Primary Survey

337 **Figure 8: Rescue Operations in the Kashmir Valley during the 2014 Flood**

339 The rescue during the 2014 Kashmir flood was done mostly by the community  
340 members and volunteers. 74% of rescue was done by the community members of Kashmir  
341 while as 26% rescue was done by army, police and NDRF. These figures show that it was the  
342 community members especially youth who emerged as the heroes during rescue operations  
343 (Table 6 and Figure 8).

344 Nazir Ahmad of Srinagar narrated the rescue scenario during the flood and  
345 said, *“We were rescued by the youth of Kashmir who brought boats with them for our rescue.  
346 We were stuck in second storey of our house with no food and drinking water. But the youth  
347 came and rescued us and took us to Dalgate relief camp. We resided there for 15 days.”*  
348 Bashir Ahmad of Anantnag, while recollecting the horrific memories of the flood, narrated,  
349 *“If the local youth had not come for our rescue, we would have died.”* A volunteer from  
350 Srinagar narrated, *“Relief and rescue operations during the flood had their own priorities.  
351 The administration rescued the tourists first, then politicians and the elite class, the migrant  
352 labourers and lastly the local people.”* This created the animosity among the local population  
353 towards the administration.

354 The distribution of relief by the administration had its own priorities.  
355 According to several respondents, the upper class people and the political elite were provided  
356 more relief as compared to the lower class people. There was bias from the authorities in the  
357 distribution of relief as the politically influential people were provided more relief as  
358 compared to the damage they incurred. Mushtaq Ahmad from Baramulla, while narrating the  
359 bias from the authorities in distributing relief, said, *“The politically influential people in my  
360 village were provided a lot of relief. We incurred a loss of 8 lakh rupees but were provided  
361 the relief of merely 2 lakh rupees while as some people who incurred the loss of 2 lakh rupees  
362 were provided the relief of 4 lakh rupees.”* Some of the relief was provided by some NGOs  
363 like GOONJ and local religious organisations.

364 The total absence of civilian government was an important aspect of flood risk  
365 management. The inability of the government to control the damage of the flood was evident  
366 by the lack of proper disaster management facilities. In 2014, Muzamil Jaleel, a journalist  
367 with The Indian Express narrated the situation as *“The rescue operation isn't led by anyone  
368 because there isn't any communication between officials. The people have no means to  
369 contact anybody in the government. The Army, Air Force and NDRF are functioning on their  
370 own. The cell phones of almost all government officials are defunct. Director of Health  
371 Services (Kashmir) Saleem-ur Rahman, for example, said he could not contact his officials.*

372 The only network functional is Aircel; government officials use BSNL or Airtel. All  
373 government offices are shut, as are the civil secretariat and the high court. The state police's  
374 control room is being run from a DIG's car where a few officers use wireless to communicate  
375 among themselves. On Tuesday night, police managed to send a few radio updates to the  
376 public." The then Chief Minister of J&K, Omar Abdullah, while acknowledging the complete  
377 breakdown of his administration in an interview on 11th September 2014, said, "I had no  
378 government for the first 36 hours. My secretariat, the police headquarters, the control room,  
379 fire services, hospitals, all the infrastructure was underwater. I had no cell phone and no  
380 connectivity. I am now starting to track down ministers and officers. Today I met ministers  
381 who were swept up by the floods." According to news reports, during the first critical days  
382 after the floods hit Srinagar, the Chief Minister was working with only two of his senior  
383 functionaries, Chief Secretary Iqbal Khanday and Director General of Police K Rajendra  
384 (Arshad, 2014). As per Rapid Assessment Report (2014), which surveyed 26 relief camps  
385 across the city, "a total of 26 relief shelters in highly affected parts of Srinagar housed 37,450  
386 people. Out of the 26 relief shelters studied, 7.7% received food supplies from NGOs while  
387 92.3% of the relief shelters received food supplies from community donations. Around 200  
388 pregnant women were reported to be present in these shelters."

