in the last 14 years as out of the four El Niño years globally, three resulted in droughts in India. The drought of 2002 is a classic example of a strong El Niño phenomenon as the SW monsoon rainfall in India dropped by more than 19% from its long period average. Consequently, foodgrain production decreased by 18% and agriculture GDP dropped by 7% causing a loss of 8 billion USD.

According to the researchers at University of Reading, UK, El Niño could be quite devastating for agriculture and water supply in India as two-thirds of Indian farmland lack irrigation and rely solely on rainfall[6]. El Niño resulting in deficit rainfall tends to lower the production of summer crops such as rice, sugarcane, cotton and oilseeds. The ultimate impact is seen in the form of high inflation and low gross domestic product growth as agriculture contributes around 14% to the Indian economy[7]. In the past, the impact of severe droughts has remained between 2% and 5% of our GDP[6]. According to the report of the Associated Chamber of Commerce and Industry of India, about 5% deficit in rainfall due to possible El Niño factor could have a bearing on economic growth by 1.75% costing about Rs 180,000 crores in the 2014–15 fiscal[8]. With every 1% deficit in rainfall, the country's GDP falls by 0.35%, as 60% of net sown area of India is rainfed.

1. http://www.theguardian.com/environment/2014/jun/11/-sp-el-nino-weather-2014
2. Stone, R. C., Hammer, G. L. and Marcussen, T., *Nature*, 2006, **384**, 1896–1909.
3. http://www.bbc.com/news/science-environment-27393087
4. http://www.icrier.org/pdf/working_paper_276.pdf
5. Gadgil, S., *Curr. Sci.*, 2014, **106**(10), 1335–1336.
6. Gadgil, S. and Gadgil, S., *Econ. Polit. Wkly*, 2006, **XLI**, 4887–4895.
7. http://businesstoday.intoday.in/story/how-el-nino-impacts-monsoon-rainfall-in-india/1/205679.html
8. www.assocham.org/prels/shownews.php?-id=4490

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Not just subjective, but also sloppy – a response to Bhadra

We read Bhadra's rejoinder[1] to our letter[2] with interest and disappointment. Not only has she failed to counter the main criticisms of our response to Majumder et al.[3], she has made fairly serious allegations of scientific impropriety on our part. She has also alleged that we have inflated figures of dog bite cases in India by three orders of magnitude. Unfortunately, her conclusion is flawed and arises from a misreading and misunderstanding of both our original statement as well as the primary literature that was cited.

In her rejoinder, Bhadra has alleged that 'Vanak et al. have conveniently converted 17,137 to 17 million, and this increase by three orders of magnitude cannot be a typographical error' and further states that 'It is alarming and at the same time depressing to see such blatant misrepresentation of data'.

Instead, in our article we state that '…that the "part" of the human population that they are referring to is an estimated 17–20 million Indians/year that suffer from dog bites. Tragically, this results in a person dying from dog-contracted rabies every 30 min'.

Thus, we find her allegations baffling. We are clearly referring to the number of dog bite cases as 17 million, which is derived from Sudarshan et al.[4], and not the number of rabies cases (which at 1/30 min/yr = ~17,500).

Bhadra has confounded these two issues. She has taken the cases of annual rabies in India and converted them to dog bite cases in her claim that 'This is also substantiated by that data provided by Sudarshan et al., that 2 in every 100,000 humans are bitten by dogs every year'. Sudarshan et al.[5], actually report 2 in 100,000 as being the annual incidence of rabies. She seems to have also neglected to fully read the two additional citations she refers to, which state similar figures. Menezes[6] provides an estimate of 15 million dog bite cases in India, while Sudarshan[7] states that 1.7% of the population is affected by dog bites annually. Thus, the error in reporting numbers is not at our end, but rather on Bhadra's, and her accusation of scientific impropriety is completely unwarranted.

Bhadra has also failed to address the major criticisms we presented, often obfuscating or self-contradicting herself in her response. For example, she states that 'In IISc too, reports of dog–human conflict are not rare, and there are several instances of people being chased by dogs', as a justification for choosing this site for her study. However, Majumder et al.[3] claim that they found no evidence for such dog–human conflict inside IISc campus. Bhadra attempts to justify this as well, by saying that '…1941 dogs would be a small percentage of the total population, which explains why we could have missed out a few rare cases of dog–human aggression during our surveys'. So is dog–human conflict rare or not? We would also like to reiterate that the data sampling by Majumder et al.[3] is flawed, since samples are non-independent. However, this is eclipsed by the other problems in the paper.

We do not wish to belabour these points any further, but we do urge

Bhadra to be more circumspect when making serious allegations of misrepresentation of data. We also urge her to refrain from hastiness in drawing generalized conclusions from preliminary studies, especially since 'similar night-time samplings of behaviour' are ongoing, and may paint a more complete picture of dog behaviour and potential interactions with humans. As Bhadra herself says 'understanding the behaviour and ecological dynamics of the free-ranging dogs can only be achieved through an extensive and rigorous scientific exercise'. We agree, but maintain that the study of Majumder et al.[3] is neither extensive nor rigorous.

