

**Figure 1.** The composite Knowledge Index (KI) score versus per capita gross domestic product (purchasing power parity).

terms of purchasing power parity dollars (GDP (PPP)) for each of these 131 coun-

tries<sup>2</sup>. Figure 1 is a scatter plot of the composite Knowledge Index score versus

per capita GDP (PPP). We see that most countries with per capita GDP (PPP) below 60,000 USD fall about a backbone. Beyond that, per capita GDP (PPP) does not translate to higher scores. Most of the oil-rich Gulf countries do not show much promise.

1. <http://www.knowledge4all.com> (accessed between 5 and 7 December 2017).
2. [https://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_GDP\\_\(PPP\)\\_per\\_capita](https://en.wikipedia.org/wiki/List_of_countries_by_GDP_(PPP)_per_capita) (accessed on 7 December 2017).

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## Kuldhara devastation and the great exodus

Here we present a fact file with further clarifications on some of the expositions of a recent publication in *Current Science*<sup>1</sup>. The purpose of this rejoinder is to present facts against the possible reason of unknown-intensity earthquake for exodus of the Paliwal community from the Jaisalmer region, Rajasthan, India.

Roy *et al.*<sup>1</sup> are uncertain about the time period of migration, whereas it is important to note that the day of ‘great migration’ is clearly known<sup>2</sup> as ‘the full Moon day of Shrawan month of 1882 VS, which correspond to Friday the 29th July 1825’.

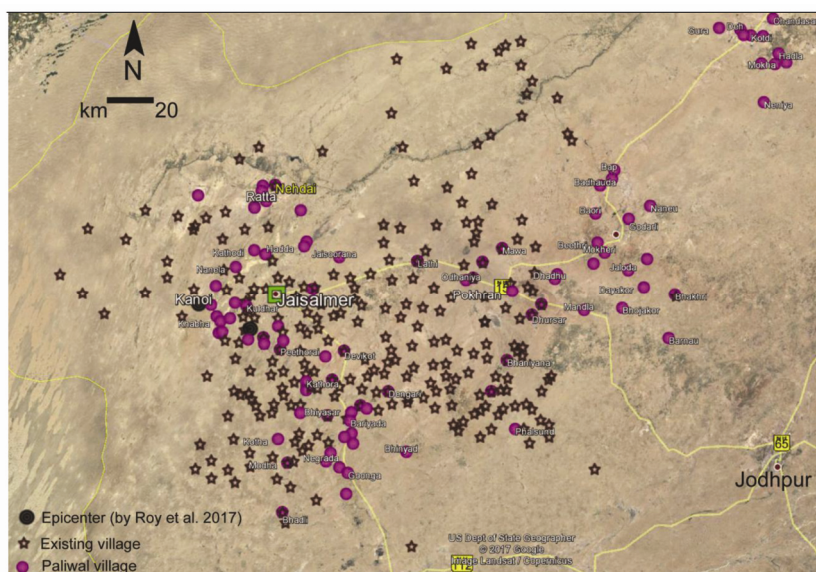
The logic of evacuation due to earthquake as suggested by Roy *et al.*<sup>1</sup> is untenable for the following reasons:

(1) Records reveal that no earthquake had occurred around the time-period of the great migration. According to the seismological records available with the Director General of Observatories, an earthquake was felt at Jaisalmer on 16 June, AD 1819, causing considerable damage to the area. Another great shock was felt over a wide area around Jaisalmer on 4 April, AD 1905, but no great

damage was reported<sup>3</sup>. Apparently, the earthquake in AD 1819 occurred much before the great migration and the earthquake in 1905 occurred long after it.

