RIVISTA QUADRIMESTRALE
DI
DIRITTO DELL'AMBIENTE
-
Quarterly Journal of Environmental Law

NUMERO 2 - 2016

ANDREA SABA

Responsive contract governance for the provision of ecosystem services from agricultural land

G. Giappichelli editore

ANDREA SABA*

Responsive contract governance for the provision of ecosystem services from agricultural land

TABLE OF CONTENTS: 1. *Introduction.* – 2. *Dealing with uncertainty, risk and change in agri-environmental contracts.* – 3. *Overarching conceptual framework on law and governance: a 'zoomed out' view.* – 4. *Towards responsive contract governance for the provision of ecosystem services.* – 4.1. *Adaptability in accommodating uncertainty and changes.* – 4.2. *Reflexivity in facilitating a fit between regulatory framework and contract governance.* – 5. *Conclusions.*

1. *Introduction*

Academic scholarship on the value of benefits we receive from nature traces its origin back for several decades. However, ecosystem services - whose term was coined in the late 1960s - have been mainstreamed with the publication of the Millennium Ecosystem Assessment in 2005[1]. In the literature, a general shift is emerging in considering the concept from an original ecological and pedagogical perspective to an inclusion of economic, legal and institutional aspects in its relevance for public policy[2]. The production of ecosystem services from agricultural land was understood through the concept of multifunctional agriculture[3]. Within this line, the paradigm of social-ecological systems has been recently placed[4]. It focuses on the close

* PhD Fellow at the Institute of Law, Politics and Development (Dirpolis), Scuola Superiore Sant'Anna, Pisa.

[1] For access the documents, see the Millennium Ecosystem Assessment website at <http://www.millenniumassessment.org/en/Index-2.html> accessed 14 March 2016.

[2] See P. VIHERVAARA – M. RONKA – M. WALLS, *Trends in Ecosystem Service Research: Early Steps and Current Drivers*, in *AMBIO*, 2010, p. 314 ss.

[3] See, among others, M. CARDWELL, *The European Model of Agriculture*, Oxford University Press, Oxford, 2004; F. ALBISINNI, *Azienda multifunzionale, mercato, territorio. Nuove regole in agricoltura*, Giuffrè, Milano, 2000. See, also, G. BUIA – M. ANTONUCCI, *The Rural Development Programme (RDP) as a Strategic Tool for Linking Legal and Agroecological Perspectives*, in M. MONTEDURO ET AL. (eds.), *Law and Agroecology. A Transdisciplinary Dialogue*, Springer, Berlin-Heidelberg, 2015.

[4] See, *inter alia*, F. BERKES – J. COLDING – C. FOLKE (eds.), *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change*, Cambridge University Press, Cambridge, 2002; M.D. MCGINNIS – E. OSTROM, *Social-ecological system framework: initial changes and continuing challenges*, in *Ecology and Society,* 2014, p. 30 ss.

interdependencies between natural and man-made factors. Multifunctionality is seen as the result of a transformation process among agriculture, rural areas and society at large. Compulsory regulations provide basic legal standards in the fields of environment, food safety plant health and animal welfare in the aim of keeping agricultural land in good environmental and agricultural conditions. This set of rules represents a reference level to which farmers should comply. Beyond this reference level, the European Union has recognised that farmers should be purposely remunerated through agri-environmental contracts when they provide ecosystem services that society needs. In Europe, agri-environmental measures have been widely used in promoting ecosystem services delivery. Agri-environmental contracts are designed to encourage farmers to protect and enhance the environment through managing agricultural activity.

In dealing with ecosystem services, Challenging aspects emerge from the nature of ecosystems that are subject to change in unpredictable, non-linear and transformative ways, in which the social systems are embedded in and interlocked. The article is aimed at exploring the governance arrangements for agri-environmental contracts, where regulators are using such a contractual mechanism to pursue regulatory goals. The article will explore the contours of the emerging contract governance. Given the inherent uncertainty and risk, the article will address questions of meta-governance, focused on how the contract governance should be configured in itself. Embracing the concept of responsiveness in governance and regulatory design, the article will identify two features: an adaptive approach in accommodating uncertainty and changes and a reflexive approach in facilitating a good fit between the regulatory framework and contract governance.

The article uses a threefold structure. The first part will explore the uncertainty and risks that are persistently involved in agri-environmental contracts, relying on the incomplete contract theory. The second part will build an overarching conceptual framework that embeds the discussion in the so-called new governance approach to institutional design and effective regulation. It will explore the relationship through a transformation perspective that is born of new governance. The view will then be focused on the contours of responsive contract governance for the provision of ecosystem services. The third part will delineate the contours of contract governance arrangements through the two main features: adaptability and reflexivity.

2. *Dealing with uncertainty, risk and change in agri-environmental contracts*

Environmental governance nowadays appears to be increasingly based on the emerging understanding of society and environment as social and ecological systems that consist of a complex, interdependent and dynamic set of interrelations between natural and man-made factors[5]. Ecosystem services have produced «fundamental changes in society's approach to the environment», which have required public agency to design instruments that maintain and enhance their delivery[6].

The European Union - in integrating environmental aspects in the Common Agricultural Policy - has defined a reference level under which farmers are required to comply with basic legal standards for environmental protection, food safety, animal and plant health and animal welfare as well as the requirements of maintaining agricultural land in good agricultural and environmental conditions[7]. Beyond this reference level, the European Union has

[5] See S.F. CHAPIN – G.P. KOFINAS – C. FOLKE, *Principles of ecosystem stewardship. Resilience based natural resource management in a changing world*, Springer, Berlin-Heidelberg, 2009; S.F. CHAPIN ET AL., *Earth stewardship: Science for action to sustain the human-earth system*, in *Ecosphere*, 2011. See also E. BRONDIZIO – E. OSTROM – O.R. YOUNG, *Connectivity and the governance of multilevel socio-ecological systems: The role of social capital*, in *Annual Review of Environmental Resources,* 2009, p. 253 ss. Compare with C.S. HOLLING – G.K. MEFFE, *Command and control and the pathology of natural resource management*, in *Conservation Biology,* 1996, p. 328 ss.; C. HOLLEY, N. GUNNINGHAM – C. SHEARING, *The New Environmental Governance*, Earthscan, London-Washington, 2013.

[6] See E. NICHOLSON, *Policy research areas for ecosystem services in a changing world*, in *Journal of Applied Ecology,* 2009, p. 1139 ss. See also M.C. LEMOS – A. AGRAWAL, *Environmental governance*, in *Annual Review of Environmental Resources,* 2006, p. 297 ss.

[7] See Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005, OJ L 347/487, article 28(3); Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008, OJ L 347/549; Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 december 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009, OJ L 347/608. See also, among others, S. ENGEL – S. PAGIOLA – S. WUNDER, *Designing payments for environmental services in theory and practice: an overview of the issues*, in *Ecological Economics,* 2008, p. 663.

recognised that farmers should be purposely remunerated through agri-environmental schemes when they provide ecosystem services that society needs. Agri-environmental contracts are designed to encourage farmers to protect and enhance the environment through managing agricultural activity. They have reached a vast number in the European Union, in which Member States may design contractual arrangements with a certain level of flexibility on the basis of farming landscape and environmental conditions that are peculiar to the States, in accordance with a wide set of EU objectives that range from soil and water quality to landscape care and biodiversity[8].

Agri-environmental schemes were introduced in the mid-1980s[9]. The EU Commission, in describing the introduction of environmental aspects in the Common Agricultural Policy, stated that «farmers should be expected to observe basic environmental standards without compensation. However, wherever society desires that farmers deliver an environmental service beyond this base-line level, this service should be specifically purchased through agri-environmental measures»[10]. Farmers enter in a contractual agreement for a fixed number of years (between five to seven years) according to which they receive

<www.sciencedirect.com/science/article/pii/S0921800908001420> accessed 7 March 2016; P. ROWCROFT ET AL., *Barriers and opportunities to the use of payments for ecosystem services* (Final report prepared for Defra, URS Scott Wilson 2011) <www.cbd.int/financial/pes/unitedkingdom-barriers.pdf> accessed 7 March 2016.

[8] Compare with Österreichisches Institut Fur Raumplanung, *Synthesis of Mid-Term Evaluations of Rural Development Programmes 2007-2013,* Commissioned by European Commission, DG Agriculture and Rural Development, 2012; Kantor Management Consultants, *Ex-post evaluation of Rural Development Programmes 2000-2006*, Commissioned by European Commission, DG Agriculture and Rural Development, 2012. See also European Commission, *Agri-environment Measures Overview on General Principles, Types of Measures, and Application,* 2005, p. 4.

[9] See Council Regulation (EEC) No 797/85 of 12 March 1985 on improving the efficiency of agricultural structures, [1985] OJ L 93. Agri-environmental schemes became compulsory elements of the rural development plan of Member States in 1992. See Council Regulation (EEC) No 2078/92 of 30 June 1992 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside, [1992] OJ L 215.

