

## LETTERS

Edited by Jennifer Sills

## Isolated tribes: Contact misguided

IN THEIR EDITORIAL “Protecting isolated tribes” (5 June, p. 1061), in addition to proposing the implausible notion of a flawlessly engineered “controlled contact” with isolated indigenous peoples in which events go according to plan and nobody dies, R. S. Walker and K. R. Hill ask us to ignore the likelihood that such processes would be co-opted by powerful vested interests. Oil companies, loggers, and governments are desperate to promote contact and access the precious natural resources in these peoples’ territories.

Walker and Hill are right, however, that “unless protection efforts...are drastically increased, the chances that these tribes will survive are slim.” They cite Peru’s “leave them alone” policy, but the reality is very different. In the case of the Yora people cited by Hill and Walker, roughly a third of the protected area established for them has been opened up for gas exploitation (1). If these rights are so trampled even in countries with “leave them alone” policies, what would happen if “controlled contact” were actively promoted? Walker and Hill should be demanding that these standards are upheld rather than weakened.

However well intentioned the proposal of “controlled contact,” it is not the place of others, be they academics or governments, to determine the future of peoples

who, for their own reasons, are holding the rest of the world at arm’s length. It is up to the people themselves to assume this weighty responsibility and to decide if, when, and how contact should occur. This is called self-determination. It is the job of wider society to safeguard this right by declaring their lands illegal for logging or mining, guarding these areas to prevent illegal activities, improving public health in surrounding areas, and enabling emergency medical assistance if and when contact is initiated. In this way, we can provide them with the space and time to decide their own future.

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## Isolated tribes: Human rights first

I APPLAUD THE coverage of isolated tribes in the 5 June issue and agree that government protection efforts need to be well organized and funded (“Protecting isolated tribes,” Editorial, R. S. Walker and K. R. Hill, p. 1061; “Making contact,” A. Lawler, News Feature, p. 1072; “In peril,” H. Pringle, News Feature, p. 1080). However, the section provides an incomplete view of a complex policy debate that has pitted “realists” against “idealists” since the 19th century

over the survival of independent indigenous peoples (1, 2). The issue is more about human rights to cultural survival than it is about “isolation.”

Policy realists have consistently maintained that tribal peoples could not survive autonomously. Only recently has this debate been idealistically framed as how to defend the tribal peoples’ basic human rights to cultural autonomy. In 2005, the UN General Assembly called for a “global mechanism” to support tribal peoples living in voluntary isolation (3); in 2007, it adopted the Declaration on the Rights of Indigenous Peoples (4). In 2012, the UN High Commissioner for Human Rights issued guidelines for the protection of isolated peoples in South America (5); the office added specific recommendations for Peru in 2014 (6).

The situation has improved substantially since I first visited the Peruvian Amazon in 1964. At that time, there were no indigenous political organizations, and most of their territories were still officially viewed as “uninhabited” and open for development (7). Indigenous activists began organizing in Peru to press for land rights and cultural autonomy in the 1980s, and by 2012, 1270 indigenous communities held titles to 106,585 km<sup>2</sup> of territory as communal reserves. This was nearly 14% of the Peruvian Amazon, and another 67,889 km<sup>2</sup> was in proposed or designated territorial reserves (8). Isolated tribes have been legally protected in Peru since 2006 (9). This idealist policy is supported by indigenous organizations [such as the Interethnic Association for the Development of the Peruvian Rainforest (AIDESEP)] and international nongovernmental organizations (such as International Work Group for Indigenous Affairs and Survival International). Surely Walker and Hill did not mean to characterize these human rights advances as a conceptually flawed “leave them alone” policy. Rights-based protection policies are not yet being adequately implemented, but their existence is crucial, and they are not flawed in principle. The long-term viability of isolated tribes is an open question, as is the viability of the commercial world. Likewise, no one knows whether “contact” would ultimately be a good choice, especially when it could mean joining the ranks of the global poor. Rejecting idealist policies would constitute a return to the flawed “realist” policies that accept as inevitable the politics that are degrading Amazonia in the name of development, which then forces some isolated tribes to forage outside their reserves to survive.

**John H. Bodley**



Allowing villagers in the remote Peruvian Amazon to determine their own future is a matter of human rights.

