

Term/ Concept	Definition
Additionality	is defined as whether an environmental service would have been provided in the absence of new incentives, such as a payment for environmental services or agri-environment-climate measures AECM .
Adverse Selection	refers to the concept of information asymmetry between principal (e.g. state) and agent (e.g. farmer) which can lower environmental effectiveness of schemes (see also moral hazard). This could be the case when land managers find themselves unable to deliver the environmental goods they have contracted to deliver. A lack of knowledge can be resolved by advice and training programmes or peer-to-peer information exchange. (Franks, 2011)
Agglomeration bonus	is an additional payment to provider of an ecosystem service if an environmental outcome has been achieved at a larger spatial scale (e.g., beyond the field/ farm scale, within a predefined region/landscape or watershed). It is useful if the outcome requires the coordination of actors (e.g., rewetting of landscapes).
Agri-environment-climate measures (AECM)	are a funding mechanism aiming to provide financial support to farmers to contribute to the protection or enhancement of biodiversity, soil, water, landscape, or air quality, or climate change mitigation or adaptation. A bundle of measures or options usually makes up a scheme. In the European Union this is an important part of the second pillar of the Common Agricultural Policy and implemented via the Rural Development Programmes of individual member states or regions. <i>See also Agri-environmental schemes (AES), Payments for Environmental Services (PES)</i>
Agri-environmental schemes (AES)	usually comprise several agri-environment-climate measures (AECM). <i>Synonym: agri-environment-climate schemes</i> <i>See also agri-environment-climate measures (AECM), Payments for Environmental Services (PES)</i>
Asset-building schemes	Asset-building schemes relating to payments for environmental services (PES) aim to restore an area's environmental services (ES), for example (re)planting trees in a treeless, degraded landscape. Conservation-opportunity and protection costs aside, PES schemes may here also compensate the direct costs of establishing ES, often through investments within agricultural systems (Pagiola et al., 2004 cited by Wunder, 2005) <i>See also use-restricting schemes</i>
Behavioral Economics	is a subfield of Economics that integrates insights from Psychology in the analysis of economic decision-making. It is commonly known for focusing on heuristics (rules of thumb as opposed to maximisation behavior) and biases (deviations from the homo economicus model/expected utility theory, e.g., loss aversion). Related fields are Experimental Economics and behavioral economists commonly apply economic experiments.
Bilateral contracts	are contracts between two individuals or parties. Parties can be organisations, businesses, agencies.
Business model	A business model describes the rationale of how an organisation creates, delivers, and captures value, in economic, social, cultural or other contexts

(Osterwalder and Pigneur, 2010). The process of business model construction and modification is also called business model innovation and forms a part of business strategy (Geissdoerfer et al., 2017). One role of business models is to provide a set of generic level descriptors of how a firm organises itself to create and distribute value in a profitable manner (Baden-Fuller and Morgan, 2010).

Collaboration

People working jointly towards a common goal, involving regular interaction among the collaborating individuals. May also apply to organisations. Belongs to the range of [collective approaches](#).

Synonym: [cooperation](#)

Collaborative agri-environmental management

Farmers or land managers working jointly towards a common goal, involving regular interaction among the collaborating individuals, e.g. planning, timing, location, implementation, monitoring and evaluation of environmental management activities on farmland or establishment of landscape elements (e.g. hedge planting and maintenance, mowing regimes).

Collective approach

refers to a collection of approaches that involve more than two individuals or parties who are progressing towards a common goal by undertaking collective action. Collective approaches may make use of [collective contracts](#) and collective payments, or may be characterised by the involvement of a facilitator.

Collective contract

See [collective contractual models](#)

Collective contractual models

are an approach to target the appropriate spatial scale, reduce [transaction costs](#), increase technical capabilities (economies of scale), and improve knowledge sharing among participants.

In the context of Contracts2.0, this is an agri-environmental contract between several farmers and a mediating organisation (e.g. BoerenNatuur, BoerenNatuur Vlaanderen), which replaces or complements the individual contracts each farmer used to have with the state or payment agency. The contract could also be between a group of farmers, a local community and a state agency.

