SELECTION AND CODING PROCESS

**Search strings used**

The pool of research that employs an ecosystem services framework to explore both social and ecological outcomes of agricultural land use intensification is quite recent and modest in size. For this reason, we adopted a pragmatic sampling strategy, combining different targeted searches, to secure a sufficient and robust set of the core peer-reviewed literature. The searches took place in January and February 2017 using Web of Science and combining terms associated with 1) agricultural land use intensification, 2) ecosystem services, and 3) wellbeing.

*Primary Search String*

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| *TOPIC= ((agricul\* OR "land use") AND (intensi\*) AND ("ecosystem service\*" OR "environmental service\*") AND (poverty OR well\*being OR income OR poor OR livelihood\*))* |

n = 160 articles

*Secondary Search Strings*

The primary search string resulting in 160 papers was subsequently supplemented by targeted searches beginning with a second Web of Science search that narrowed the initial condition by requiring the phrase ‘land use intensification’ or ‘agricultural intensification’ in the title, but then broadened subsequent conditions by connecting ecosystem service and wellbeing terms with an ‘or’ operator (replacing ‘and’). After removing duplicates, this added a further 95 papers.

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| TITLE= ("agricul\* intensi\*" OR "land use intensi\*") AND TOPIC= ("ecosystem service\*" OR "environmental service\*") |
| TITLE= ("agricul\* intensi\*" OR "land use intensi\*") AND TOPIC: (poverty OR well\*being OR income OR poor OR livelihood\*)) |

n = 95 articles

**Selection criteria**

We used four inclusion criteria to keep papers that:

1. Explicitly documented processes of agricultural land use intensification
2. Dealt with changes in one or more of the Millennium Ecosystem Assessment (MA, 2005) ecosystem service categories
3. Assessed changes in the overall wellbeing or some constituents of wellbeing of people dependent on agricultural land use intensification
4. Had a geographic focus on low or middle-income countries (c.f. World Bank 2017)

Of the 255 articles initially identified, 42 met all four of the above four criteria. We then conducted two targeted searches, reaching a point of diminishing returns at which we were satisfied we had captured much of the core literature. First, we searched the reference sections of two seminal synthesis papers on the impacts of agricultural intensification in tropical forest-agriculture landscapes: a global meta-analysis[1](#_ENREF_1) and a systematic review focused on Southeast Asia[2](#_ENREF_2); second, we targeted research on the links between ecosystem services and poverty, initially through the reference section of a review of the empirical linkages by Suich et al.[3](#_ENREF_3), and then using the publications database of the UK-based Ecosystem Services for Poverty Alleviation (ESPA) 10 year research programme (http://www.espa.ac.uk/results/publications). These additional sets of searches, filtered using the same four inclusion criteria, yielded 11 additional papers, resulting in a total of 53 papers reporting both social and ecosystem service outcomes of agricultural land use intensification across 60 specific cases. A case was constituted by the lowest geographical level at which authors presented results for different types of intensification. For example, the reporting of aggregate outcomes across multiple geographical locations was coded as one case, whereas data broken down either per distinctive type of intensification or per geographical location within one reviewed paper was coded as multiple cases.

**Coding procedure**

For each case, we used a pre-determined scoring code to independently assess information on: a) publication year, b) methodological approach and timescale considered, c) geographic region of the case study, d) site characteristics, e) type and definition of intensification process, f) agricultural product(s) in focus, g) factors enabling and/or constraining the intensification, h) primary intensification actors, i) other drivers of ecosystem service and wellbeing change that were addressed, j) impacts on ecosystem services, and k) impacts on wellbeing. Impacts on ecosystem services were disaggregated with primary subcomponents of provisioning services (which we divided into food and non-food), regulating services and cultural services, as well as biodiversity and supporting services. Because of the diversity of methods and approaches used in the cases, quantitative comparison of the same ecosystem service or wellbeing aspect within and across cases was not possible and we therefore coded impacts as positive, negative, or ambiguous through the knowledge and best available expert judgement by the coders. When impacts were recorded in multiple directions for different subcategories, the aggregate direction of ecosystem service change was taken as the overall indicator for analysis, while a tie between e.g. positive and negative impacts was coded as an ambiguous result. Impacts on human wellbeing were recorded across 10 variables derived from multidimensional wellbeing frameworks[4](#_ENREF_4),[5](#_ENREF_5) and categorised for analysis into two primary subcomponents of economic and non-economic wellbeing, with the former restricted to income measures and the latter integrating a range of less frequently measured outcomes e.g., education and employment.

REFERENCES

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5 Nussbaum, M. Creating Capabilities. *Harvard University Press* (2011).