

Everybody's fault

The Kashmiri earthquake highlights the urgent need for Pakistan and India to put aside their differences and build stronger scientific ties.

In the past 15 years, the dispute between India and Pakistan over the military 'line of control' that divides Kashmir may have cost between 40,000 and 60,000 lives. But even that formidable death toll was surpassed in a few moments last autumn, when the boundary between the Indian and Eurasian tectonic plates shook, killing an estimated 75,000 people. The earthquake of magnitude 7.6 left many more homeless on both sides of the border.

The mayhem was made worse by the failure of either Pakistan or India to adequately address their well-established earthquake vulnerabilities. As a News Feature on page 16 of this issue reports, there is now a movement among Pakistan's geologists to deal with earthquakes. But so far, there has been no real move towards closer collaboration with researchers in neighbouring India.

Such collaboration has the potential to significantly strengthen the two nations' earthquake defences, potentially saving thousands of lives. Kashmir is home to some of the subcontinent's poorest people. They cannot afford reinforced concrete or 'seismic isolation', but they can make simple modifications to house designs — such as integrating a roof into a house's frame — that will greatly improve their chances of surviving future earthquakes. Government facilities such as schools, bridges and hospitals could also be built at relatively low cost with earthquakes in mind, dramatically strengthening future disaster response in the region.

Real change will still require substantial public investment, however. Better scientific cooperation could help both nations set priorities for such investment. By mapping and studying the many faults that run through the line of control, Pakistani and Indian seismologists could build a better understanding of which towns are at greatest earthquake risk. Together they could devise building regulations that would be sensitive to the region's limited resources while ensuring that more of their citizens would survive. They could also provide insight into how relief could be most efficiently distributed to the region in the aftermath of a major earthquake.

Both countries have recently tried to de-escalate the conflict over

the disputed province of Kashmir. Collaboration in all fields of civil society, including science, has a role to play here too (see *Nature* 393, 499; 1998). There are finally some promising signs: in the past few years, scientific leaders from the nations have met, and joint efforts are now under way in fields such as agricultural biotechnology.

But when it comes to seismology in Kashmir, the two nations are still barely talking. They are both paranoid about ceding military advantage in the disputed region — with the result that geologists bearing maps or GPS receivers are banned from entry. Consorting with 'enemy' researchers is also viewed with deep suspicion.

In May, however, geologists from both sides of the border will attend a 'science for peace' workshop in Lahore, Pakistan, where they will discuss topics such as remote sensing, geophysics and seismology, as well as the idea of turning the hotly contested Nanga Parbat glacier into a scientific peace park. The meeting's US coordinators hope that it can serve as a starting point for scientific exchange in geology.

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Both nations' scientists should take advantage of this gathering to begin serious and sustained collaboration. Their governments should make provisions to allow scientific exchange and the open dissemination of data of the sort that is needed for such work. Indian and Pakistani scientists based abroad, who often work side-by-side in Western laboratories, can help by acting as go-betweens for researchers in the region who currently share no direct contact.

If India and Pakistan are to get to grips with earthquakes, they must overcome enormous technical, social and economic challenges. The task is formidable and requires the two nations to put their manifest political differences to one side and work together. By allowing their scientists to collaborate openly, governments in both countries can gain an understanding of the risks their citizens face, and help them prepare for the future. ■

Evaluate this

The objective evaluation of research isn't working as it should.

The rigorous evaluation of research projects and programmes is in increasingly common demand across the world. Attempts have been made to implement it in Europe, Japan and the United States — but until the calibre of these efforts improves, scientists will continue, justifiably, to view them with suspicion.

Policy-makers have talked for years about the need to rigorously

evaluate research programmes that consume billions of dollars of taxpayers' money. Researchers — especially those doing basic research that can't be readily tied to concrete outcomes — have tended to be sceptical. Nonetheless, evaluation is now under way on a significant scale in every major economy.

Yet nowhere is the circle between research programmes, evaluation and research funding decisions quite complete. A process for measuring 'performance' is firmly in place at many agencies. Yet few research managers genuinely believe that the outcomes of these assessments are really driving funding decisions.

Take the United States, where the Government Performance and Results Act demands significant qualitative assessment of all federal