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# Offsetting the effects of mining in Central Africa : could social compensation be the key ?

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## Abstract

The Tri-National Dja - Odzala - Minkebe Forest landscape (TRIDOM) covers 178000 km<sup>2</sup> across the borders of Cameroon, Gabon and the Republic of Congo. Almost 97% is covered by sparsely populated lowland tropical rainforest and is globally important for the conservation of large mammals (elephants, gorillas, chimpanzees). The TRIDOM is destined to be an emerging iron ore province with several deposits currently being explored and two mining projects ready for exploitation. One potential mechanism for mitigating these pressures is biodiversity offsetting, which is a voluntary initiative on behalf of the economic operators. A developer contemplating a project that will destroy a habitat will design, fund and implement conservation actions elsewhere to compensate for that loss.

Conservationists highlight that the infrastructure being built related to mining (railroads, roads, powerline) will have direct and indirect impacts on the ecosystems, especially as they will enable the influx of migrants, who will need land for their cultivation, and increase the pressure on wildlife and other forest resources. Furthermore, these roads establish the front door to the poachers. The combined impacts of fragmentation and increased hunting pressure could transform the large intact forest landscape into a mosaic of isolated and thus vulnerable protected areas, no longer fit to conserve its mega-fauna or maintain large scale ecosystem processes. Possible mitigation options such as anti-poaching patrols, support for alternatives like agroforestry, projects of breeding and fish farming differ in their effectiveness and applicability, in the TRIDOM as anywhere else. Actually, it depends on the context, on the willingness of the operators and their financial means.

To better understand the impacts, constraints and limitations of these options, we used participatory modelling techniques to build a model of the socio-ecological system of the TRIDOM. We transformed this model into a role playing game that was played with different sets of local stakeholders (miners, foresters, NGOs, ministries...) in order to explore future scenarios for the TRIDOM, in terms of infrastructure development and of biodiversity outcomes. Key conclusions from the analysis are that (1) managing these impacts requires a strategic and multi-sectorial landscape-level approach, rather than dealing with each separate project sequentially, but (2) the combination of fragile states and high biodiversity makes compliance to international standards of ecological offsets almost impossible, and as a

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result, most experts consider that (3) financing social compensation could at least mitigate the indirect effects linked to mining development. There is a clear push to move from "like for like" compensation schemes to "making it acceptable" packages. The real challenge for traders is to reconcile local development with conservation of forests and their biodiversity.

These conclusions are widely applicable and relevant in a context of expanding infrastructure investments in this region.

**Keywords:** Ecological offsets, forested socio, ecological system, Central africa, companion modeling