[10] See European Commission, Directions towards Sustainable Agriculture, COM (99) 22 Final, 28. At this regards, it is worth mentioning an interesting research area concerning the critical discourse analysis of EU agricultural commissioners on Common Agricultural Policy. See K. ERJAVEC – E. ERJAVEC, *Changing EU Agricultural Policy Discourses? The Discourse Analysis of Commissioner's Speeches 2000–2007*, in *Food Policy*, 2009, p. 218; K. ERJAVEC – E. ERJAVEC – L. JUVANČIČ, *New Wine in Old Bottles: Critical Discourse Analysis of the Current Common EU Agricultural Policy Reform Agenda*, in *Sociologia Ruralis*, 2009, p. 41; K. ERJAVEC – E. ERJAVEC, *"Greening the CAP" – Just a Fashionable Justification? A Discourse Analysis of the 2014–2020 CAP Reform Documents*, in *Food Policy*, 2015, p. 53.

an annual payment in return of undertaking one or more agri-environmental commitments that are intended to develop the environmental value of the land[11].

As found in literature, agri-environmental contracts are reflecting a general trend that is increasingly emerging in using contractual arrangements instead of administrative measures in the public governance of economic issues[12]. In this vein, agri-environmental contracts have been considered an *optimum* in managing ecosystem services – than unilateral public impositions – because they facilitate the function of the public agency in establishing objectives through contractual instruments that are aimed at governing the respective commitments through the achievement. Indeed, public administration designs agri-environmental commitments in national rural development programmes that are embedded in a contract signed by farmer or land managers and the public authority. This has proved to be for regulating the relationship between private entities and public administration[13].

When the parties enter into a agri-environmental contract, they act on the basis of the best available information. However, when we deal with ecosystem services, we operate under a persistent information deficit, or partial knowledge[14]. The nature itself of ecosystems as open dynamic systems condemns us to this circumstance[15]. By opening any book on ecology, an immediate lesson is that: ecosystem services are not services in the conventional

---

[11] See Council Decision 2006/144/EC on Community strategic guidelines for rural development (programming period 2007 to 2013), [2006] OJ L 55. See, also, B. JACK, *Agriculture and EU Environmental Law*, Ashgate, Surrey, 2009, p. 109. See, also, Regulation 1305/2013, Art. 28(5).

[12] See A. GERMANÒ – E. ROOK BASILE, *Manuale di diritto agrario comunitario*, Giappichelli, Torino, 2014, p. 364. See also B. JACK, *Agriculture and EU*, cit., p. 109 ss.; B. JACK, *Ecosystem Services: European Agricultural Law and Rural Development,* in M. MONTEDURO ET AL. (eds.), *Law and Agroecology*, cit., p. 141 ss.

[13] Compare with F. ADORNATO – P. LATTANZI – I. TRAPÉ, *Le misure agro ambientali*, in L. COSTATO – E. ROOK BASILE – A. GERMANÒ (eds.), *Trattato di diritto agrario*, vol. 1, UTET Giuridica, Torino, 2011, p. 591.

[14] It is interesting to compare with the perspective maintained in E.B. NOE – H.F. ALRØE, *Regulation of Agroecosystems: A Social Systems Analysis of Agroecology and Law*, in M. MONTEDURO ET AL., *Law and Agroecology,* cit., p. 31 ss. The authors discuss the key challenges that law and policy need to address in regulating agro-ecosystems towards their sustainable development. The regulation of one aspect in agro-ecosystems may lead either to unintended outcomes or unforeseen side effects. The authors call for a agro-ecological regulation in which scientific and legal points of view may communicate together, being aware of «its own blind spots».

[15] Compare with J. HOLLAND, *Hidden order: How adaptation builds complexity*, Addison-Wesley, Boston, 1995; R.G. BAILEY, *Ecosystem geography*, Springer-Verlag, Berlin and Heidelberg, 1996.

economic meaning. An ecosystem service should be understood as the result of complex processes that are related not only with the given ecosystem but with all associated ecosystems[16].

The contribution of complex adaptive systems research to ecosystems ecology is crucial[17]. Specifically, the literature maintains that «the coherence

[16] Ruhl and colleagues provides a fascinating example in J.B. RUHL – S.E. KRAFT – C.L. LANT, *The Law and Policy of Ecosystem Services*, Island Press, Washington, 2007, p. 32. The scholars argued that «the public must understand - indeed, ecologists must help the users of ecosystem services understand - that ecosystem services are not services in the conventional economic sense. Services in the form of human labor can be used far more flexibly than can ecosystem services. If a developer wishes to obtain consulting on a building project, for example, engineers, planners, architects, lawyers, and other consulting service providers can be assembled into a consulting team. The developer can negotiate their consulting fees, obtain their services as needed, and replace those that do not perform adequately. By contrast, the use of ecosystem services presents far less flexibility [...] The services we use, therefore, cannot easily be selected for rate, location, combination, and other qualities as we can do for consultants. They are where they are and what they are, unless we alter the underlying ecosystem processes».

[17] A vast body of literature describes ecosystems through the terms of complex adaptive system theory. In this line, the world-renowned ecologist Simon Levin considers the ecosystems as the «prototypical examples of complex adaptive systems». Complex adaptive systems theory is focused on investigating the behaviour and properties of heterogeneous and interconnected agents. In systems consisting of such agents, feedback and feedforward loops are generated among agents. Through these loops, the action of an agent could affect many other agents, including the original actors. Such feedback ad feedforward loops – considered in an aggregated manner – generate the emergent system behaviour that is proved to show dynamic non-linear properties that are not predictable through the sole analysis of any single agent operating in the system. Current research is focusing on how this emergent system behaviour sustains an equilibrium (or a stable disequilibrium) for the system considered as a whole. Translating this in the specific context of ecosystem services, Costanza and colleagues describe how «ecosystem services and functions do not necessarily show a one-to-one correspondence [...] a single ecosystem service is the product of two or more ecosystem functions whereas in other cases a single ecosystem function contributes to two or more ecosystem services». The literature has further proved that such an understanding – ie ecosystems as complex adaptive systems – provides a useful perspective in considering the difficulties in managing ecosystem services. Indeed, the strong interactions and complex feedback/feedforward loops among agents produce relevant space and time lags, discontinuities and changes that result in the unworkability of aggregate small-scale behaviour in managing large-scale results. Against this background, Christensen and colleagues point out that «with complexity comes uncertainty […] we must recognize that there will always be limits to the precision of our predictions set by the complex nature of ecosystem interactions». If we include also the nature of regulation and institution, the difficulties in designing and implementing a legal intervention in governing ecosystem services emerge very clearly. See, among others, N.W. WATKINS – M.P. FREEMAN, *Natural Complexity,* in *Science,* 2008, p. 323 ss; M.A. JANSSEN (ed.), *Complexity and ecosystem management*, Edward Elgar, Cheltenham-Northampton, 2002; S. LEVIN, *Fragile Dominion: Complexity and the Commons*, Perseus Books, New York, 1999; J.H. MILLER – S.E. PAGE, *Complex Adaptive Systems: an Introduction to Computational Models of Social Life*, Princeton University Press, New Jersey, 2007; G. HARTVIGSEN – A. KINZIG – G. PETERSON, *Use and analysis of complex*

and persistence of each system depends on extensive interactions, the aggregation of diverse elements, and adaptation or learning»[18]. In this vein, Limburg and colleagues argues that «an important function of understanding complex systems should be to inform decision-makers about when, or under what circumstances, an undesirable substantive state change is likely to occur, one that will diminish or enhance the value of ecosystem services»[19]. Even if human-defined ecosystem boundaries remain largely arbitrary, governance and law will need to draw essential insight from ecology in maintaining the value of ecosystem services[20].

Uncertainty is involved in agri-environmental contract. Ecosystem services are dynamic and unpredictable in themselves, thus involving unexpected changes that we need to manage during the performance of the contractual agreement. Thus, contracting mechanisms around ecosystem services delivery may be prone to incompleteness, given uncertain contingencies and unpredictable non-linear changes. The contractual agreement acts as a «risk-alloction device» between the parties at the time of contracting[21]. The allocation of risk reflects the compatibility between the initial circumstances and those that occur during the performance, eventually as a result of mid-term changes[22]. In the literature, risk allocation is linked to the concept of contractual equilibrium[23]. In all contracts, it is possible to identify a plan for risk allocation. In a agri-environmental contract, the risk may be identified with the probability of damage in potential terms – this represents an economic decrease or loss for the provider that has borne the cost occurred and

adaptive systems in ecosystem science: Overview of special section, in *Ecosystems*, 1998, p. 427 ss; S. LEVIN, *Ecosystems and the Biosphere as Complex Adaptive Systems*, in *Ecosystems*, 1998, p. 431 ss. See also R. COSTANZA ET AL., *The value of the world's ecosystem services and natural capital*, in *Nature*, 1997, p. 254; R. COSTANZA ET AL., *Ecological economics: Reintegrating the study of humans and nature*, in *Ecological Applications*, 1996, p. 978 ss.; N.L. CHRISTENSEN ET AL., *The report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management*, in *Ecological Applications*, 1996, p. 669.