389 Rescue and relief, it emerged, had its own agenda. In Kashmir, the locals were  
390 initially largely left to fend for themselves, while 13,000 tourists and pilgrims were flown out,  
391 followed by officials, and others with the right contacts. A large number of migrant labourers  
392 remained stuck with the community members. There may have been reasons for this, no  
393 doubt – to ease the burden of rehabilitation and care, and the usual antipathy to working-class  
394 people. This meant that rescuing local people and poor migrants was delayed. On the 10th  
395 day of the floods (14 September 2014), the General Officer Commanding-in-Chief of the 15th  
396 Corps, Lt General Subarat Saha, made the claim that Srinagar had "well transitioned" from  
397 rescue to relief work and said, "Nobody is marooned any longer, strictly speaking." The  
398 director general of the National Disaster Response Force (NDRF) announced three days later,  
399 on 17 September 2014 that in "technical terms rescue operations (have) concluded". On the  
400 10th day, the army claimed that it had rescued 1, 84,000 people across Kashmir, using 224 of  
401 their boats and 148 of the NDRF. But, the same day, Chief Minister Omar Abdullah, while  
402 criticising "rumour mongers", said that 80,000 people had been rescued, of whom 59,000 had  
403 been assisted by the army, 10,000 by the NDRF, and 21,000 by the Central Reserve Police  
404 Force (CRPF), the police, and local volunteers. But by far the biggest and most heroic role





472 **Conflict of Interest Statement:** The author declares that no conflict of interest is involved in  
473 the paper.

474 **Acknowledgement:** I am highly thankful to the Editors of the Natural Hazards journal for  
475 carefully handling the manuscript and providing useful suggestions. I am also thankful to the  
476 anonymous reviewers for providing important suggestions to improve the quality of the  
477 paper.

#### 478 **References**

479 Adhikari, P., Hong, Y., Douglas, K. R., Kirschbaum, D. B., Gourley, J., Adler, R., &  
480 Brakenridge, G. R. (2010). A digitized global flood inventory (1998–2008): compilation and  
481 preliminary results. *Natural Hazards*, 55(2), 405-422.

482 Akhtar Alam, M. Sultan Bhat, Hakim Farooq, Bashir Ahmad, Shabir Ahmad, Ashaq H.  
483 Sheikh, (2018) "Flood risk assessment of Srinagar city in Jammu and Kashmir, India",  
484 *International Journal of Disaster Resilience in the Built Environment*, Vol. 9 Issue: 2, pp.114-  
485 129

486 Alam A, Bhat MS, Kotlia BS, Ahmad B. Ahmad S. Taloor AK, Ahmad HF (2017)  
487 Coexistent pre-existing extensional and subsequent compressional tectonic deformation in the  
488 Kashmir basin, NW Himalaya. *Quat Int* 444:201–208

489 Alexander, D. (2018). *Natural Disasters*. Routledge.

490 Annual Global climate and catastrophe report 2014: impact forecasting. (2015). Aon  
491 Benfield.[http://thoughtleadership.aonbenfield.com/Documents/20150113\\_ab\\_if\\_annual\\_clim](http://thoughtleadership.aonbenfield.com/Documents/20150113_ab_if_annual_climate_catastrophe_report.pdf)  
492 [ate\\_catastrophe\\_report.pdf](http://thoughtleadership.aonbenfield.com/Documents/20150113_ab_if_annual_climate_catastrophe_report.pdf)

493 Arshad. S (2014). J&K floods: Over 200 dead, 47,000 people rescued.  
494 <https://reliefweb.int/report/india/jk-floods-over-200-dead-47000-people-rescued>

495 Bankoff, G. (1999). A history of poverty: The politics of natural disasters in the Philippines,  
496 1985–95. *The Pacific Review*, 12(3), 381-420.

497 Bankoff, G., Frerks, G., & Hilhorst, D. (Eds.). (2013). *Mapping Vulnerability: " Disasters,*  
498 *Development and People"*. Routledge.

