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.

Acknowledgments: The authors would like to thank the Ministry of Science and Technology of the Republic of China, Taiwan, for financially supporting this research under Contract No. 105-2621-M-002-003-MY3.

Conflicts of Interest: The authors declare no conflict of interest.
References


© 2018 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).