[18] See J. HOLLAND, *Hidden order,* cit.

[19] See K.E. LIMBURG ET AL., *Complex systems and valuation*, in *Ecological Economics*, 2002, p. 410.

[20] See J.B. RUHL – S.E. KRAFT – C.L. LANT, *The Law*, cit., p. 33.

[21] See P.S. ATIYAH, *An Introduction to the Law of Contract*, V ed., Clarendon, Oxford, 1995, p. 185.

[22] *Mutatis mutandis*, see E. GABRIELLI, *Il rischio contrattuale,* in G. ALPA – M. BESSONE (eds.), *I contratti in generale*, UTET, Torino, 1991.

[23] See G. ALPA – M. BESSONE – E. ROPPO, *Rischio contrattuale e autonomia privata*, Jovene, Napoli, 1982; M. BESSONE, *Adempimento e rischio contrattuale*, Giuffrè, Milano, 1975.

the income forgone in performing the contractual obligations before the unforeseen circumstances occur[24].

Against this background, the incomplete contract theory may be of use in exploring such understanding. In the vast majority of real world cases, we are faced with «the inevitability of incomplete contracts»[25]. In a classical model, parties are able to assess and optimally allocate all the relevant risks through a tailor-made agreement provided by a legal rules or an individualised agreement - this is possible not only because all the specific contingencies are understood at the time of the negotiation between parties, but also because they cannot be dealt by efficacious contractual positions[26]. In the complex world - and, particularly in ecological and social systems - contractual arrangements differ significantly from a classical model. A degree of incompleteness is inevitable in consideration, among others, of the costs of collecting information and contractual drafting for all the possible contingencies[27].

In academic scholarships (mostly produced in the United States), two groups of researchers have debated incomplete contract theory: on the one side, law and economics scholars that write in legal journals and, on the other side, economists that write in economics journals[28]. Economists refer to incomplete contracting in order to express a failure in fully realising the potential gains from trade in every future contingency[29]. According to the literature, these

[24] This arguably excludes the application of the category of aleatory contract to agri-environmental contracts in ecosystem services provision. In the case of aleatory contract, the probability of profits should be strictly equal to the probability of loss. Being an onerous contract, the risk of one party should be compensated by an equal risk of the other party. The aleatory nature consists, thus, in such an exchange of risk that become the object of the contract – indeed, parties entry into an aleatory contract for the perspective of an uncertain profit that results to be a key determinant in contracting. For a comprehensive analsysis of aleatory contract, see G. DI GIANDOMENICO – D. RICCIO, *I contratti speciali. I contratti aleatori*, in *Trattato di diritto privato*, Vol. XIV, Giappichelli, Torino, 2005; G. DI GIANDOMENICO, *Il contratto e l'alea,* Cedam, Padova, 1987; L. BALESTRA, *Il contratto aleatorio e l'alea normale*, Cedam, Padova, 2000. For a detailed analysis of the aleatory contract in Agricultural Law, see M. ALABRESE, *Riflessioni sul tema del rischio nel diritto agrario*, ETS, Pisa, 2009.

[25] See S. BAKER – K.D. KRAWIEC, *Incomplete Contracts in a Complete Contract World*, in *Florida State University Law Review*, 2006, p. 730.

[26] See C.J. GOETZ – R.E. SCOTT, *Principles of Relational Contracts*, in *Virginia Law Review*, 1981, p. 1090.

[27] See S. BAKER – K.D. KRAWIEC, *Incomplete Contracts,* cit., p. 725 ss.

[28] See R.E. SCOTT, *The Law and Economics of Incomplete Contracts*, in *Annual Review of Law and Social Science*, 2006, p. 279.

[29] For a comprehensive analysis of the economic model, see P. AGHION ET AL. (eds.), *The Impact of Incomplete Contracts on Economics*, Oxford University Press, Oxford, 2016.

contracts are, therefore, considered contingently incomplete. Legal scholars use the concept of incompleteness in referring to contracts where parties, either deliberately or accidentally, were not in a position to fully specify all their rights and obligations at the time of drafting[30]. An obligationally incomplete contract is also contingently incomplete. Thus, in some circumstances, the parties may want to reallocate their given contractual undertakings in consideration of new situations or contingencies not considered at the time of negotiation.

However, the *inevitability of incompleteness* necessarily turns to be *the impossibility of incompleteness* – contract are never really obligationally incomplete[31]. It falls to the public institutions to create a legally-sound default background to govern contractual relationships when such new situations or unforeseen contingencies might occur. Indeed, such a default background prepares the floor for allocating bargaining power during renegotiation. From a legal perspective, the most significant insight derived from the economic model of contract theory may be found in the systematic incorporation of renegotiation in the analysis of contracting. Under this framework, contractual parties may have two strategic options when such unforeseen contingencies might occur: breach or renegotiation. The challenge for contract design is to set the field for future renegotiations when unpredicted contingencies occur.

3. *An overarching conceptual framework on law and governance: a zoomed out view*

Governance has long been in an ambivalent position in legal and in socio-political and economic scholarships due to the openness of the concept that makes difficult to define its distinction from other concepts[32]. Starting from the definition provided by the Oxford English Dictionary, governance is understood as the action or manner of governing. This, scholarly speaking, may include «directing, guiding, or regulating individuals, organizations, nations, or multinational associations - public, private, or both - in conduct or actions»[33].

[30] See I. AYRES – R. GERTNER, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, in *The Yale Law Journal*, 1992, p. 730.
[31] See S. BAKER – K.D. KRAWIEC, *Incomplete Contracts*, cit., p. 733.
[32] See P. ZUMBANSEN, *Governance: an Interdisciplinary Perspective*, in D. LEVI-FAUR (ed.), *The Oxford Handbook of Governance*, Oxford University Press, Oxford, 2012.
[33] See L.E. LYNN JR, *The Many Faces of Governance: Adaptation? Transformation? Both? Neither?*, in D. LEVI–FAUR (ed.), *The Oxford,* cit.

Governance has assumed a large number of usages and meanings in heterogeneous scientific contexts that it might appear to scholars to be a less than a useful notion in undertaking legal (or, more generally, social) research[34]. Against this background, this work agrees with a relevant part of the literature in considering, instead, such apparent weakness in the notion of governance of use in re-orienting our language[35]. This deals with the architecture of regulatory challenges towards an interdisciplinary discourse in which boundaries have been broken down. Indeed, this interdisciplinary dimension is nothing less than reflecting the essence of the regulatory challenges to be governed[36]. The number of disciplines that may be involved in the discussion is constantly increasing[37]. They range from law and economics to psychology, sociology and behavioural science. Governance provides an interdisciplinary, holistic and comprehensive approach to questions of rule-making that is oriented toward the long-term[38].

Governance refers to approaches that deal with the modes of regulation, thus expanding the issues to encompass changes in political, economic and social regulation[39]. A wide body of literature discusses the concept of

---

[34] See, among others, M. BEVIR, *Governance as theory, practice and dilemma*, in M. BEVIR (ed.) *The Sage Handbook of Governance*, Sage, Thousand Oaks, 2010; P. ZUMBANSEN – G.P. CALLIESS (eds.), *Law, Economics and Evolutionary Theory*, Edward Elgar, Cheltenham-Northampton, 2011. See also O.E. WILLIAMSON, *The economics of governance*, in *American Economic Review*, 2005, p. 1. Compare with C. OFFE, *Governance: An "empty signifier"?, in Constellations,* 2009, p. 550.

[35] See P. ZUMBANSEN, *The Conundrum of Order: The Concept of Governance from an Interdisciplinary Perspective*, in *Osgoode CLPE Research Paper No 37/2010*, 2010. Compare with J. BRAITHWAITE – C. COGLIANESE – D. LEVI-FAUR, *Can regulation and governance make a difference?*, in *Regulation and Governance*, 2007, p. 1.

[36] Compare with K. VAN KEERSBERGEN – F. VAN WAARDEN, *Governance as a bridge between disciplines: Cross-disciplinary inspiration regarding shifts in governance and problems of governability, accountability and legitimacy*, in *European Journal of Political Research*, 2004, p. 143.

[37] Compare with O.W. HOLMES JR, *Law in Science and Science in Law*, in O.W. HOLMES JR, (ed.), *The Collected Legal Papers*, Dover Publications, Mineola, 2007.

[38] See S. GRUNDMANN – F. MÖSLEIN – K. RIESENHUBER, *Contract Governance: Dimensions in Law and Interdisciplinary Research*, in GRUNDMANN – F. MÖSLEIN – K. RIESENHUBER (eds.), *Contract Governance: Dimensions in Law and Interdisciplinary Research,* Oxford University Press, Oxford, 2015.

