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# Revisiting the concept of payments for environmental services

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ABSTRACT

This article revisits the payments for environmental services (PES) concept and reviews existing PES definitions. Based on Weberian philosophy of science, it is argued that an ideal PES type, strongly embedded in PES theory, is needed to understand their logic. Many broader, empiricist definitions fail to distinguish PES from the larger generic family of positive environmental incentives, thus eroding their meaning by excessive vagueness. Arguably, PES definitions should focus on describing a functional tool, rather than normatively integrating desirable PES outcomes. A modified narrow PES definition is proposed, outlining conditionality as the single defining feature, avoiding the buyer-seller terms, and linking PES to offsite externalities. Extensive explanatory guidelines address many valid conceptual concerns raised in the recent PES literature.



## 1. Introduction

The concept of environmental services (ES) has increasingly been mainstreamed into environmental policies (Gómez-Baggethun et al., 2010). Simultaneously, payments for environmental services (PES) continuously attract considerable attention among both scholars and conservation implementers (Muradian et al., 2013). A decade ago, I proposed a simple PES definition (Wunder, 2005). PES implementation and research during this past decade have been highly dynamic. Hence, alternative PES definitions with substantially different emphasis and delimitation have also been proposed, especially criticizing the 2005 definition for being so narrow that few real-world interventions fully satisfy its five criteria. A broader PES definition would thus accordingly be needed for a more inclusive PES debate. The definition has also been seen as too market-based, allegedly missing out on alternative institutional frameworks. Hence, the debate over the last decade justifies a fresh look at the conceptual fundamentals.

The purpose of this article is to compare the different definitions, their inherent logic and terminologies, and ultimately the implications for PES design and implementation. The underlying questions relate not only to the philosophy of science (why do we need a PES definition, and how precise should it be?), but also to pragmatic policy-making (what steps are quintessential in implementing PES interventions)? Hence, in the selection of defining terms, "competing preferences represent far more than word games" (Shelley, 2011:210). How to define PES is not just a taxonomic quarrel inside the academic ivory tower, but just as much a debate over what features are innovative in PES, and hence quintessential to their implementation.

The article is structured as follows. First I discuss broad vs. narrow definitions in the philosophy of science (Section 2). Then a systematic overview of existing PES definitions is given (Section 3). In Section 4 follows a discussion of the proper terms composing PES. Finally, Section 5 proposes a clarified definition and extensive interpretative guidelines.

## 2. Definitions and the Philosophy of Science

As foreshadowed above, a key point of contention is how 'narrowly' versus 'broadly' PES should be defined. This question contains two subaspects. First, how 'precisely' versus 'vaguely' should we delimit the PES concept? Second, to what extent should PES definitions be guided by interpretations derived from PES theory, as compared to embracing the larger family of similar initiatives? After dealing with these two questions, I propose four criteria to evaluate PES definitions.

### 2.1. Definitional Vagueness vs. Clarity

The quest for optimal definitional precision and conceptual clarity has a long history in science. The traditional and dominant view has been that "vagueness and ambiguity are to be avoided, though not at all cost" (van der Steen, 1993:11). For environmental sciences in particular, it has been stated that "vagueness … is nonproductive because it detracts from the ability to communicate effectively about habitat-related subjects" (Hall et al., 1997:174). Being too vague arguably hinders both theoretical deduction and empirical refutation of hypotheses.

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Furthermore, it may seduce researchers to stretch their theories beyond the limits of validity.

Yet, some degree of scientific imprecision is inevitable, making judgment calls necessary — as is sometimes illustrated by the paradox of the heap.[1] Austrian philosopher Ludwig Wittgenstein advanced the concept of 'family resemblance' as a concept based on the degree of commonality across multiple criteria. Critics of this concept state that its extension cannot be effectively delimited, creating what has been called problems of wide-open texture. In practice, degrees of vagueness are thus bound to appear in most definitions, especially in the social sciences (Andersen, 2000:313).

Nevertheless, some scholars argue that conceptual vagueness can be outright desirable for scientific advance (Hodges, 2008). Strunz (2012) used the example of social–ecological resilience as an innovative, fuzzy field of "broad, multifaceted, and loosely organized cluster of concepts" (ibid: 113). Vagueness, so the argument goes, could in particular be justified in new scientific applications (that have not yet reached the maturity of conceptual consolidation), rapidly moving interdisciplinary areas (where researchers customarily use terms differently), or to solve "wicked problems" (the ex ante formulation of which remains contested).[2] When combinations of these factors apply, degrees of vagueness could help promoting greater inclusiveness in stakeholder participation, stimulating creativity, and fostering adaptivity. Strunz concludes that tradeoffs between vagueness and precision have to be managed according to context: "sound empirical knowledge requires conceptual precision but pragmatic and creative problem-solving may benefit from conceptual vagueness." (ibid: 118).