(2) It is illogical to mention that the earthquake selectively hit and caused

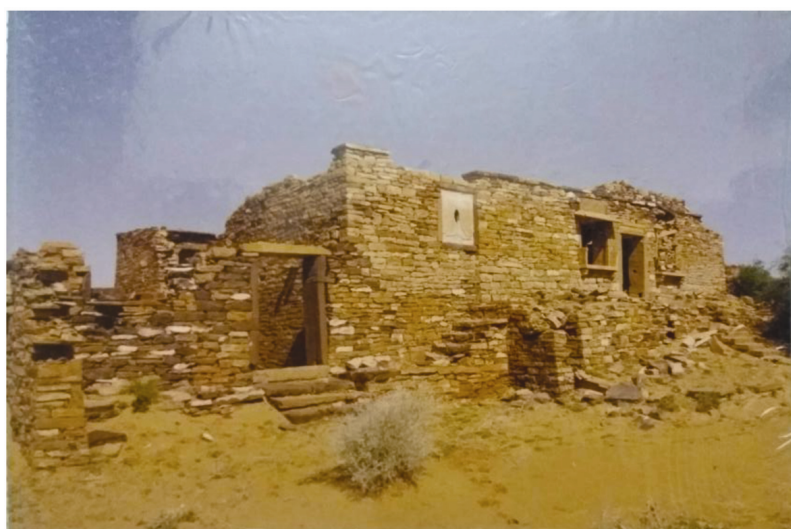
devastation in only Paliwal villages<sup>2</sup>, while hundreds of villages in the vicinity were not affected<sup>3</sup> (Figure 1). Geographically, Paliwal villages were not located in isolation, rather they were located amidst the cluster of other villages with



**Figure 1.** Map showing Paliwal villages in Jaisalmer region, Rajasthan, India.



**Figure 2.** Continuity of walls can be seen in the Google image of Kuldhara area.



**Figure 3.** File photograph of a Kuldhara house recorded in 1982 (courtesy: Jaisalmer Fort Museum).

no specific order (Figure 1). Interestingly, not even a single instance has been reported of similar devastation of this scale in the neighbouring villages.

(3) Roy *et al.*<sup>1</sup> reported two epicentres of unknown-intensity earthquake of magnitude 5–6. An earthquake of this intensity cannot cause damage beyond a certain radius (approx. 30 km) in thick sand-covered areas, while Paliwal Brahmins lived in areas up to 75 km radial distance in different villages.

(4) Roy *et al.*<sup>1</sup> emphasized the nature of fall of collapsed roofs, lintels, joists and pillars. We observed that the walls are still in contact with each other over the entire street and with their adjoining houses, which is not possible in the case of damage by an earthquake (Figure 2).

About 193 years ago, apart from the state levy, exorbitant taxes and extortion threats, the policies of the then notorious Prime Minister (Salim Singh) were the obvious reason for the migration of Paliwals from Kuldhara and 83 other villages in Jaisalmer.

The historical aspects of this migration are well documented and therefore there is no scope for alternative theories.

(5) Jaisalmer entered into a treaty of protection with the Imperial Government on 12 December, AD 1818. Most history after this landmark event has been well-documented in successive gazetteers and annals<sup>3–6</sup>.

The *Gazetteer of Jaisalmer State*<sup>5</sup> clearly mentions the following: ‘With his atrocious policies towards commercial

men and with the industrious agriculturists and pastoral communities he (Salim Singh) drove out the Paliwal Brahmins from Jaisalmer state.’

The *Rajasthan District Gazetteers – Jaisalmer*<sup>3</sup> mentions: ‘One of the finest buildings in Jaisalmer is the house of ill-famed Diwan Salim Singh, who devastated the country about a hundred and fifty years ago with his cruelty and extortions.’<sup>3</sup>

The *Gazetteer of the Jaisalmer State*<sup>5</sup> and the *Imperial Gazetteer of India*<sup>6</sup> describe the state of irrigation and agriculture and the special irrigation system called ‘khadeens’ – the shallow depressions meant for waterlogging. Majority of these khadeens were constructed by Paliwal Brahmins before they were driven out of the Jaisalmer State<sup>6</sup>.

(6) The Paliwals migrated overnight to places in the neighbouring provinces such as Jodhpur, away from the influence of Salim Singh. The villages in Jodhpur state where the Paliwals settled down after their migration are well identified<sup>2,7</sup>.

Thus, we must not complicate the historical facts and mystify them using diverse interpretations. All chronicles have unanimously mentioned the atrocities of the Prime Minister on Paliwal Brahmins that ultimately led to their exodus from Kuldhara and other villages.

The deserted and uninhabited houses are naturally and otherwise, more vulnerable. Also, as is common, the wooden doors and windows of such desolate houses were stolen by people from the surrounding villages. Moreover, most damage to houses in Kuldhara has taken place in the last 30 years. This is evident from a file photograph of a Kuldhara house recorded in 1982 (Figure 3).