[39] See C. MAURY ET AL., *Governance Across Multiple Levels of Agri-environmental Measures in France*, in R. MURADIAN – L. RIVAL (eds.), *Governing the Provision of Ecosystem Services*, Springer, Berlin and Heidelberg, 2013, p. 261. See also M.R. FERRARESE, *La governance tra politica e diritto*, Il mulino, Bologna, 2010.

governance often seeking a bounded and comprehensive definition[40]. According to Lynn and colleagues, governance is «regimes of laws, rules, judicial decisions, and administrative practices that constrain, prescribe, and enable the provision of publicly supported goods and services»[41]. One of the advantages of this definition lies in taking account of both traditional legal structures and public-private decision-making. This aspect is further developed in the research carried out by the American scholar Gerry Stoker, in which governance is analysed as «the rules and forms that guide collective decision-making [...] governance is not about one individual making a decision but rather about groups of individuals or organisations or systems of organisations making decisions»[42]. The author emphasises the blurred boundaries between and within public and private sector[43]. Thus, governance is progressively characterised by institutional complexity and blended boundaries between public and private[44]. Within the scope of this work, it is valuable to stress this approach: governance applies to laws and rules and includes both public and private actors[45]. In this vein, some commentators have further stressed the importance of the vertical

[40] See, among others, R.A.W. RHODES, *Understanding Governance*, Open University Press, Buckingham, 1997; R.A.W. RHODES, *Understanding governance: Ten years on*, in *Organization Studies*, 2007, p. 1243. See also R. MAYNTZ, *New challenges to governance theory*, in H.P. BANG (ed.), *Governance as Social and Political Communication*, Manchester University Press, Manchester, 2003; S. BARTOLINI, *New modes of governance: An introduction*, in A. HÉRITIER – M. RHODES (eds.), *New Modes of Governance in Europe: Governing in the Shadow of Hierarchy*, Palgrave Macmillan, Basingstoke, 2011. Compare with J. KOOIMAN, *Governing as Governance*, Sage, Thousand Oaks, 2003; A.M. KJÆR, *Governance*, Polity, Bodwin, 2004.

[41] See L.E. LYNN JR. – C.J. HEINRICH – C.J. HILL, *Improving governance: A new logic for empirical research*, Georgetown University Press, Washington, 2001, p. 7.

[42] See G. STOKER, *Designing institutions for governance in complex environments: Normative rational choice and cultural institutional theories explored and contrasted*, in *Economic and Social Research Council Fellowship Paper No 1/2004*, 2004, p. 3.

[43] According to Stoker, in the relevant literature a baseline agreement has been established that «governance refers to the development of governing styles in which boundaries between and within public and private sectors have become blurred». See G. STOKER, *Governance as theory: Five propositions*, in *International Social Science Journal*, 1998, p. 17.

[44] See L. BOUSSAGUET – S. JACQUOT, *Les nouveaux modes de gouvernance*, in R. DEHOUSSE (ed), *Politiques européennes*, Presses de Science Po, Paris, 2009, p. 409 ss. See also C. ANSELL - A. GASH, *Collaborative governance in theory and practice*, in *Journal of Public Administration Theory and Practice*, 2007, p. 543.

[45] See O. LOBEL, *New Governance as Regulatory Governance*, in D. LEVI-FAUR (ed.), *The Oxford,* cit.

interdependence among stakeholders that act at different territorial levels and the interrelations between governmental and private actors[46].

This embeds our discussion in the framework of the new governance, considered as a useful point of view in framing the relationship between the law and the overarching governance structure. The new governance concept emerges as a «school of thought» that focuses on institutional design and effective regulation. It offers an understanding of law that is based on the «comparative strengths of both private and public stakeholders and highlights the multiple ways in which the various actors in a society contribute to the acts of ordering social fields»[47]. The new governance approach involves a normative dimension[48], but does not primarily operate through formal mechanisms of command-and-control legal institutions[49]. The concept of new governance is still developing and has not been settled[50]. While the term has been usually

[46] A fascinating literature has been produced in relation to the research efforts of analysing the concept of multilevel governance. For a comprehensive analysis, see, among others, I. BACHE – M. FLANDERS, *Multi-level governance*, Oxford University Press, Oxford, 2004.

[47] See O. LOBEL, *New Governance*, cit., p. 86. See also N. WALKER – G. DE BÚRCA, *Narrowing the Gap? Law and New Approaches to Governance in the European Union: Reconceiving Law and New Governance*, in *Columbia Journal of European Law*, 2007, p. 519.

[48] Compare with D. NEJAIME, *When new governance fails*, in *Ohio State Law Journal*, 2009, p. 323.

[49] It is worth noting that, while new governance experiences presents clear similarities between Europe and the United States. The European experience is focused a top-down incentives, in which EU has directly promoted new governance approaches. Counter to this, the United States' experience emerges largely buttom-up. See G. DE BÚRCA – J. SCOTT, *Introduction: New Governance, Law and Constitutionalism*, in G. DE BÚRCA – J. SCOTT (eds.), *Law and New Governance in the EU and the US,* Hart Publishing, Portland, 2006, p. 2. See also, though less recent, L.M. SALAMON – O.V. ELLIOTT (eds.), *The Tools of Government: A Guide to the New Governance*, Oxford University Press, Oxford, 2002; B. EBERLEIN – D. KERWER, *New governance in the European Union: A theoretical perspective*, in *Journal of Common Market Studies*, 2004, p. 121.

[50] The governance model has been emerging in a innumerable number of legal theories that are still developing and might arguably include theories known under the definition of "collaborative regulation", "reflexive law", "legal experimentalism", "responsive regulation", "regulatory pluralism", "meta-regulation". See O. LOBEL, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, in *Minnesota Law Review*, 2004, p. 324. See, among others, J. FREEMAN, *Collaborative Governance in the Administrative State*, in *UCLA Law Review*, 1997, p. 1; A. FEBBRAJO – G. TEUBNER, *State, Law and Economy as Autopoietic Systems: Regulation And Autonomy In A New Perspective*, Giuffrè, Milano, 1992; M.C. DORF, *Legal Indeterminacy and Institutional Design*, in *NYU Law Review*, 2003, p. 875; I. AYRES – J. BRAITHWAITE, *Responsive Regulation: Transcending The Deregulation Debate*, Oxford University Press, Oxford, 1992; N. GUNNINGHAM – D. SINCLAIR, *Regulatory Pluralism: Designing Policy Mixes for Environmental Protection*, in *Law and Policy*, 1999, p. 49; J. BLACK, *Decentering Regulation: Understanding the Role of Regulation and Self-Regulation in a 'Post-*

explored by means of definition-by-contrast in literature, a number of key characteristics emerge that may provide a description[51]. According to Graínne De Búrca and Joanne Scott – two leading scholars in exploring new approaches to governance – the idea of new governance is based «on the importance of *provisionality* and *revisability*[52] - in terms of both problem definition and anticipated solutions [...] Rather than operating through a hierarchical structure of governmental authority, the "centre" [...] may be charged with facilitating the emergence of the governance infrastructure, and with ensuring coordination or exchange as between constituent parts»[53]. Provisionality and revisability play a core role, which is supported by relevant efforts in enabling the direct involvement of stakeholders and applying information-sharing and learning towards full transparency and openness[54]. New governance allows to consider the different entities (i.e. public authorities, private regulated entities, and civil society) as «part of one comprehensive, interlocking system» where all the entities involved are «norm-generating subjects» towards the development of the norms of behaviour[55]. It includes, among others, the promotion of self-regulation and collaborative rule-making between private and public entities, supported by a close focus on internal processes and organisational dynamics. Effective and collaborative rule-making is enabled within «the range of possibilities in the interaction between regulation and regulated actors»[56].

Regulatory' World, in *Current Legal Problems*, 2001, p. 103; B. MORGAN, *Regulating the Regulators: Meta-Regulation as a Strategy for Reinventing Government in Australia*, in *Public Management: An International Journal of Research and Theory*, 1999, p. 50.

[51] Compare with L.M. SALAMON, *The tools approach and the new governance: Conclusions and implications*, in L.M. SALAMON (ed.), *The Tools of Government: A Guide to New Governance*, Oxford University Press, Oxford, 2002.

[52] Emphasis added.

[53] See G. DE BÚRCA – J. SCOTT, *Introduction: New Governance,* cit., p. 3.

[54] See among others L.M. SALAMON, *Law and governance in the 21st century regulatory state*, in *Texas Law Review*, 2008, p. 819.

[55] In a traditional governance perspective private actors are understood as the objects of regulation rather than directly involved in the rule-making. See O. LOBEL, *New Governance,* cit., p. 88. Compare with K. ABBOTT – D. SNIDAL, *Strengthening international regulation through transnational new governance: Overcoming the orchestration deficit*, in *Vanderbilt Journal of Transnational Law,* 2009, p. 501.

[56] See O. LOBEL, *New Governance,* cit., p. 86. See also D. LEVI-FAUR, *The global diffusion of regulatory capitalism*, in *Annals of the American Academy of Political and Social Science*, 2005, p. 12; O. LOBEL, *The renew deal,* cit., p. 342.

