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## **Tropical dams: To build or not to build?**

In their Policy Forum “Balancing hydropower and biodiversity in the Amazon, Congo, and Mekong” (8 January, p. 128), K. O. Winemiller and colleagues present a much-needed window on biodiversity impacts of tropical dams. They conclude that “without more careful planning,” impacts will include species extinctions and losses of fisheries and ecosystem services. It needs to be made clear that the most important change required is a fundamental reform of how decisions are made on whether or not to build dams, not the planning of how dams are designed, sited, or managed.

“[V]alidation of technologies intended to mitigate environmental impacts” or improved “design parameters” from better environmental impact assessments (EIAs) pale in comparison with the initial decision: to build or not to build a dam. No amount of adjustment would prevent enormous impacts from a dam like Belo Monte in Brazil—impacts that far exceed what was considered in the EIA, let alone what was considered when the decision to build the dam was made long before the EIA existed (1).

Winemiller *et al.* state that the dam projects they discuss “address important energy needs” and that their suggestions for better dam planning would “ensure that societal objectives for energy production are met.” The assumption that these dams are needed is questionable from the standpoint of societies in the three cases presented: the Congo, Mekong, and Amazon basins. The Democratic Republic of Congo’s Grand Inga Dam is primarily to export electricity to South Africa (2, 3); mainstream Mekong dams will destroy livelihoods in Laos and Cambodia to export electricity to Thailand and Vietnam (4); and Amazon dams will feed Brazil’s “National Interconnected System,” which has many lower-impact options for providing the benefits of electric power. Brazilian society’s interests are poorly served by exporting electricity in the form of aluminum because smelting consumes vast amounts of energy while creating little employment: the environmental and social impacts of the dams that power the smelters stay in Brazil while the benefits are exported (5). Brazil has massive potential to reduce inefficiencies in electricity transmission, distribution, and use and to tap wind and solar sources (6).

Weinmiller *et al.* state that “at least 334 new Amazon dams have been proposed.” One cannot simply treat this as inevitable and limit suggestions to a better choice of sites to locate these dams and to improving their design and management. It is essential to face the issue of whether such a massive dam-building plan should exist in the first place.

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