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überregional**Environmental policy in Brazil leads to less violence**

**In December 2007, the then Brazilian government passed a law to curb the illegal destruction of the rainforest. A study by researchers from the Insper Research Institute in São Paulo and the University of Bonn now shows an interesting side effect: where the measures were implemented, not only did deforestation decrease, but so did the number of homicides. The results have now been published in the Journal of Institutional Economics.**

The rainforest in the Amazon region is considered an extremely important ecosystem. Not only because it is home to a huge variety of animals and plants, many of which only occur there. The forest also stores large quantities of greenhouse gases - at least as long as it remains intact. Illegal deforestation and slash-and-burn agriculture are increasingly endangering this biome and thus its function as a green lung.

Most of the Amazon rainforest is located in Brazil. There it covers an area almost as large as the entire European Union. It is correspondingly difficult for the state to protect the fragile ecosystem from illegal encroachment. "To tackle this problem, the Brazilian government at the time adopted a list of priority municipalities in 2007," explains Dr. Gustavo Magalhães de Oliveira. "It included those municipalities where deforestation was progressing particularly rapidly. The state monitors areas on the blacklist particularly closely and takes various measures to increase environmental enforcement to prevent illegal deforestation."

Number of homicides fell by 17 percent on average

The researcher at the Institute for Food and Resource Economics (ILR) at the University of Bonn conducted the study together with his colleague Prof. Dr. Bruno Varella Miranda from the Insper Research Institute in São Paulo, Brazil. Previous scientific studies have already shown that the blacklist is effective - forest loss has decreased significantly in the areas affected by this policy. However, the current analysis focuses on a different aspect: "The illegal seizure of forest areas is usually accompanied by an increase in acts of violence, reflecting the fact that the property rights over these areas are generally poorly defined," says Dr. Oliveira. "We thus wanted to know whether an environmental policy, by more effectively enforcing existing Brazilian laws, also helps with reducing violence rates in the region."

To this end, the scientists employed the difference-in-differences method to analyse the number of homicides committed in listed and non-listed municipalities. They did indeed find a pronounced effect: when a municipality was placed on the list, the number of violent crimes resulting in death fell significantly - by 17 percent on average. However, this effect did not occur immediately, but only after some years of being blacklisted.

Why are violence against people and nature linked? One reason is that violent actions are often employed in illegal markets to secure control over resources with poorly defined property rights. In this case, unscrupulous land grabbers - known as grileiros in Portuguese - take advantage of this by employing violent methods and corruption to seize large areas, clear forests and then sell the land. For that, they come into conflict with groups who also have interests or actual ownership of those lands - for example with indigenous people who have been using the affected areas sparingly for

generations.

Crime often leads to violence

The blacklist and its associated enforcement mechanisms increase the risk for potential offenders. As a result of this deterrent effect, criminals are less likely to try to appropriate areas with poorly defined property rights, reducing the violent conflicts that often precede illegal land appropriation. So what helps nature also directly helps people.

However, this good news is clouded by more recent developments: in recent years, the number of homicides in the Amazon region has risen significantly again. "These business opportunities in illegal markets have motivated powerful mafia groups to increasingly set foot in the Brazilian Amazon, with their particular methods of using violence to achieve economic goals," says Prof. Miranda. "Unfortunately, measures intended to protect the environment do not entirely alleviate the violence caused by these organized crime groups."

Institutions involved and funding:

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