Many perspectives could be adopted in framing the relationship between the law and the governance framework[57]. The present work adopts a transformation perspective that considers the law and the governance structure in their mutually constitutive nature at a systemic level[58]. The transformation position maintains that new governance has resulted in a re-conceptualisation of our understanding of law. This means that the law, as social phenomenon, is «necessarily shaped and informed by the practices and characteristics of new governance, and new governance both generates and operates within the context of a normative order of law»[59]. The literature maintains that law and new governance will progressively be considered to a lesser extent as independent issues, moving towards an improved understanding of their mutually

[57] See, among others, O. LOBEL, *Setting the Agenda for New Governance Research*, in *Minnesota Law Review*, 2004, 498. See also B.C. KARKKAINEN, *"New Governance" in Legal Thought and in the World: Some Splitting as Antidote to Overzealous Lumping*, in *Minnesota Law Review*, 2004, p. 471. Compare with M. DAWSON, *Three Waves of New Governance in the European Union*, in *European Law Review*, 2011, p. 208.

[58] It is worthwhile to mention that in literature two other perspectives exist in conceptualising such a linkage: a "gap thesis" and a "hybridity thesis". These positions are both descriptive and normative in so far as they concern the actual and potential role of the law in new governance. The gap thesis maintains that the law is "largely blind" to new governance and a gap is found between the law and the practice of new governance - thus, the law either is not aware of the new governance developments or it disregards them because they do not fit with its assumptions and structures. Starting from such an understanding, two further arguments emerge in literature. The first insists upon contending that law resists to new governance by representing an actual obstacle to its emerging development, given the misalignment between their premises. This misalignment is also at the centre of the second argument, according to which this may result in a reduced capacity of law to "steer, to inform the normative direction of policy, and to secure accountability in governance". Counter to this, the hybridity thesis recognises law and new governance as "mutually interdependent and mutually sustaining". They respectively balance each other strengths and weakness. In considering its normative and descriptive dimension, the hybridity of law and new governance has been considered both as an interim phenomenon – i.e. transitioning from a formal legal regime to a complete system of new governance – as well as a long-term phenomenon that is inevitable. See G. DE BÚRCA – J. SCOTT, *Introduction: New Governance,* cit., p. 4. In relevant literature, the EU Water Framework Directive is cited as illustrative of such a collaborative implementation strategy. Among others, see J. SCOTT – J. HOLDER, *Law and New Environmental Governance in the European Union*, in G. DE BÚRCA – J. SCOTT (eds.), *Law and New Governance,* cit. Regarding the Directive, see Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327. Compare with G.A. WILSON, *The View from Law and New Governance*, in N. LEMAY HEBERT – R. FREEDMAN (eds.), *Hybridity: Law, Culture and Development*, Routledge, Abingdon-New York, 2017; D.M. TRUBEK – L.G. TRUBEK, *New Governance and Legal Regulation: Complementarity, Rivalry or Transformation*, in *University of Wisconsin Legal Studies Research Paper No. 1022*, 2006.

[59] See G. DE BÚRCA – J. SCOTT, *Introduction: New Governance,* cit., p. 4.

constitutive nature[60]. The article reflects such a transformation position by recognising that a new governance approach creates «a fluid and flexible policy environment» that is «conducive to participation and dialogue» through the acknowledgment that doctrinal boundaries among legal fields are defined by negotiation and revision[61]. Such a fluid flexible environment may reveal how separate issues are, instead, interlocked and interconnected at the level of regulated actors. Thus, legal coordination emerges as a critical factor in facilitating a dialogue among separated areas, which requires an on-going learning and adaptability.

4. *Zooming in: towards a responsive contract governance for the provision of ecosystem services*

In the previous paragraph, the article has explored the relation between the law and the overarching governance structure, understanding them as constituting a fluid and flexible environment in which the strengths of both private and public actors can be valorised in the acts of governing social fields. A new governance approach allows regulators to gain information and insights and give them context so that they may adapt and manage changes in light of new learning and shared experience[62].

Governance considerations become more relevant in dealing with agri-environmental contracts as they go beyond «a mere discrete spot exchange» and

---

[60] See N. WALKER – G. DE BÚRCA, *Reconceiving Law and New Governance*, in *Columbia Journal of European Law*, 2007, 519. See also, though less recent, J. SCOTT – D. TRUBEK, *Mind the Gap: Law and New Approaches to Governance in the European Union*, in *European Law Journal*, 2002, p. 1; G. DE BÚRCA, *The Constitutional Challenge of New Governance in the European Union*, in *European Law Review*, 2003, p. 814.

[61] See O. LOBEL, *New Governance*, cit., p. 87.

[62] This has been explored in a number of fascinating research carried out particularly in the American literature in which unusually an industrial system of automobile production – i.e. the Toyota Production System (TPS), also known as lean production – has been used as an heuristic model in building an understanding of law that is born of new governance. The implications of considering such an heuristic model provide that normative presuppositions of law and its functions need to be reframed within the background of changing social practices, while the engineering perspective suggests how the law may evolve. See W.H. SIMON, *Toyota Jurisprudence: Legal Theory and Rolling Rule Regimes*, in G. DE BÚRCA – J. SCOTT (eds.), *Law and New Governance,* cit. The usage of TPS as an heuristic model in exploring the implication for public institutions is derived from the research that has been carried out in C.F. SABEL, *Learning by Monitoring: The Institutions of Economic Development,* in N. SMELSER – R. SWEDBERG (eds.), *Handbook of Economic Sociology*, Princeton University Press, Princeton, 1994.

regulators use contractual mechanisms to pursue regulatory goals[63]. Agri-environmental contracts go beyond simple and discrete contracts that provide merely bilateral exchanges with short-term effects[64]. What is emerging is contract governance in maintaining and enhancing ecosystem services through agri-environmental contracts. Agri-environmental contracts are building a wide net of contracts from which important questions of governance arise[65]. Given the inherent uncertainty and risk involved in agri-environmental contracts, contract governance and adjustment mechanisms are required. It is up to the public institution to set up contract governance that creates a default background to manage contractual relationships when new situations or unforeseen contingencies occur. This sets the field for future renegotiations when parties have to deal with unpredicted contingencies and mid-term changes. Such a default background creates a supportive environment and prepares the ground for allocating bargaining power during renegotiation.

Having recognised that ecosystems are complex adaptive system, the question is, now, what that means for contract governance design and how this may be configured (and, to some extent, co-evolve) with the regulated targets. Contract governance needs to deal with the uncertainty associated with ecosystems and the delivery of ecosystem services[66]. Design challenges for governing ecosystem services consist in understanding how to adapt to unpredictable changes that may occur in such a dynamic system, thus coping with the connected uncertainty and risk for both public authority, private actors and civil society at large. However, uncertainty and risk decrease progressively as we learn from the experience accumulated on the ground and create a regime where the governance framework and the regulatory targets may co-evolve.

---

[63] See S. GRUNDMANN – F. MÖSLEIN – K. RIESENHUBER, *Contract Governance,* cit., p. 3 and 54. Compare with P. ZUMBANSEN, *The Law of Society: Governance Through Contract*, in *Indiana Journal of Global Legal Studies*, 2007, p. 191.

[64] *Mutatis mutandis*, compare with R. PRASCH, *How Markets Work*, Edward Elgar, Cheltenham-Northampton, 2008; K. RIESENHUBER – F. MÖSLEIN, *Contract Governance: A Draft Research Agenda*, in *European Review of Contract Law*, 2009, p. 248.

[65] See O.E. WILLIAMSON, *Transaction-Cost Economics: The Governance of Contractual Relations,* in *Journal of Law and Economics*, 1979, p. 233.

[66] Compare with A.S. GARMESTANI – M.H. BENSON, *A framework for resilience-based governance of social-ecological systems*, in *Ecology and Society*, 2013, p. 9; A.S. GARMESTANI – C.R. ALLEN – M.H. BENSON, *Can Law Foster Social-Ecological Resilience?,* in *Ecology and Society,* 2013, p. 37; C.S. CUMMING, *Scale mismatches and reflexive law*, in *Ecology and Society*, 2013, p. 18.

This also involves awareness of the need to coordinate the different scales of ecosystem management (e.g. from farm and local level to landscape and regional scale) and the scope of a complex policy mix that may include a variety of environmental objective and approaches.

The issue, thus, concerns questions of *meta-governance* – prefix "meta" means "over and beyond" – that emerge in finding how the contractual governance should be configured[67]. A specific legal understanding of the implications of such contract governance may be described through the characteristics of responsiveness[68]. This starts from a simple assumption: a governance arrangement is successful if it provides assistance in addressing the challenges that regulators face in practice[69]. However, such measurement has proved to be particularly complex in practice as it is difficult to improve the governance system by adjusting strategies[70]. The present work embraces the concept of responsiveness from the literature on responsive design of regulatory and governance framework[71].

Responsiveness theory started as a theory of business regulation, but it is now a comprehensive theory that addresses a wide number of governance

---

[67] See, among others, J KOOIMAN – S JENTOFT, *Meta-Governance: Values, Norms and Principles, and The Making Of Hard Choices*, in *Public Administration*, 2009, p. 818; J. TORFING ET AL., *Metagovernance: The art of governing interactive governance*, in J. TORFING ET AL. (eds.), *Interactive Governance: Advancing the Paradigm*, Oxford University Press, Oxford, 2012; R. JESSOP, *Governance, Governance Failure, and Meta-Governance*, International Seminar "Policies, Governance and Innovation" for Rural Areas", Arcavacata di Rende, November 2003; R. JESSOP, *Multi-level Governance and Multi-level Meta-governance*, in I. BACHE – M. FLANDERS, *Multi-level Governance*, cit.

