

Erratum to: Quantitative approach on erosion hazard, vulnerability and risk assessment: case study of Muriganga–Saptamukhi interfluve, Sundarban, India

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Several mistakes need to be corrected:

1. In the fifth column and at the last nine rows of Table 2, the Division standard attributes have been interchanged and reorganized under three sequential rating classes according to the functionality of each of those aspects in this section (marked in *italics*). The attributes have been written in 3, 2, 1 order in the place of 1, 2, 3 order. Corrected Table 2 showing Vulnerability criterion. At the same time formula of Exposure index has been replaced as “**Exposure index = function of (Geology + Morphology + Relief + Slope + Bank angle + Near bank depth of water + Tidal range + Surge height + Proportion of exposed shoreline/9)**” (3) instead of “Exposure index = function of (Geology + Morphology + Relief + Slope + Bank angle + Near bank depth of water + Tidal range + Surge height/8)” (3)
2. In the third column of Table 4, “extent of risk” has been replaced as “**extent of erosion hazard**”. The corrected portion of Table 4 has been highlighted in *italics*.
3. In the caption of Fig. 7, the meanings of **a–f** were not written in detail which has been described in this section. The caption of Fig. 7 has been replaced here. “Fig. 7 Different extent of exposure, susceptibility, resilience and erosion hazard risk in different parts of the study area: **a** extensive bank dwelling, **b** vertical exposed embankment, **c** exposed coastal embankments affected by tidal rushes, **d** commercial fishing just behind the embankment, **e** slumping of earthen bank materials and **f** exposed beach” instead of “Fig. 7 Condition of coastline and river banks”.

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Table 2 Vulnerability criterion

Index	Factor	Parameters	Sources	Division standard	Rating classes
Vulnerability	Exposure	Geology	District resource map Geological survey of India	Ancient and mid Holocene silt and clay	1
				Sand and silt of upper Holocene	2
				Upper Holocene estuarine supra tidal flat	3
Morphology			Topographical sheets of Survey of India 1967–1969 and Satellite image 2014	Elevated tidal flat	1
				Low lying tidal flat with meandering channels	2
				Low lying coast and exposed mouth reaches	3
Relief			Digital elevation model from SRTM Global land cover facility	>5.2 m	1
				2.6–5.2 m	2
				<2.6 m	3
Slope			Digital elevation model from SRTM Global land cover facility	>.03°	1
				.02–.03°	2
				<.02°	3
Embankment angel (towards river valley and coast)			Field survey from 2013 to 2016 during pre-monsoon, monsoon, and post-monsoon season	<45°	1
				45–55°	2
				>55°	3
Near-bank depth			Bathymetry chart Kolkata Port Trust 2013 and field survey from 2013 to 2016 during pre-monsoon, monsoon, and post-monsoon season	<4 m	1
				4–8 m	2
				>8 m	3
Surge height			Field survey from 2013 to 2016 during pre-monsoon, monsoon, and post-monsoon season, related documents and dwellers perception study in same period	<0.75 m	1
				0.7–1.50 m	2
				>1.50 m	3
Tidal range			Field survey 2013–2016 and PSMSL data of Sagar, Gangra, and Haldia stations	<2.5	1
				2.5–4.0 m	2
				>4.0 m	3

Table 2 Vulnerability criterion

Index	Factor	Parameters	Sources	Division standard	Rating classes
		Proportion of exposed shoreline	Satellite image 2014	<30%	1
				30–60%	2
				>60%	3
Susceptibility	Population growth	Census of India 2001–2011		<15%	1
				15–30%	2
				>30%	3
	Settlement density	Census of India 2011		<150 household/sq.km	1
				150–300 household/sq.km	2
				>300 household/sq.km	3
	Agricultural land (in %)	Census of India 2011		<60%	1
				60–80%	2
				>80%	3
Resilience	Literacy rate	Census of India 2011		<55%	1
				55–65%	2
				>65%	3
	Banking and credit facility	Census of India 2011		Lesser availability (0–2)	1
				Moderately available (2–4)	2
				Available (>4 number)	3
	Types of embankment	Field survey 2013–2016		Mud and woods	1
				Mud, brick, and Bali bags	2
				Brick lined	3
	% of forest cover in the marginal parts	Census of India 2011 and satellite image 2014		<20%	1
				20–40%	2
				>40%	3

Table 4 Spatial distribution of risk classes in connection with vulnerability and hazard factors

Risk classes	% of Mouza	Location of Mouzas	Extent of vulnerability	<i>Extent of erosion hazard</i>
High	24	Coastal belt in extreme south and exposed river banks in the middle and upper parts	High to moderate vulnerability	High to moderate intensity of erosion
Medium	22	Exposed river banks in middle part	Moderate to high vulnerability	Moderate to low intensity of erosion
Low	54	Inner part and northern part	High to low extent of vulnerability	Moderate to low intensity of erosion, mostly stable condition