

Editorial

# Consumption-Based Blockchain Accounting of Telecoupled Global Land Resource Debtors and Creditors

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Since global agricultural trade reflects a ‘telecoupled’ land use network of countries wherein consumption in one country results in flows affecting land use in another country, measuring country-specific resource use along telecoupled socioeconomic and environmental supply chains can provide useful information for efforts to achieve Sustainable Development Goals (SDG) [1–3]. While land use statistics record how land is economically exploited, assessing resource use tradeoffs with conflicting environmental and economic metrics [4] remains challenging. Yet, sustainability assessments are limited since national accounts often exclude landscape function losses which are induced by economic activities [5], and population growth projections further imply that future assessments will exclude social environmental impacts to prioritize global food needs [6]. Further, stakeholders often lack the enthusiasm to efficiently execute agreed-upon solutions to common environmental problems [7], or worse, the numerous proposed solutions to boost both food production and biodiversity remain ineffective [6] without concerted international efforts. While the United Nations’ System of Environmental and Economic Accounting (SEEA) links biophysical conditions with economic activities to define spatially explicit tradeoffs [4,8], individual countries with distinct land resources for agricultural livelihood still require land use indicators and threshold levels [3] to gauge their progress towards the SDGs. Using blockchain technology for a decentralized immutable public consumption record [9–11], with the aim of ensuring trust and engageability, may be advantageous. However, some argue that inefficiencies and ethical issues exist if this method is applied in science [9–11]. To secure global land use sustainability, blockchain technology can facilitate the identification of “debtor” and “creditor” countries and ensuring transparent multilateral monetary flows between globally telecoupled land systems. A blockchained record of land use transactions, based on indicators, could be a precursor to a market-based instrument whereby debtor countries’ resource exhaustion and ecosystem service demand translates into equitable reimbursements toward creditor countries’ environmental management program and policy measures.

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