[68] For a comprehensive analysis of the concept of responsiveness in the governance literature, see among others J. BRAITHWAITE, *The essence of responsive regulation*, in *University of British Columbia Law Review*, 2011, p. 475; J. BLACK – R. BALDWIN, *Really Responsive Risk Based Regulation*, in *Law and Policy*, 2010, p. 181; I. AYRES, *Responsive Regulation: A Co-author's Appreciation*, in *Regulation and Governance*, 2013, p. 145. For analysis of the expanded notion of responsiveness, see among others J. BRAITHWAITE, *Responsive Regulation and Developing Economies*, in *World Development,* 2006, p. 884; J. MENDELOFF, O*vercoming Barriers to Better Regulation*, in *Law and Social Inquiry*, 1993, p. 711; R. JOHNSTONE, *Putting the Regulated Back into Regulation*, in *Journal of Law & Society*, 1999, p. 378.

[69] See R. BALDWIN – J. BLACK, *Really responsive regulation*, in *Modern Law Review*, 2008, p. 59.

[70] Compare with R. BALDWIN, *Is Better Regulation Smarter Regulation?*, in *Public Law*, 2005, p. 485.

[71] The concept of responsiveness is linked to new governance approach. According to Walker and de Búrca, «New Governance is seen as a highly pragmatic and flexible approach to and modality of regulation, a method for ensuring maximum responsiveness and adaptability, with an emphasis on open-ended and provisional goals, and ensuring revisability and corrigibility». See N. WALKER – G. DE BÚRCA, *Narrowing the Gap?,* cit., p. 522.

applications. This has occurred through a cumulative process in which scholarly works have built a theory through different influences[72]. The criterion of responsiveness implies that regulation and the governance framework are responsive to five patterns: (1) behavioural and cognitive framework of regulated firms, recognised as «attitudinal setting»; (2) the institutional environment within which regulators operate that consists of constraints and opportunities[73]; (3) the different logics of regulatory strategies and tools[74]; indeed, different regulatory strategies may have diverse logics as a result of different understandings of the nature of behaviour or of institutional environments[75]; (4) the regulatory regime's own performance as it needs to be operated on a continuous basis and in a way that is capable of taking into account shift in objectives and in the institutional framework[76]; (5) the changes in regulatory priorities and circumstances that may be caused by factors internal to the regulator or imposed by external conditions[77].

In further describing the features of responsive contract governance for the provision of ecosystem services, two main features may be identified as better explored in the following sections. The first consists in the concept of adaptability in accommodating uncertainty and changes that are related with ecosystem services provision. The second concern the concept of reflexivity in allowing a facilitated fit between regulatory framework and contract governance.

4.1. *Adaptability in accommodating uncertainty and changes*

[72] See R. BALDWIN – J. BLACK, *Really responsive regulation*, cit., p. 59. See also C. PARKER, *Twenty years of responsive regulation: An appreciation and appraisal*, in *Regulation & Governance*, 2013, p. 2.
[73] Compare with C. FORD, *Prospects for Scalability: Relationships and Uncertainty in Responsive Regulation*, in *Regulation & Governance*, 2013, p. 14.
[74] See, among others, N. GUNNINGHAM – P. GRABOSKY, *Smart Regulation,* Clarendon Press, Oxford, 1998; I. AYRES – J. BRAITHWAITE, *Responsive Regulation*, cit.; R. BALDWIN, *Rules and Government,* Oxford University Press, Oxford, 1995.
[75] See, among others, J. BLACK, *Decentred Regulation,* cit, p. 103. For an analysis of the concept of "logic", see among others V. WALLER, *The Challenge of Institutional Integrity in Responsive Regulation*, in *Law and Policy*, 2007, p. 67.
[76] See, among others, V.L. NIELSEN, *Are Regulators Responsive?*, in *Law and Policy*, 2006, p. 295. Compare with P. GRABOSKY, *Beyond Responsive Regulation: The Expanding Role of Non-state Actors in the Regulatory Process*, in *Regulation and Governance*, 2013, p. 114
[77] See R. BALDWIN – J. BLACK, *Really responsive regulation*, cit., p. 59.

The concept of adaptability is involved in environmental management strategy aimed at reducing the uncertainty involved in managing ecosystems[78]. As widely used in the literature, «[adaptive] management involves a continual learning process that cannot conveniently be separated into functions like "research" and ongoing "regulatory activities", and probably never converges to a state of blissful equilibrium involving full knowledge and optimum productivity»[79]. Instead of providing discrete conclusions, adaptive management operates in an iterative manner. It recognises the evolving nature of our understanding on ecosystems[80]. Indeed, a concise definition of adaptive management approach may be found in the concept of «learning by doing»[81]. As maintained in the literature, «adaptive management consists of managing according to a plan by which decisions are made and modified as a function of what is known and learned about the system, including information about the effect of previous management actions»[82].

Management interventions are thus understood «hypotheses to be put at risk» in an adaptive framework while the resulting information improves further

---

[78] See A.S. GARMESTANI – M.H. BENSON, *A framework for,* cit., p. 10 ss; C.R. ALLEN ET AL., *Adaptive management for a turbulent future*, in *Journal of Environmental Management*, 2011, p. 1339. See also B.T. BORMANN – R.W. HAYNES – J.R. MARTIN, *Adaptive management of forest ecosystems: did some rubber hit the road?*, in *BioScience*, 2007, p. 186.

[79] See, among others, C.J. WALTERS (ed.) *Adaptive management of renewable resources,* Macmillan, 1986, p. 8 ss; C.J. WALTERS – C.S. HOLLING, *Large-scale management experiments and learning by doing*, in *Ecology,* 1990, p. 2060.

[80] The concept of adaptive management was mainly developed in the United States. See M.H. BENSON, *Adaptive management approaches by resource management agencies in the United States: implications for energy development in the interior West*, in *Journal of Energy and Natural Resources Law*, 2010, p. 87. In particular, the Department of Interior in the United States has introduced an adaptive management approach into several activities that is currently carrying out. See, among others, B.K. WILLIAMS – R.C. SZARO – C.D. SHAPIRO, *Adaptive management: the U.S. Department of the Interior Technical Guide*, Adaptive Management Working Group, Department of the Interior, 2009. See also M.H. BENSON – A.S. GARMESTANI, *Can we manage for resilience? The integration of resilience thinking into natural resource management in the United States*, in *Journal of Environmental Management*, 2011, p. 392; M.H. BENSON – A.S. GARMESTANI, *Embracing panarchy, building resilience and integrating adaptive management through a rebirth of the National Environmental Policy Act*, in *Journal of Environmental Management*, 2011, p. 1420.

[81] See C.J. WALTERS – C.S. HOLLING, *Large-Scale Management,* cit., p. 2060. This was also reported in H. DOREMUS, *Adaptive management, the Endangered Species Act, and the institutional challenges of "new age" environmental protection*, in *Washburn Law Journal,* 2001, p. 50.

[82] See A.M. PARMA ET AL., *What Can Adaptive Management Do for Our Fish, Forests, Food, and Biodiversity?*, in *Integrative Biology,* 1999, p. 19.

decision-making[83]. In this vein, monitoring plays a crucial role in identifying uncertainties in performing agri-environmental contracts and in allowing a flow of information into the contractual process. Thus, farmers may adapt to new circumstances and improve actions in ecosystems management[84]. An adaptive approach requires an iterative process in which it is essential to create a synergy between natural science and law[85]. Adaptability integrates learning into management, including insights from resilience theory and a framework in which it is possible to learn about the systems while it is being managed[86]. This provides an iterative governance process to manage uncertainty and non-linear changes[87]. Organisational (and relational, to some extent) conditions play a crucial role in an adaptive approach. In this vein, finality and flexibility can be balanced through incremental decisions that may be reviewed after monitoring[88].