Where on this multidimensional tradeoff curve is PES currently positioned? Indeed, it is an area of interdisciplinarity, yet also with a dominant theoretical basis in economics (Simpson and Sedjo, 1996; Ferraro, 2001; Ferraro and Simpson, 2002). The generic problem to solve is not conceptually "wicked", but well-framed: to correct for environmental externalities (Pagiola and Platais, 2007; Engel et al., 2008). And while PES is scientifically still fairly young, it is rapidly reaching levels of maturity where calls for solid empirical knowledge are intensifying (Pattanayak et al., 2010; Ferraro, 2011). Satisfying these legitimate demands for, in Strunz' terminology, "sound empirical knowledge" will also require more conceptual precision, and correspondingly less vagueness.

### 2.2. Interpretative vs. Empiricist Approaches

Secondly, to what extent should a PES definition follow an applied interpretation of a theory-based analytical framework, versus inclusively mirror the variety of established implementation practices? Does it matter most what PES were conceptualized to be, or the way the ideas currently are being practiced? The latter approach corresponds roughly to Max Weber's 'average type' (*Durchschnittstypus*),[3] the former to his 'ideal type' (*Idealtypus*).[4] Weber believed ideal types were best suited for conceptualizations, because we cannot understand a particular phenomenon just by describing the multiple actions of its participants. To interpret these actions functionally, we may first have to abstract from the diversity in which they manifest themselves in reality. As summarized eloquently by Kuchenbrod (1999):

> "The ideal type is formulated primarily from a pragmatic research point of view. It needs not be 'true' in the sense of blending seamlessly with reality, but it must be useful to the research process by elucidating interesting problems. Logically, the ideal type is formed by featuring individual components of the research object within a conceptual construct — especially those components that distinguish it most clearly from similar or related objects, with which it could potentially be subsumed under one generic term. These 'ideal' and 'purist' mental structures are conceptually easier to comprehend, while real historical diversity is harder to frame. But this multiplicity can then be related to the ideal type; it appears as a 'contaminated' form, with a small or large measurable 'deviation' from the conceptual ideal" (my translation from German).

As will be shown below, the two Weberian terms are at the heart of the debate about PES concepts: my own narrow definition (Wunder, 2005) mirrors the functioning of an ideal PES type, whereas various broader concepts integrating 'PES-like' initiatives under their umbrella are 'average type' definitions trying to read the landscape of self-denominated PES schemes.

### 2.3. Desirable Features of a PES Definition

Some observations from this section may serve us below for examining alternative PES terms and definitions. Specifically, what attributes would we welcome in a sound and operational PES definition? I propose the following conceptual features:

I. Consistent and precise enough for generating empirical knowledge: Definitions should not be internally contradictory, and with Strunz (2012), we should avoid excessive vagueness: we would not want our PES definition to slip between our fingers like wet soap when we try to get an empirical grip.
II. Distinctive in function from indirect positive incentives: In Max Weber's spirit, we would want PES to be separable from the generic family of other positive environmental incentives. PES theory was developed particularly as a direct alternative to indirect tools, such as integrated conservation and development projects (ICDP).[5] One litmus test is thus whether a definition is capable to clearly distinguish PES from ICDP.
III. Robust to intertemporal variations in implementation: A good PES definition should be insensitive towards minor time-bound variations in implementation and outcomes of an intervention, i.e. avoiding hyper-sensitive classification swaps between PES and non-PES categories.
IV. Simple enough to remember: As an Albert Einstein quote says: "Make things as simple as possible, but not simpler."[6] A good PES definition should not compromise precision, but also avoid redundancies and excessive complexity. One hands-on simplicity test is whether we would picture a practitioner to be able to remember the definition after having read it three times: if not, then the definition may have been phrased overly complex.

[1] The first premise is that a large number (say, one million) of grains of sand together constitute a heap of sand. The second premise is that a heap of sand minus one grain is still a heap. The paradoxical question then is when iterations of premise 2 are repeated continuously, when exactly would the diminishing bunch of sand lose its justification for being denominated "a heap" — ultimately a judgment call.

[2] One might add an additional factor to Strunz' list: in action research settings where researchers have to communicate with decision-makers, some further vagueness may also be called for, to the extent researchers and decision-makers do not share the same terminology.

[3] In later interpretations, Weber's "average type" has also been denominated as "real type".

[4] "An ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those onesidedly emphasized viewpoints into a unified analytical construct" (Weber, 1949 [1904]: 147).

[5] See e.g. Simpson and Sedjo (1996), Ferraro (2001), or Ferraro and Kiss (2002).

[6] There is doubt whether (and when) Einstein actually expressed himself in these exact words, or whether somebody else summarized his thoughts in this way (http://quoteinvestigator.com/2011/05/13/einstein-simple/#more-2363).