Therefore, it would be appropriate to mention that earthquakes may have affected the structures in the deserted village over a long period of time, but, the very history that compounded exodus of people from these villages is not questionable. Summarily, the great exodus of Paliwal Brahmins from Kuldhara and the possibility of any earthquake causing large-scale devastation in the village are mutually independent.

1. Roy, A. B., Bhu, Harsh, Sharma, Pankaj and Vaishnav, Kishan, *Curr. Sci.*, 2017, **112**(2), 402–405.

2. Paliwal, S. N., *Paliwal Itihas*, Paliwal Sanskritik Dharohar Trust, Jodhpur, 1998, p. 111.
3. *Rajasthan District Gazetteers – Jaisalmer*, 1973, pp. 11; 86; 349; <http://plan.rajasthan.gov.in/content/dam/planningportal/Directorate%20of%20Economics%20and%20Statistics/Publication/Rajasthan%20Gazetteers/DISTRICT%20GAZETTEER/JAISALMER/jaisalmer%20publication.pdf#.ENGLISH>
4. *Memoirs of the Geological Survey of India*, 1910, **38**, 1910; <https://ia801407.us.archive.org/32/items/recordsgeologic13indigoog/recordsgeologic13indigoog.pdf>
5. *Gazetteer of the Jaisalmer State* (compiled by Major K.D. Erskine), 1909, pp. 14–15; 24–25; [https://ia601603.us.archive.org/14/items/in.ernet.dli.2015.35749/2015.35749\\_A-Gazetteer-Of-The-Jaisalmer-State-And-Some-Statistical-Tables.pdf](https://ia601603.us.archive.org/14/items/in.ernet.dli.2015.35749/2015.35749_A-Gazetteer-Of-The-Jaisalmer-State-And-Some-Statistical-Tables.pdf)
6. *Imperial Gazetteer of India*, 1908, vol. 14, p. 3; [http://dsal.uchicago.edu/reference/gazetteer/pager.html?objectid=DS405.1.134\\_V14\\_001.gif](http://dsal.uchicago.edu/reference/gazetteer/pager.html?objectid=DS405.1.134_V14_001.gif)
7. Kuldhar, M. M. (ed.), *Paliwal Brahmins Vanshawali*, Sharda Grih Pustakalaya, Jaisalmer, 2012.

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### Response:

We must thank Bahadur *et al.* for mentioning the date of what they consider as the ‘Great migration’. Our suggestion about earthquake-related devastation was based on the field examination of different villages where the Paliwal Brahmins lived. We presented some telltale evidence of destruction of houses made of blocks of rocks without using any cementing materials. The earthquake-related destruction features in the poorly constructed stone-block houses of Kuldhar and other Paliwal villages were similar to those destroyed during the Latur earthquake in the recent past, and at about 4000 years ago site at the historical Mohenjodaro. In the Paliwal villages near Jaisalmer, many people may have been buried under the heavy blocks of rocks, and very few could have survived the fatality. Whoever visits these villages, hears the stories of ghosts haunting the place. The unnatural deaths of people must be the reason for these ghost stories in circulation in the desolate Paliwal villages.

We have serious doubts whether Bahadur *et al.* personally visited these Paliwal villages. The authenticity of the *British India Gazetteer* information on the earthquake incidence in the early 19th century is doubtful, especially from such remote places away from Jaisalmer town; further, the pristine Jaisalmer Royal State, was never under British rule. How can

we rely on data regarding an event that took place in the early 19th century, compiled in the *British India Gazetteer* more than 100 years after the incidence of earthquake? Is there any mention of the supposed migration of the Paliwal Brahmins in the *Gazetteer*? The massive exodus of the Paliwal Brahmins is a fabricated story, which was imbibed in the folklore at a later period. There is no documented evidence supporting it. On the other hand, geological studies of the terrain provide enough proof about the region being neotectonically and seismically active.

Have Bahadur *et al.* visited the Jaisalmer fort and witnessed the damaged walls in the fort area? Why do some buildings within the Fort show tilting and walls appear cracked? Did they try to understand what might have caused the present derelict condition of Jaisalmer Fort, unlike any other fort in Rajasthan? What led the then King and his royal troops to abandon the Palace in the fort? Have any of these features found place in the *Gazetteer*?

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