

## LAND-USE BEHAVIOUR

# When payments for ecosystem conservation stop

Whether payments for ecosystem services (PES) are effective and how they change the motivations of land and resource users in the long-term is still controversial. A study of a program in Ecuador provides encouraging results regarding what happens if payments stop.

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Imagine you are part of an Indigenous community in the Ecuadorian Andes and for generations your family has partly made a living from grazing sheep and cattle in the grasslands and shrubs of the high-elevation *Páramo* (Andean moorlands). However, those lands are now nationally recognized both as a unique biodiversity hotspot and for their water-storage capacity, which ensures a stable water flow to supply cities and produce hydroelectric power. Your community's traditional use of the land is seen as a threat to the ecosystem. The national government decided to offer your community a 20-year contract: you would receive payments twice a year on the condition that you cease grazing, hunting, building and agriculture in the *Páramo* highlands. Would your community agree? How would you now make a living? Eventually, your community accepted the contract, and it worked out quite well. The community jointly decided to transfer some cash directly to households and to use another portion of the funds to build a school and buy machinery for communal use for dairy production at lower altitude. You either sold your cows or found lower grazing grounds and even engaged in alternative agricultural activities or local tourism. However, after 5 years, the government suddenly stops paying and communicating with your community. Would you move your cows back up to the *Páramo*? How motivated would you be now to help conserve the ecosystem?

These same questions intrigue interdisciplinary researchers who aim to understand the long-term behavioural effects of economic incentives for conservation — so-called payment for ecosystem services (PES) schemes. PES schemes have become a prominent public policy instrument across the developing world to provide incentives for local communities to protect ecosystems and their benefits to the public. However,



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changing current land-use practices to more environmentally friendly livelihood activities often faces resistance, especially if the former are part of people's traditional ways of life. Moreover, the transition involves economic uncertainty alongside financial investment and the development of new skills. The overall success of PES programs in contributing to sustainability remains controversial<sup>1–4</sup>.

Writing in *Nature Sustainability*, Tanya Hayes and colleagues<sup>5</sup> explain their findings from the Ecuadorian 'Socio-Bosque' incentive program. They focus on a specific initiative to protect *Páramo* lands through financially supporting local communities in their transition to more sustainable land use. When a funding gap led to a sudden halt in payments, Hayes and colleagues recognized a unique opportunity to test whether the program created a permanent change in behaviour. Payments only slowly and partially resumed about 1.5 years later. The analysis of a survey of 472

households and aerial and satellite images from three different years (2008, 2013 and 2018) indicated that communities did not take their cattle back up to the *Páramo*, even after they experienced payment loss and uncertainty. The share of community members that let their animals graze on the *Páramo* had declined from over 50% in 2008 to below 10% while the program was active in 2013, and this share further decreased to under 5% after payments stopped. In similar communities that did not participate in the program (the 'control group' of the study), the grazing also diminished, but significantly less so.

On the basis of interviews and focus group discussions, the authors give several potential explanations for the enduring positive effects. First, the program's field workers seemingly managed to convince community members that conserving the *Páramo* also aligned with their own cultural and ecological values. Second, decision-making processes involving

new land-use rules and acceptance of the conservation contracts had been participative and led by the community, and the community members felt that their agreements remained valid even when payments stopped. Finally, some changes in livelihood activities, such as selling cattle or investing in dairy farming and tourism, were not easily reversible and had largely been successful in providing new income sources. Hence the economic pressure to switch back to the old ways was relatively weak.

Yet there is also a somewhat puzzling aspect of the findings regarding changes in motivations and trust. A recurrent concern is that, by providing economic incentives, PES schemes may erode people's existing non-economic motivation to conserve nature, which social scientists describe as 'crowding out' intrinsic motivation for conservation. Such crowding out can ultimately undermine conservation, especially if the economic incentive is removed. By contrast, a thoughtful program design can increase ('crowd in') people's intrinsic motivation, for instance by enhancing people's autonomy,

trust, recognition and appreciation of conservation benefits<sup>6,7</sup>. In the present study, data about reduced grazing, together with the qualitative data on community values, suggest a 'motivation crowding in' effect. In the survey, however, about a third of all households stated that their motivation to conserve the Páramo was impaired after losing the payments, and many were considerably frustrated and had lost trust in the program. Could these negative effects eventually lead to a return to unsustainable use of the Páramo in the future? Have some people already begun hunting more frequently or engaging in other behaviours detrimental for conservation that were not examined in the study? The interplay between different types of motivation and their links to behaviour are complex and are challenging to determine empirically.

Overall, the observed data provide good news and a strong scientific backing for this program. In any case, as the authors point out, one should not over-generalize these results. After all, the conditions elsewhere, such as with fishermen in Colombia or settlers in the Peruvian Amazon, may be

quite different. The quest to understand the longer-term effectiveness of payment schemes for conservation and sustainable land use will continue. □

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#### References

1. Börner, J. et al. *World Dev.* **96**, 359–374 (2017).
2. Liu, Z. & Kontoleon, A. *Ecol. Econ.* **149**, 48–61 (2018).
3. Redford, K. H. & Adams, W. M. *Conserv. Biol.* **23**, 785–787 (2009).
4. Ezzine-de-Blas, D., Wunder, S., Ruiz-Pérez, M. & del Pilar Moreno-Sanchez, R. *PLoS ONE* **11**, e0149847 (2016).
5. Hayes, T., Murtinho, F., Wolff, H., López-Sandoval, M. F. & Salazar, J. *Nat. Sustain.* <https://doi.org/10.1038/s41893-021-00804-5> (2021).
6. Rode, J., Gómez-Baggethun, E. & Krause, T. *Ecol. Econ.* **117**, 270–282 (2015).
7. Ezzine-de-Blas, D., Corbera, E. & Lapeyre, R. *Ecol. Econ.* **156**, 434–443 (2019).

#### Competing interests

The author declares no competing interests.