Adaptability in a contract governance framework drives a shift to an iterative process that can accommodate uncertainty and changes in ecosystems. Such an adaptive approach may involve formal institutions, informal networks and individuals at different scales «for purposes of collaborative environmental management»[89]. Its broad understanding involves not only legal frameworks and institutional arrangements, but also collaboration and cooperation among levels of government, private and civil society[90]. A number of scholars have

[83] See A.S. GARMESTANI – C.R. ALLEN – H. CABEZAS, *Panarchy, Adaptive Management and Governance: Policy Options for Building Resilience*, in *Nebraska Law Review*, 2009, p. 1036 ss.
[84] Compare with P. CAPPS – H.P. OLSEN, *Legal autonomy and reflexive rationality in complex societies*, in *Social & Legal Studies*, 2002, p. 547 ss. See A.S. GARMESTANI ET AL., *The Integration of Social- Ecological Resilience and Law*, in A.S. GARMESTANI – C.R. ALLEN (eds.), *Social-Ecological Resilience and Law*, Columbia University Press, New York, 2014, p. 371 ss.
[85] See B.C. KARKKAINEN, *Panarchy and Adaptive Change: Around the Loop and Back Again*, in *Minnesota Journal of Law, Science & Technology*, 2005, p. 59.
[86] See A.S. GARMESTANI ET AL., *The Integration,* cit., p. 371 ss.
[87] See M.H. BENSON – A.S. GARMESTANI, *Embracing panarchy,* cit., p. 1420.
[88] See, mutatis mutandis, H. DOREMUS, *Adaptive management,* cit., p. 50. See also A.S. GARMESTANI – M.H. BENSON, *A framework for*, cit., p. 9.
[89] See C. FOLKE ET AL., *Adaptive governance of social-ecological systems*, in *Annual Review of Environment and Resources*, 2005, p. 441. See also C.A.T. ARNOLD – D.L. GUNDERSON, *Adaptive Law and Resilience*, in *Environmental Law Reporter*, 2013, p. 10426.
[90] See, *mutatis mutandis*, B. COSENS, *Transboundary river governance in the face of uncertainty: resilience theory and the Columbia River Treaty*, in *Journal of Land, Resources & Environmental Law*, 2010, p. 229. See also D. HUITEMA and others, *Adaptive water governance: assessing the institutional prescriptions of adaptive (co) management from a governance perspective and defining a research agenda*, in *Ecology and Society*, 2009, p. 26; A.S. GARMESTANI – M.H. BENSON, *A framework for,* cit., p. 9.

explored approaches that are based on the scale of interest and collaboration[91]. This includes a range of actors that implement different legal instruments and environmental programmes in formal and informal ways[92]. The success of an adaptive approach is to a certain extent influenced by the capacity to bridge organisation boundaries and the establishment of an enabling environment[93]. This makes evident the role played by social networks in developing innovative ideas, in facilitating the flow of information among organisations, and in creating the flexibility for the interplay of ecological system (in itself fluid) and the rigid nature of organisations. Within this context, leadership is crucial in developing a common vision and incorporating local knowledge and information derived from social networks[94]. Considering the uncertainty involved, an adaptive approach in institutional arrangements has been described in terms of an «insurance policy» for sustainability[95]. The main characteristics can be listed as «open and frequent lines of communication, collaboration, and action between both formal and informal institutions at multiple scales»[96]. It is worthwhile to note that adaptive governance is context-specific. A «blueprint

[91] American doctrine is a pioneer in discussing governance and institutional arrangements based on collaborative and adaptive approach. See among others B.C. KARKKAINEN, *Collaborative Ecosystem Governance: Scale, Complexity and Dynamism*, in *Virginia Environmental Law Journal*, 2002, p. 189; C. FOLKE ET AL., *Adaptive governance,* cit., p. 441; J.B. RUHL, *General Design Principle for Resilience and Adaptive Capacity in Legal Systems-With Applications to Climate Change Adaptation*, in *North Carolina Law Review,* 2011, p. 1373; D. SCHOENBROD – R.B. STEWART – K.M. WYMAN, *Breaking the Logjam: Environmental Protection That Will Work*, Yale University Press, New Haven, 2010.

[92] See, *ex pluris*, A.S. GARMESTANI – M.H. BENSON, *A framework for*, cit., p. 9.

[93] See C. FOLKE ET AL., *Adaptive governance*, cit., p. 441.

[94] See, *mutatis mutandis*, T.D. STEELMAN – D.W. TUCKER, *The Camino Real: to care for the land and serve the people*, in R.D. BRUNNER ET AL. (eds.), *Adaptive governance: integrating science, policy, and decision making,* Columbia University Press, New York, 2005, p. 91 ss. See also P. OLSSON ET AL., *Shooting the rapids: navigating transitions to adaptive governance of social ecological systems*, in *Ecology and Society,* 2006, p. 18 ss.

[95] See L.H. GUNDERSON, *Stepping back: assessing for understanding in complex regional systems*, in K.N. JOHNSON ET AL. (eds.), *Bioregional assessments: science at the crossroads of management and policy*, Island Press, Washington, 1999, p. 27 ss. See also J.B. RUHL, *Regulation by adaptive management: is it possible?*, in *Minnesota Journal of Law, Science and Technology*, 2005, p. 21.

[96] See A.S. GARMESTANI – M.H. BENSON, *A framework for*, cit., p. 10 ss. See, *mutatis mutandis*, P.H. LONGSTAFF – S. YANG, *Communication management and trust: their role in building resilience to "surprises" such as natural disasters, pandemic flu, and terrorism,* in *Ecology and Society,* 2008, p. 3 ss.

formula» is completely unrealistic, though a general guidance may be of use[97]. Thus, the adaptive arrangements should be designed by taking into account the specific ecological and socio-economic context in which the agri-environmental contracts will operate.

4.2. *Reflexivity in facilitating a fit between regulatory framework and contract governance*

Reflexivity, as applied to the legal research, is a concept originally developed in Europe (in particular, in Germany) that derives from systems studies and critical legal research[98]. Reflexivity arose as a reaction to the increasing stratified nature of the society which demands a legal design that matches different forms of organisation[99]. As recognised in the literature, while «the legal system becomes insensitive to the normative autonomy of other subsystems»[100], reflexive law «shifts theoretical focus from the level of norms to the level of communication»[101]. Reflexive lawdefines self-regulatory mechanisms - indeed, the aim of reflexive law lies in providing a fit between institutional and social structures via facilitation, as opposed to comprehensive regulation[102]. One scholar maintained that reflexive law «imposes procedural, rather than substantive requirements that are designed to trigger reflexive responses among those implicated in the problem that the proscribed features are designed to solve»[103].

---

[97] Among others, see *mutatis mutandis* K.P. ANDERSSON – E. OSTROM, *Analyzing decentralized resource regimes from a polycentric perspective*, in *Policy Sciences,* 2008, p. 71. Compare with P. OLSSON ET AL., *Enhancing the fit through adaptive co-management: creating and maintaining bridging functions for matching scales in the Kristianstads Vattenrike Biosphere Reserve, Sweden*, in *Ecology and Society*, 2007, p. 28 ss. See also L. SUSSKIND – A.E. CAMACHO – T. SCHENK, *A critical assessment of collaborative adaptive management in practice*, in *Journal of Applied Ecology,* 2012, p. 47.

[98] See G.P. CALLIESS, *Lex mercatoria: a reflexive law guide to an autonomous legal system*, in *German Law Journal*, 2001, p. 17; W.E. SCHEUERMAN, *Reflexive law and the challenges of globalization*, in *Journal of Political Philosophy,* 2001, p. 81 ss.

[99] See G. TEUBNER, *Substantive and Reflexive Elements in Modern Law*, in *Law and Society Review*, 1983, p. 239 ss.

[100] See P. CAPPS – H.P. OLSEN, *Legal autonomy,* cit., p. 551.

[101] See G.P. CALLIESS, *Lex mercatoria,* cit., p. 17 ss.

[102] See G. TEUBNER *Substantive and,* cit., p. 239 ss. See also the discussion in A.S. GARMESTANI – M.H. BENSON, *A framework for*, cit., p. 12 ss.

[103] See J.R. NOLON, *Climate change and sustainable development: the quest for green communities*, in *Planning and Environmental Law*, 2009, p. 8.

Gunther Teubner elaborated the concept of reflexive law as a third stage in the evolution of legal systems[104]. Reflexive law produces a «harmonious fit» between social and institutional structures that appears as self-implementing instead of being imposed by government[105]. Reflexive law is aimed at designing «self-regulating social systems through norms of organization and procedure». Therefore, it determines the procedural aspects of a regulated issue[106], as well as provides room for innovation[107]. Procedures are designed to persuade regulated bodies to act in certain ways, by engaging them «in internal reflection about what form that behaviour should take» – thus, a reflexive-based mechanism establishes goals and shares responsibility among regulated bodies through indirect and abstract forms of legal control[108]. Public authority would set a goals or threshold for a specific action and, then, work together with the regulated entities towards the achievement of the set outcome[109]. This outcome may, however, change when new information arises. Setting an appropriate goal or threshold is crucial. Research on how to integrate top-down and bottom-up flows of information has acquired an increasing interest in recent years[110]. It may facilitate a fit between the regulatory framework and the social-ecological

[104] The previous stages were formal and substantive law. Formal law is aimed at structuring private social and economic arrangements, by designing a framework within which private parties act. Formal legal rationality is consistent with a market economy; indeed, «law is formally rational to the extent that it is structured according to standards of analytical conceptuality, deductive stringency, and rule-oriented reasoning». Conversely, the purpose of substantive law is based on the need to compensate for market inadequacies through the collective regulation of economic and social activities. Rather than drawing boundaries of private action, the substantive law directly regulates social behaviour through the implementation of «substantive prescriptions». See G. TEUBNER *Substantive and,* cit., p. 239 ss.

