

## **Good fences make good neighbors**

September 13 2007

In the last century, more than 100 million people have perished in violent conflict, very often because of local clashes between ethnically or culturally distinct groups. In a novel study this week in *Science*, researchers report on a mathematical model that can predict where ethnic conflict will erupt.

The study, conducted by scientists at the New England Complex Systems Institute (NECSI) and Brandeis University, can be applied to many areas and its predictions were tested on distinct ethnic groups in India and the former Yugoslavia. The researchers applied a model of global pattern formation that differentiates regions by culture. They discovered that heterogeneous areas with poorly- defined boundaries were prone to ethnic conflict.

The research asserts that in highly mixed regions, groups of the same type are not large enough to sway collective behavior toward claiming any particular public space; likewise, well-segregated groups are protected by clear boundaries identifying their space. However, the study concludes that "partial separation with poorly defined boundaries fosters conflict."

In essence, as poet Robert Frost wrote in a well-known poem, "good fences make good neighbors." Well-defined borders help prevent ethnic tension.

"Our research shows that violence takes place when an ethnic group is large enough to impose cultural norms on public spaces, but not large



enough to prevent those norms from being broken," said Brandeis researcher Dr. May Lim. "Usually this occurs in places where boundaries between groups are unclear."

Reflecting an emerging direction in science applied to social policy, the study applies the scientific principles of pattern formation—which are used to describe, for example, how chemicals separate by type or phase—to the huge social problem of ethnic conflict. The researchers discovered that ethnic violence occurs in certain predictable patterns, just as do other collective behaviors in physical, biological, and social complex systems.

"The concept of pattern formation, while it may have been originally developed to understand chemical systems, is really a scientific model of collective behaviors, in which you look at those aspects that control overall behavior," said co-author and NECSI president Yaneer Bar-Yam.

"This study provides an indication of where regions may run into trouble, and how to avoid conflict, said Bar-Yam, adding, "this research reflects a tremendous opportunity for us to address a wide range of social concerns with new scientific tools."

Source: Brandeis University

Citation: Good fences make good neighbors (2007, September 13) retrieved 23 May 2024 from <u>https://phys.org/news/2007-09-good-neighbors.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.