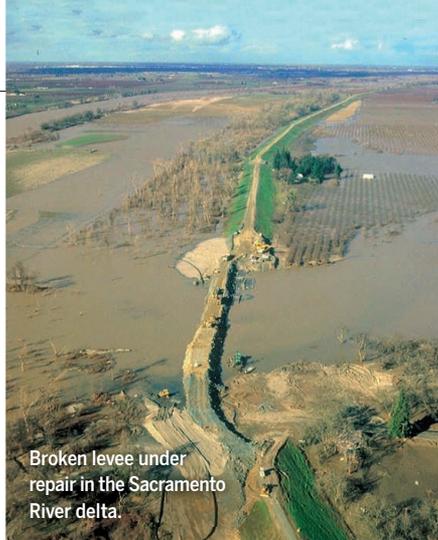
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## Drought threatens California's levees

CALIFORNIA HAS MORE than 21,000 km (1) of earthen embankments (referred to as levees) that protect dryland from floods and also function as water storage and management systems. The resilience of these levees under the record drought conditions California faces is an emerging issue that requires attention.

Prolonged droughts undermine the stability of levee systems by increasing water seepage through soil, soil cracking, soil strength reduction, soil organic carbon (SOC) decomposition, and land subsidence and erosion (2). The sand-clay mixtures, which form the body of the levees and consequently the entire structure, can lose a substantial amount of strength under dry conditions. Furthermore, levees in California are built on peaty soils, and the extreme drought leads to greater SOC decomposition in these soils. A large amount of the global carbon stock is found in peaty soils, and ~25% of this estimated stock is predicted to diminish under extremely dry conditions (3). Oxidation of



Broken levee under repair in the Sacramento River delta.

SOC under a prolonged drought can also accelerate land subsidence. In fact, 75% of the land subsidence across California is accredited to oxidation of SOC (3). Land subsidence can increase the risk of water rising over the top of the levees.

Australia's Millennium Drought (1997–2009) is often considered the type of event for which California should prepare (4). At the peak of the drought (i.e., 2008 to 2009), Australia experienced disastrous failures of alluvial river banks along the Murray River (5). Similar failures occurred in other parts of the world during extreme drought conditions, such as the 2003 Wilnis Levee failure in the Netherlands (6).

California's drought is yet another stress that poses a great risk to an already endangered levee system. At this time, 55% of California's levee systems are rated as "high hazard," meaning that they are in danger of failing if a flood event or an earthquake occurs (1). This indicates that California's levee systems have a high failure risk without even considering an extreme event such as a prolonged drought. If the drought ends with heavy rainfall-induced flooding, as seen in 2010 in Australia (5) and 2015 in Texas and Oklahoma (7), the levees could be at even greater risk. Drought risk and potential changes in the future climate were not considered in the engineering design of these levee systems and are still not considered in maintenance guidelines today. There is an urgent need to invest in research on (i) effects of the rate and variability of drought on the short- and long-term behavior of levees; (ii) constraints in existing levee design, maintenance, and monitoring guidelines for extreme droughts; (iii) adaptation and mitigation strategies for reducing drought impacts on the performance of levee systems; (iv) socioeconomic consequences of levee failures; and (v) multi-hazard disaster risk science to assess the impacts of compound and consecutive extreme events on

levees. Community engagement, public risk education, and close collaboration with stakeholders are key to enhancing societal resilience of levees to extreme droughts.

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## TECHNICAL COMMENT ABSTRACTS

### Comment on "Tectonic control of Yarlung Tsangpo Gorge revealed by a buried canyon in Southern Tibet"

Peter K. Zeitler, Peter O. Koons, Bernard Hallet, Anne S. Meltzer

Wang et al. (Reports, 21 November 2014, p. 978) describe a buried canyon upstream of the Yarlung Tsangpo Gorge and argue that rapid erosion of the gorge was merely a passive response to rapid uplift at ~2.5 million years ago (Ma). We view these data as an expected consequence emerging from feedbacks between erosion and crustal rheology active well before 2.5 Ma.

Full text at <http://dx.doi.org/10.1126/science.aaa9380>

### Response to Comment on "Tectonic control of Yarlung Tsangpo Gorge revealed by a buried canyon in Southern Tibet"

Ping Wang, Dirk Scherler, Jing Liu-Zeng, Jürgen Mey, Jean-Philippe Avouac, Yunda Zhang, Dingguo Shi

In their Comment, Zeitler et al. do not challenge our results or interpretation. Our study does not disprove coupling between tectonic uplift and erosion but suggests that this coupling cannot be the sole explanation of rapid uplift in the Himalayan syntaxes.

Full text at <http://dx.doi.org/10.1126/science.aaa9636>