1. Bhadra, A., Curr. Sci., 2014, **107**, 343–345.
2. Vanak, A. T., Belsare, A., Uniyal, M. and Ali, R., Curr. Sci., 2014, **107**, 341–343.
3. Majumder, S. S., Chatterjee, A. and Bhadra, A., Curr. Sci., 2014, **106**, 874–878.
4. Sudarshan, M. et al., J. Commun. Dis., 2006, **38**, 32.
5. Sudarshan, M. et al., Int. J. Infect. Dis., 2007, **11**, 29–35.
6. Menezes, R., Can. Med. Assoc. J., 2008, **178**, 564.
7. Sudarshan, M., WHO-sponsored national multicentre rabies survey 2003, 2004.

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Seasonal variation and climate change influence coral bleaching in Pirotan Island, Gulf of Kachchh Marine National Park, Gujarat

The Gulf of Kachchh occupies an area of 7300 sq. km with 42 islands with various groups of flora and fauna[1]. Pirotan Island is a part of the Gulf of Kachchh Marine National Park, located at 22°35′03.0″N, 069°57′26.2″E with rich coral reef ecosystem. A rapid survey during low tide on 14 September 2014 to assess the intertidal diversity of the Island showed bleached coral colonies, including new recruitments in the intertidal zone. The bleached coral colonies include *Favia favus*, *Favia lacuna*, *Favia speciosa*, *Favites halicora*, *Favites flexuosa*, *Porites compressa* and *Porites lichens* (Figure 1). Coral bleaching is a phenomenon that takes place when the symbiotic relationship between zooxanthellae and host corals breaks down under certain environmental stresses[2]. Global warming caused by greenhouse gases has increased both sea-surface temperature (SST) and UV-B radiation[3]. According to Marimuthu et al.[3], coral bleaching in Andaman waters was due to temperature fluctuation from 30°C to 34°C. The SST data[4] of the National Environmental
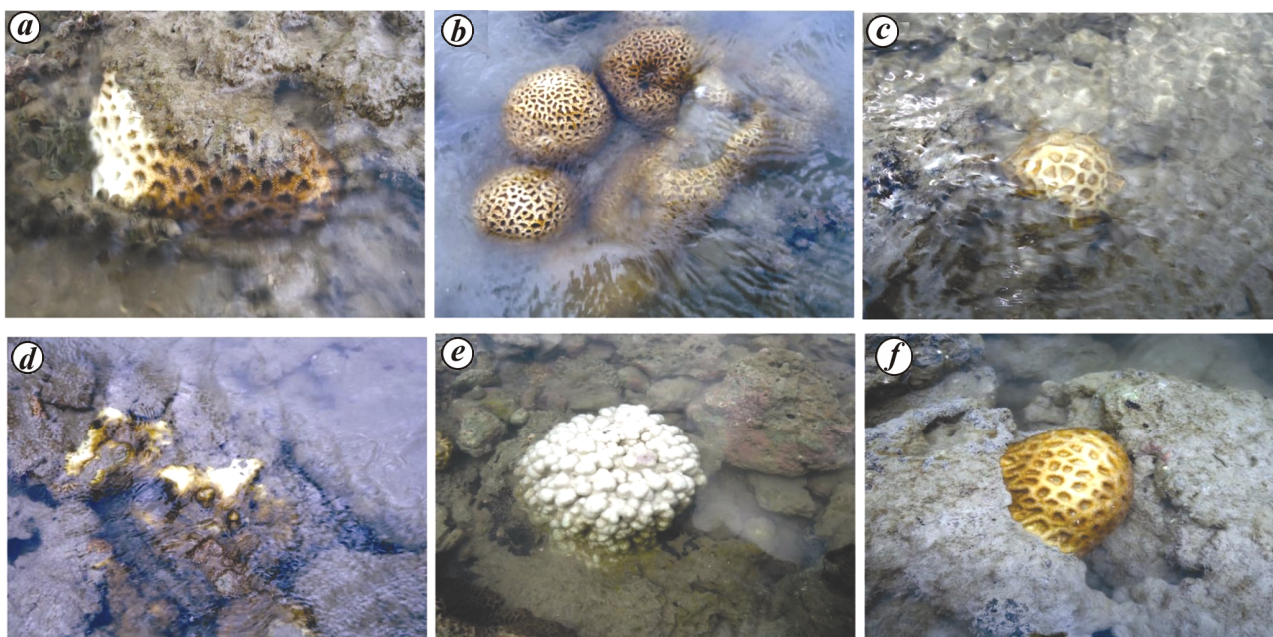
Figure 1. Bleached corals recorded at Pirotan Island. *a*, *Favia lacuna*; *b*, *Favia favus*; *c*, *Favites halicora*; *d*, *Porites lichen*; *e*, *Porites compressa*; *f*, *Favites flexuosa*.