499 Bhat MI (1982) Thermal and tectonic evolution of Kashmir basin visà-vis petroleum  
500 prospects. *Tectonophysics* 88:117–132

501 Bhatt, C. M., Rao, G. S., Farooq, M., Manjusree, P., Shukla, A., Sharma, S. V. S. P., &  
502 Dadhwal, V. K. (2017). Satellite-based assessment of the catastrophic Jhelum floods of  
503 September 2014, Jammu & Kashmir, India. *Geomatics, Natural Hazards and Risk*, 8(2), 309-  
504 327.

505 Brown, M., & Madge, N. (1982). *Despite the welfare state: a report on the SSRC/DHSS*  
506 *programme of research into transmitted deprivation*. Heinemann Educational Publishers.

507 Burbank DW. (1983). The chronology of intermontane-basin development in the northwest  
508 Himalaya and the evolution of the Northwest Syntaxis. *Earth Planet Sci Lett* 64:77–92

509 Carpenter, O., Platt, S., & Mahdavian, F. (2020). *Disaster Recovery Case Studies: India*  
510 *Pakistan Floods 2014*. Cambridge Centre for Risk Studies at the University of Cambridge  
511 Judge Business School.

512 Census of India, 2011

513 CRED (2019). CRED: EM-DAT: The international disasters database, available at:  
514 <https://www.emdat.be/database>

515 Dhar, O. N., & Nandargi, S. (2003). Hydrometeorological aspects of floods in India. *Natural*  
516 *Hazards*, 28(1), 1-33.

517 Fritz, C. E. (1957). Disasters compared in six American communities. *Human*  
518 *Organization*, 16(2), 6-9.

519 Gulzar, S. M., Mir, F. U. H., Rafiqui, M., & Tantray, M. A. (2021). Damage assessment of  
520 residential constructions in post-flood scenarios: a case of 2014 Kashmir  
521 floods. *Environment, Development and Sustainability*, 23, 4201-4214.

522 Herbert, D. (1975). Urban Deprivation: Definition, Measurement and Spatial Qualities. *The*  
523 *Geographical Journal*, 141(3), 362-372.

524 Hilhorst, D. (2013). Complexity and diversity: unlocking social domains of disaster response.  
525 In *Mapping vulnerability* (pp. 71-85). Routledge.

526 Iqbal, F. (2019). The dying Wullar. [https://www.greaterkashmir.com/news/opinion/the-](https://www.greaterkashmir.com/news/opinion/the-dying-wullar-2/)  
527 [dying-wullar-2/](https://www.greaterkashmir.com/news/opinion/the-dying-wullar-2/). Greater Kashmir, 27 June, 2019.

528 Jammu Kashmir Coalition of Civil Society. (2015). *Occupational hazard, The Jammu and*  
529 *Kashmir Floods of September 2014*. Srinagar: Jammu Kashmir Coalition of Civil Society

530 Jonkman, S. N. (2005). Global perspectives on loss of human life caused by floods. *Natural*  
531 *Hazards*, 34(2), 151-175.

532 Kumar, R., & Acharya, P. (2016). Flood hazard and risk assessment of 2014 floods in  
533 Kashmir Valley: A space-based multisensor approach. *Natural Hazards*, 84(1), 437–464.

534 Leung, J. Y. S., Russell, B. D., and Connell, S. D. (2019). Summary for Policymakers,  
535 available at: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15\\_SPM\\_version\\_repo](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf)  
536 [rt\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf).

537 Long, N. (1992). Introduction; From paradigm lost to paradigm regained? The case for an  
538 actor-oriented sociology of development; Conclusion. *Battlefields of knowledge. The*  
539 *interlocking of theory and practice in social research and development*, London: Routledge,  
540 3-15.

541 Malik, I. H. (2015). Socio-economic, political and ecological aspects of ecotourism in  
542 Kashmir. *Best: International Journal of Humanities, Arts, Medicine and Sciences (BEST:*  
543 *IJHAMS)*, 3(11), 155-166.