Synonym: [collective contracts](#)

Compensation

In the sense of the polluter pays principle:

Compensation of the loss of performance and functionality of the ecosystem through appropriate measures.

In the sense of incentive creation:

A remuneration (typically based on the concept of 'income forgone') conceived to compensate the opportunity costs linked to additional ecological achievements (e.g. biodiversity, climate or water protection). This concept is sometimes distinguished from a reward.

Contract

a formal, written agreement for a specified duration signed by (at least) two parties. In Contracts2.0, we acknowledge the existence of informal contracts but use formal contracts to focus the research.

Contract design/ contract implementation

Umbrella term for the process of determining the institutional settings of an agreement between a principal and an agent.

These institutional settings describe the conditions under which the involved parties agree to comply and fulfil their actions in the form of a legal document.

Cooperation	See collaboration
Coordination	<p>Farmers working towards a shared goal, but without personal interaction. The alignment of actions toward the shared goal is achieved by an entity that coordinates the activities.</p> <p>Belongs to the range of collective approaches. Note that coordination is understood differently in game theory/ public goods games.</p>
Cultural ecosystem services	<p>are defined as "ecosystems' contributions to the non-material benefits that arise from human-ecosystem relationships" (Chan et al., 2012). Further, cultural ecosystem services are understood as "processes and entities that people actively create and express through interactions with ecosystems" (Fish et al., 2016), e.g. using the environment for recreation, watching plants and animals.</p> <p>[alternative definition available on OpenNESS glossary (2016)]</p>
Discrete Choice Experiments (DCE)	are a stated preference valuation technique based on hypothetical choices individuals make in carefully prepared situations. It allows to formally model people's preferences and estimate their willingness-to-pay for particular characteristics of goods and services (including non-market goods, such as environmental public goods)
Economic incentives	In environmental economics it is considered that policy-makers have two broad types of instruments available for changing consumption and production habits in society: 1) Traditional regulatory approaches (sometimes referred to as command-and-control approaches) that set specific standards across polluters. 2) Economic incentives or market-based policies that rely on market forces to correct for producer and consumer behavior (such as pollution/ emissions taxes, subsidies, PES , AECM).
Ecosystem services (ES)	<p>Ecosystem services are the direct and indirect contributions of nature to human well-being (TEEB 2010; CICES classification). Ecosystem services include the terms ecosystem goods and services (Albert et al., 2015), and environmental services.</p> <p>In many cases, the use of ES requires human input (UK NEA, 2011). Such human input includes, e.g., fertiliser, technology or knowledge.</p> <p>See also Nature Contributions to People (NCPs)</p>
Entrepreneurial attitudes	Entrepreneurial Attitude Orientation (EAO) is a model to evaluate entrepreneurs' attitude regarding decision making processes (Robinson et al., 1991). The subscales of the EAO measure individuals' attitudes across four constructs: achievement in business (referring to the results of starting and growing a business venture); innovation in business (using innovative methods in business activities); perceived personal control of business outcomes (individual's control and influence on his/her business); and perceived self-esteem in business (self-confidence and perceived competency in business affairs). EAO is assumed to have an influence on the market orientation.
Environmental effectiveness	is the ability to achieve a desired or pre-defined environmental outcome.
Environmental efficiency	is achieved when a given environmental outcome is produced with a minimal input of resources, or a maximum output is produced with a given level of resources.