[105] In the environmental context, Orts provided an eloquent definition of reflexive regulation as «[A] legal theory and a practical approach to regulation that seeks to encourage self-reflective and self-critical processes within social institutions concerning the effects they have on the natural environment [...]. The idea is to employ law not directly in terms of giving specific orders or commands, but indirectly to establish incentives and procedures that encourage institutions to think critically, creatively, and continually about how their activities affect the environment and how they may improve their environmental performance». See E.W. ORTS, *A Reflexive Model of Environmental Regulation*, in *Business Ethics Quarterly*, 2005, p. 780.

[106] See D.J. FIORINO, *Rethinking environmental regulation: perspectives on law and governance*, in *Harvard Environmental Law Review*, 1999, p. 477.

[107] See E.W. ORTS, *Reflexive environmental law*, in *Northwestern University Law Review*, 1995, p. 1227 ss.

[108] See D.J. FIORINO, *Rethinking environmental*, cit., p. 477.

[109] See A.S. GARMESTANI – M.H. BENSON, *A framework for*, cit., p. 12; C.R. ALLEN ET AL., *Adaptive management,* cit., p. 1339.

[110] See M.C. DORF, *The domain of reflexive law*, in *Columbia Law Review*, 2003, p. 384 ss.

dynamics that the law is trying to manage. Such an arrangement may allow an iterative structure into the reflexive-based framework which, in turn, may adjust the goal or threshold in response to new information. Reflexive law has potential for better ecosystem management[111]. Goals can be set by public authority and the track to its achievement be developed at the appropriate scale.[112] Reflexive-based mechanism can be integrated in decision-making of different scales to foster communication and innovation[113].

A crucial remark, finally, emerges: what does learning means in the governance area? Can entities involved in decision-making learn from their experiences and adjust present actions on the basis of their understanding? The interest in learning process in policy-making and decision-making traces its origin to a cognitive turn in policy analysis in the 1980s[114]. Policy learning is concerned with the ability of policy-makers to accumulate and make use of knowledge and experience in the process of adjustment and implementation through time[115]. While several understandings of policy learning exist, one of the most cited definitions is provided by Bennett and Howlett. According to the authors, policy learning refers to «the commonly described tendency for some policy decisions to be made on the basis of knowledge and past experiences and knowledge based judgments as to future expectations»[116]. What emerges is purposefulness to improve policy functioning and implementation through the identification and subsequent amendment of errors - it results in «a specific intentionality towards problem-solving»[117], in a complex setting of changing

[111] See, among others, S.E. GAINES, *Reflexive law as a legal paradigm for sustainable development*, in *Buffalo Environmental Law Journal*. 2003, p. 1 ss.
[112] See A.S. GARMESTANI – M.H. BENSON, *A framework for,* cit. p. 12 ss.
[113] Compare with C. FOLKE ET AL., *The problem of fit between ecosystems and institutions: ten years later*, in *Ecology and Society*, 2007, 30.
[114] See J. KOOIMAN, *Social-Political Governance: Introduction*, in J. KOOIMAN (ed), *Modern Governance: New Government-Society Interactions*, Sage, Thousand Oaks, 1993.
[115] For a discussion of the relationship between policy learning and policy change, see P.A. SABATIER (ed.), *Theories of the Policy Process*, Westview Press, Boulder, 2007.
[116] See C.J. BENNETT – M. HOWLETT, *The lessons of learning: reconciling theories of policy learning and policy change*, in *Policy Sciences*, 1992, p. 278 ss.
[117] See S. BORRAS, *Policy learning and organizational capacities in innovation policies*, in *Science and Public Policy*, 2011, p. 725; J.P. OLSEN – G.B. PETERS (eds.), *Lessons from Experience: Experiential Learning in Administrative Reforms in Eight Democracies*, Scandinavian University Press, Uppsala, 1996.

circumstances[118]. This suggests the importance of organisational capacities in policy learning which have been understand in twofold aspects[119]. On the one hand, "hardware" aspects include formal rules and regulations; on the other hand, "software" aspects include social norms, scripts and consensus-building structures. Capacity refers to the whole system's context in which structures and procedures allow learning at different scales within the system[120].

5. *Conclusions*

A contract governance may allow agri-environmental contracts to be responsive to unpredicted contingencies and mid-term changes associated with ecosystem services. In this line, the new governance approach has proved to be a useful point of view in better framing the issue.

The article has explored the relationship between law and governance in order to understand how to frame this relationship. The openness of the concept of governance is useful in re-orienting our language towards an interdisciplinary dialogue. Such an interdisciplinarity reflects the nature of the regulatory challenges that the work is dealing with. Governance has been, thus, understood as «the institutional matrix within which transactions are negotiated and executed»[121]. Due attention was also paid to the fact that governance involves blurred boundaries within and between public and private actors.

The implications that the new governance approach implies have been discussed through the lens of a transformation perspective. Such a perspective has allowed us to consider law and governance in their mutually constitutive nature, at a systemic level. A new governance approach creates «a fluid and flexible policy environment» that is «conducive to participation and dialogue»

---

[118] See C.M. RADAELLI, *The role of knowledge in the policy process*, in *Journal of European Public Policy*, 1995, p. 159.

[119] While the term 'capacities' have been defined broadly in literature, it worthwhile to refer (*mutatis mutandis*) to the research in D. BRAUN (ed.), *Learning Capacities in Public-Funded Research Systems' Systems*, in *Institut d'Etudes Politiques et Internationales, Université de Lausanne,* 2003, p. 7.

[120] Compare also with A. SCHOUT, *Organizational learning in the EU's multi-level governance system*, in *Journal of European Public Policy*, 2009, p. 1124. See also M.S. REED, *What is social learning?*, in *Ecology and Society,* 2010, p. 1 ss.

[121] See O.E. WILLIAMSON, *Transaction-Cost Economics,* cit., p. 239. The author also explains further (at p. 235) that «by governance structure I refer to the institutional framework within which the integrity of a transaction is decided».

through the acknowledgment that doctrinal boundaries among legal fields are defined by way of negotiation and revision[122]. Such a fluid and flexible environment reveals that separate issues are interlocked and interconnected at level of regulated actors. Thus, legal coordination emerges as a critical factor in facilitating a dialogue between contracting parties, which requires an on-going learning and adaptability.

Having zoomed the view from the context to the details, the article has recognized that environmental governance is increasingly based on the understanding of society and environment as a system that consists of a complex, interdependent and dynamic set of interrelations between natural and man-made factors[123]. In the reference framework as established by the EU regulations, commitments undertaken by farmers go beyond such a reference level in return for compensation. The countours of a contract governance has been, thus, identified in dealing with agri-environmental contracts that are going beyond «a mere discrete spot exchange»[124]. Regulators are using such a contractual mechanism in order to pursue regulatory goals. Questions of *meta-governance* have been asked in exploring how the contractual governance should be configured. The answer has been found through the concept of responsiveness. In this line, two features have been proposed: *adaptability* that may accommodate the uncertainty and changes associated with ecosystem services provision and *reflexivity* that may facilitate a fit between regulatory framework and contract governance.

[122] See O. LOBEL, *New Governance,* cit., p. 87.
[123] See S.F. CHAPIN – G.P. KOFINAS – C. FOLKE, *Principles of ecosystem,* cit.; S.F. CHAPIN ET AL., *Earth stewardship,* cit. See also E. BRONDIZIO – E. OSTROM – O.R. YOUNG, *Connectivity and the governance,* cit., p. 253 ss.
[124] See S. GRUNDMANN – F. MÖSLEIN – K. RIESENHUBER, *Contract Governance,* cit., p. 3 and 54.

ABSTRACT

Andrea Saba - *Responsive contract governance for the provision of ecosystem services from agricultural land*

The article explores the governance arrangements for agri-environmental contracts, where regulators are using such a contractual mechanism to pursue regulatory goals. The article describes the contours of the emerging contract governance. Given the inherent uncertainty linked to ecosystem services, the article addresses questions of meta-governance, focusing on how the contract governance should be configured. Embracing the concept of responsiveness in governance and regulatory design, the article identifies two main features: an adaptive approach in accommodating uncertainty and changes and a reflexive approach in facilitating a good fit between the regulatory framework and contract governance.

KEYWORDS: *agri-environmental contracts; contract governance; ecosystem services; responsiveness; regulatory framework.*

Andrea Saba – *Responsive contract governance per la fornitura di servizi agro-ecosistemici*

L'articolo esplora i meccanismi di *governance* relative ai contratti agro-ambientali, partendo dalla considerazione che il regolatore in maniera crescente si affida al loro utilizzo per perseguire obiettivi normativi. L'articolo affronta questioni di *meta-governance* che consentono di investigare come la *governance* contrattuale possa essere configurata. Attraverso il concetto di *responsiveness*, elaborato nella dottrina di lingua inglese, l'articolo identifica due elementi principali: un approccio adattivo che permette di gestire l'incertezza e i cambiamenti associati ai servizi eco-sistemici e un approccio riflessivo che permette di facilitare un accordo tra il quadro normativo e la *governance* contrattuale.

PAROLE-CHIAVE: *contratti agro-ambientali; governance contrattuale; servizi eco-sistemici; responsiveness; quadro normativo.*