544 Malik, I. H., & Hashmi, S. N. I. (2020). Ethnographic account of flooding in North-Western  
545 Himalayas: a study of Kashmir Valley. *GeoJournal*, 1-19.

546 Malik, I. H., & Hashmi, S. N. I. (2021). The Great Flood and its Aftermath in Kashmir  
547 Valley: Impact, Consequences and Vulnerability Assessment. *Journal of the Geological*  
548 *Society of India*, 97(6), 661-669.

549 Meraj, G., Romshoo, S. A., Yousuf, A. R., Altaf, S., & Altaf, F. (2015). Assessing the  
550 influence of watershed characteristics on the flood vulnerability of Jhelum basin in Kashmir  
551 Himalaya: reply to comment by Shah 2015. *Natural Hazards*, 78(1), 1–5.

552 Mishra, AK. (2015) A study on the occurrence of flood events over Jammu and Kashmir  
553 during September 2014 using satellite remote sensing. *Nat Hazards* 78:1463–1467

554 Mohammed, A. A. A., Naqvi, H. R., & Firdouse, Z. (2015). An assessment and identification  
555 of avalanche hazard sites in Uri sector and its surroundings on Himalayan mountain. *Journal*  
556 *of mountain science*, 12(6), 1499–1510.

557 Navlakha, G. (2014). Kashmir Deluge: Natural Disaster Made Worse. *Economic and Political*  
558 *Weekly*, 18-20.

559 Norris G. (1979). Defining urban deprivation. In: Jones C, editor. Urban deprivation and the  
560 inner city. London: Croom Helm; p. 17–31.

561 Pelling, M., & Dill, K. (2006). ‘Natural disasters’ as catalysts of political action (ISP/NSC  
562 Briefing Paper 06/01). London: Chatham House.

563 Rapid Assessment Report (2014). Rapid Needs Assessment Report: J&K Floods 2014.  
564 [https://reliefweb.int/sites/reliefweb.int/files/resources/JRNA%20Report%20Odisha%20Flood](https://reliefweb.int/sites/reliefweb.int/files/resources/JRNA%20Report%20Odisha%20Flood_26Aug2014_IAG%20Odisha.pdf)  
565 [\\_26Aug2014\\_IAG%20Odisha.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/JRNA%20Report%20Odisha%20Flood_26Aug2014_IAG%20Odisha.pdf)

566 Romshoo, S. A., Altaf, S., Rashid, I., & Dar, R. A. (2018). Climatic, geomorphic and  
567 anthropogenic drivers of the 2014 extreme flooding in the Jhelum basin of Kashmir,  
568 India. *Geomatics, Natural Hazards and Risk*, 9(1), 224-248.

569 Saharia, M., Jain, A., Baishya, R. R., Haobam, S., Sreejith, O. P., Pai, D. S., & RafieeiNasab,  
570 A. (2021). India Flood Inventory: Creation of a multi-source national geospatial database to  
571 facilitate comprehensive flood research. *Natural Hazards*, 1-15.

572 Venugopal, R., & Yasir, S. (2017). The politics of natural disasters in protracted conflict: the  
573 2014 flood in Kashmir. *Oxford Development Studies*, 45(4), 424-442.

574 Wilhelm, B., Ballesteros Cánovas, J. A., Macdonald, N., Toonen, W. H., Baker, V.,  
575 Barriendos, M., & Wetter, O. (2019). Interpreting historical, botanical, and geological  
576 evidence to aid preparations for future floods. *Wiley Interdisciplinary Reviews: Water*, 6(1),  
577 e1318.

578 Yaseem. F. (2014). Kashmir floods an international disaster: Govt. Rising Kashmir.

579 Zarekarizi, M., Srikrishnan, V., & Keller, K. (2020). Neglecting uncertainties biases house-  
580 elevation decisions to manage riverine flood risks. *Nature communications*, 11(1), 1-11.