Environmental public goods	<p>Public goods are non-rival (they cannot be exhausted) and non-excludable (there are no boundaries). An environmental example in the Contracts2.0 context is an open and beautiful landscape which can be enjoyed by one person without compromising someone else's use and for which it is difficult to exclude someone from enjoying it. Environmental public goods are typically underprovided by markets.</p> <p>See also public good</p>
Environmental services	<p>are the services that humans render to each other to maintain or increase certain ecosystem services (Karsenty, 2013)</p> <p>Environmental services are a sub-group of ecosystem services that are characterised by externalities (FAO, 2007).</p> <p>See also ecosystem services</p>
Externalities	<p>costs or benefits which have a (negative or positive) effect on a third party which did not choose to be affected.</p>
Experimental Economics	<p>subfield of Economics that uses experimental methods/economic experiments to study individual and collective decision-making. By giving the researcher freedom to manipulate factors of interest, difficulties to establish causal relationships (typically present in observational data) can be overcome. Yet, the method relies on strong simplifications and abstraction.</p> <p>A common feature of economic experiments is the use of monetary incentives contingent on behavior/choices in the experiment (as opposed to most psychological experiments).</p>
Extrinsic motivations	<p>Extrinsic motivation involves engaging in a behavior in order to earn external rewards or avoid punishment.</p> <p>See also intrinsic motivation</p>
Goods	<p>The objects from ecosystems that people value through experience, use or consumption, whether that value is expressed in economic, social or personal terms. Note that the use of this term here goes well beyond a narrow definition of goods simply as physical items bought and sold in markets, and includes objects that have no market price (e.g. outdoor recreation). (OpenNESS glossary, 2016)</p> <p>Some schools of thought equate 'goods' and 'services' (MA; von Haaren et al. 2014), others equate 'goods' and benefits' (UK NEA).</p>
Governance	<p>The process of formulating decisions and guiding the behaviour of humans, groups and organisations in formally, often hierarchically organised decision-making systems or in networks that cross decision-making levels and sector boundaries. (OpenNESS glossary, 2016)</p>
Incentive compatibility	<p>means that the situation in which an individual makes a choice has such properties that the individual finds it in their best interest to respond truthfully (not to strategically misrepresent their preferences). It is important in DCEs and experimental economics, as it is a necessary condition for the observed values to be interpreted as individual's true (not mis-represented) preferences.</p>
Intrinsic motivations	<p>Intrinsic motivation refers to behavior that is driven by internal rewards (i.e. the motivation to engage in a behavior arises from within the individual because it is naturally satisfying to him).</p> <p>See also extrinsic motivation</p>

Label-based contracts	<p>are contracts where consumers pay a ‘green premium’ on top of the market price for a production scheme that is certified to be environmentally friendly (Wunder, 2005).</p> <p><i>Synonym: product-based schemes</i></p> <p>See also value chain approaches</p>
Land cover	<p>The physical coverage of land, usually expressed in terms of vegetation cover or lack of it. Related to, but not synonymous with, land use. (OpenNESS glossary, 2016)</p>
Land tenure	<p>Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints (FAO, 2002)</p> <p>See also property rights</p>
Land tenure approaches	<p>such as land use obligations in combination with reduced rent, land use rights combined with specific land stewardship obligations, are an approach specifically for long-term nature conservation objectives. Furthermore, land tenure rights define an important framework condition for all other contract-based approaches. Different types of land tenure systems (private, public, common property and hybrid property regimes) can strengthen or constrain the necessary longevity of sustainable agricultural land use practices.</p>
Land use	<p>The human use of a piece of land for a certain purpose such as irrigated agriculture or recreation. Influenced by, but not synonymous with, land cover. (OpenNESS glossary, 2016)</p>
Moral Hazard	<p>refers to the concept of information asymmetry between principal (e.g. state) and agent (e.g. farmer) which can lower environmental effectiveness of schemes (see also adverse selection).</p> <p>This could be the case when land managers have no intention of delivering their side of the contract. Peer-pressure can be a solution. (Franks, 2011)</p> <p><i>Synonym: opportunistic behaviour or hidden action</i></p>
Nature Contributions to People (NCPs)	<p>refers to “all the contributions, both positive and negative, of living nature (diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to people’s quality of life”(Díaz et al. 2018). This concept differs from the ecosystem services in the sense that while ES are provided by nature, NCPs are jointly produced by social-ecological processes and require human intervention to deliver them (Bruley et al., 2021).</p> <p>See also <i>ecosystem services</i></p>
Payments for Environmental Services (PES)	<p>A PES scheme is a transparent system for the additional provision of environmental services through conditional payments to voluntary providers (e.g., farmers or landowners) (Tacconi 2012)</p> <p>See Wunder (2015) for an overview of definitions.</p> <p><i>Synonym: Payments for Ecosystem Services.</i></p>

