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Soil Information: A global treasure for delivering food production and agricultural sustainability impact

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What is the value of agricultural land and how can soil information be used to estimate it? This presentation will review the need for valuation and highlight opportunities for this process, together with pitfalls that obstruct its implementation. What is the value of soil? In the late 1990's Costanza assigned the annual value of soil-mediated ecosystem services in the tens of trillions of US Dollars. This value can only increase as food systems come under greater pressure to intensify: The FAO estimates that by 2050, food production systems will need to increase activity substantially to achieve the food security demands of a population of over 9 billion [Alexandratos and Bruinsma 2012]. At the same time, the demand for clean water and other ecosystem services, many of which are soil-dependent, are also increasing. The demands for better soil management to support intensification are growing. How well is soil information linked to this global change? Sustainable intensification implies changes in soil management behaviour. The concept that links behaviour and information is valuation. The provision of soil information has increased substantially over recent years. It is a global treasure. Yet, like treasure, its value is waiting to be fully realized. For example, at global scale, how widely is soil information used in assessments of global food, water or environmental security in order to protect soil quality? At a community scale, soil can be a rural community's greatest collective asset; yet how often is figured in individual decisions about land use? At a local scale, how widely is soil information used in rural land valuation, or in pricing the effect of soil degradation or amelioration? Here we see substantial opportunity to improve the use of soil information through valuation. Using examples from Australia and elsewhere we identify cases where soil information could improve decisions about land management. We relate cases where major soil engineering to improve soil value



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(e.g. clay amendment of sands) represent a challenge to existing spatial soil information platforms. Following this, we make the case to develop methods to convert soil information into valuation instruments that can more directly influence decisions.



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