Policy coherence	attribute of policy that systematically reduces conflicts and promotes synergies between and within different policy areas to achieve the outcomes associated with jointly agreed policy objectives.
Policy evaluation	Policy evaluation uses a range of research methods to systematically investigate the effectiveness of policy interventions, implementation and processes, and to determine their merit, worth, or value in terms of improving the social and economic conditions of different stakeholders.
Practice-based approach	<p>Is an approach where the farmer follows prescribed management actions to achieve the wider goals of an agri-environment scheme. The focus is on the practice (e.g. cut grassland not before certain date) and not the result (e.g. number of farmland birds). This means that payments are based on the practice or action.</p> <p><i>Synonym: input-based approach; measure -based approach; action-based approach; prescription-based</i></p>
Property rights	<p>Six property rights bundles can be differentiated (Galik and Jagger, 2015; Schlager and Ostrom, 1992). They can be described as follows:</p> <p>Access: right to enter a defined physical property</p> <p>Withdrawal: right to obtain products from a resource</p> <p>Management: right to use/transform the resource by making improvements</p> <p>Alteration: right to change the set of services/goods provided by a resource</p> <p>Exclusion: right to determine access rights and if right can be transferred to others</p> <p>Alienation: right to sell/ lease some/all management, alteration and exclusion rights</p> <p>See also land tenure</p>
Public good	<p>A good where access to the good cannot be restricted and where use by one individual does not reduce availability to others.</p> <p>See also Environmental Public Goods</p>
Results-based payments *	<p>approach where farmers and land managers are paid for delivering environmental outcomes, for example for enhancing the presence of important grassland species. In these schemes, farmers determine the management required to achieve the desired result, rather than following prescribed management actions. The advantage of this approach over a practice/action-based approach is the increased flexibility of farmers regarding management decisions. The self-interest and intrinsic motivation of farmers to perform well are likely to raise effectiveness and possibly efficiency.</p> <p><i>Synonym: Result-based approach; outcome-based approach; payment-by-result</i></p>
Reward	<p>Remuneration for current ecological achievements (e.g. biodiversity, climate or water protection) without a necessary additionality.</p> <p>See also compensation</p>
Transaction costs (TCs)	are the costs arising from organising the transfer of goods and services between two agents (Cheung, 1992). Transaction costs provide the key to understanding alternative forms of economic organisation and contractual arrangement. What is important is the cost of conducting transactions in

one organisational or contractual form relative to the others. Therefore, what matters is not the absolute amount of transaction costs, but the relative ranking of transaction costs associated with different organisational or contractual choices.

For a general overview of how TCs can be measured see Wang (2003). In AES a basic distinction can be made between private TCs, borne by farmers, and public TCs that are borne by the government (Mettepenningen et al., 2009). Private TCs can be categorised in three major groups: search costs, negotiation costs and monitoring and enforcement costs (Dahlman, 1979; Hobbs, 2004).

Use-restricting schemes

Use-restricting Payments for Environmental Services (PES) schemes reward providers for conservation for capping resource extraction and land development; or for fully setting aside areas, such as for protected habitat. Here, landowners are paid for their conservation-opportunity costs, plus possibly for active protection efforts against external threats (Hardner and Rice 2002 cited by Wunder 2005)

See also [asset-building schemes](#)

Value chain approaches

are cooperation models to valorise environmental public goods within value chains. To ensure consumer trust, companies increasingly demand greater transparency about the management and delivery of public goods on supplier farms. Some companies even integrate biodiversity or climate indicators into their life cycle assessments or try to gain a competitive advantage through [label-based contracts](#).

Willingness to pay

Maximum monetary amount an individual would be willing to pay in exchange for a particular good or service (Cameron & James, 1987). It can be used to describe people's preferences, aggregated over individuals to estimate a value of the good or service or used to estimate benefits in a cost-benefit analysis.

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