

# Evaluating Criteria of Ecological Politics Effectiveness as a Necessary Determinant of Legal Bases of its Realization: Example of Ukrainian Realities

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## Abstract

The present paper seeks to discuss key challenges academics and practitioners face in their attempts to evaluate effectiveness of ecological policies. It summarizes and describes existing effectiveness criteria attributed to a certain policy itself, as well as suggests some external casual factors that are likely to moderate its effectiveness overtime. It further analysis major ecological policies in Ukraine and evaluation of its effectiveness. Finally, it suggests future changes that should be made in Ukrainian legislative acts to enable their effective implementation and pivotal shift in the mindset of its society.

*Keywords: Ecological politics, policy effectiveness, effectiveness criteria, evaluation methodology*

## 1. Introduction

Year after year environmental problems throughout the world become all the more important. This is especially true for developing countries, which often lack financial tools and expertise to address ecological issues properly. Ukraine as a developing but progressive Eastern European country is currently making an attempt to shift its attention from external challenges to the necessity of solving its internal ecological crisis. But addressing environmental problems, important as they are, is a very challenging task for academics and practitioners alike even in the most developed countries. Long time frames, geographical lag between causes and effects, complex and uncontrollable nature of the environment, and inconsistencies in our knowledge of environmental problems not only make policy-making difficult, but also poses serious limitations on the evaluation of their effectiveness. Indeed, it is difficult to conduct research that is based on observations of causal relationships between the presence of a policy or program and a change in outcomes. At the same time, our focus should not be restricted to merely assessing performance of certain characteristics according to a given criteria. It is crucial to view this issue as more complex system, deeply integrated into social and economic life of communities. The present paper seeks to determine and analyse criteria of effectiveness of ecological policies in the light of such complexity and investigate the peculiarities of Ukrainian ecological initiatives with this regard.

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## 2. Literature Review

The issues of environmental policies effectiveness and methodology of its evaluation have been the point of growing interest within the academic community. A large number of studies has been conducted in the last three decades, however the majority of them described specific ecological problem, regime, or geographical unit (Sauer et al, 2012). While some studies insist that there are good reasons to continue personalized research (Underdal et al, 2004) and that the large number of quantitative studies will enable the triangulation of results, thus enhancing our understanding of effectiveness (Underdal et al, 2004), Young (1999) argue that such personalized case study approach proves to be efficient for specific situations, but can hardly describe more complex issues or enable any kind of systematization of knowledge (Young, 2011). Moreover, Young (2011) suggests that the results of case studies themselves are often biased and inconsistent. Qualitative studies tend to be conducted in favour of existing political power and show positive effects of its policies, while quantitative studies are mostly conducted by economists, sceptical of those regimes.

A number of studies has also been dedicated to specific methodology that could be used to estimate and evaluate effectiveness of ecological policies (Johns, 2018; Sauer et al, 2012; Mickwitz, 2006), as well as propose evaluation criteria (Field & Olewiler, 2011; Mickwitz, 2006), but very few has been said about the role external, casual, or unpredicted factors may play in the effective implementation of otherwise sound ecological policy. Young (2011) calls such factors “complex causality” which occurs when clusters of causal forces interact with one another in such a way that makes it difficult to distinguish them statistically.

In Europe European Environmental Agency and Organization for Economic Cooperation and Development bring two different approaches when evaluating the effectiveness of environmental policies. The EEA provides a detailed description of what is understood by the effectiveness of implementation of environmental policy, while OECD presents a listing of a large number of assessment criteria, including traditional criteria as well as criteria involving a broader social view of the issues concerned. Nevertheless, the first approach fails to provide high-quality grounds for practical application, and the second one does not contain applicable guidance on how to work with the criteria (Sauer et al., 2012).

Such multiple and diversified approaches to effectiveness evaluation produce quite a high degree of confusion for academics, policy-makers, and stakeholders since different types of evaluation tend to ask different questions and use wide variety of methodological approaches. Moreover, the terms under question, such as effectiveness, effect, efficiency, impact etc are used inconsistently throughout the literature and in colloquial use (REM, 1999). It is important, therefore, to distinguish those terms and define the sense of policy effectiveness as it is most commonly accepted in the academic community, as well as indicate the most important casual independent factors, which could potentially influence policy effectiveness with the flaw of time.

### 3. Methodology

The present paper is based on qualitative research methods. Extensive review of existing academic on the topic, case studies of some of the world's most significant practices, and in-depth analysis of Ukrainian legislation have been used to achieve the objectives of this research.

### 4. Effectiveness Criteria

Effectiveness as such could be defined as “the extent to which the intervention’s impacts contributed to achieving its specific and general objectives (Nagarajan and Vanheukelen, 1997). Consistent with such approach, Mickwitz (2006) identifies two evaluation models: the “goal-achievement model” and “side-effects evaluation” model. The first model seeks to answer two major questions: “are the results in line with the goals?” and “are the results due to the evaluand?”. However, it is a common fact that any policy seldom works out as planned. Such approach disregards side-effects and unanticipated effects, does not consider costs, and the relevance of the goals is not questioned (Mickwitz, 2006). The second model makes an attempt to cover this drawback and focus on side effects of the process. It divides effects into anticipated and unanticipated effects inside and outside of target area (Figure 1).

We have found a wide range of effectiveness criteria classification in literature, however in general the questions to be answered by any evaluation should be guided by three practical reflections (according to REM, 1999, p.5):

- *Use*. Will the information and/or judgements generated by the evaluation be used by decision-makers? Do they fulfil a real need or legal requirement?
- *Evaluability*. Can the questions posed be answered within the constraints of available data and the willingness of authorities to collect it?
- *Cost*. Can the information be collected without disproportionate expenditure by authorities and institutions of staff time and resources?

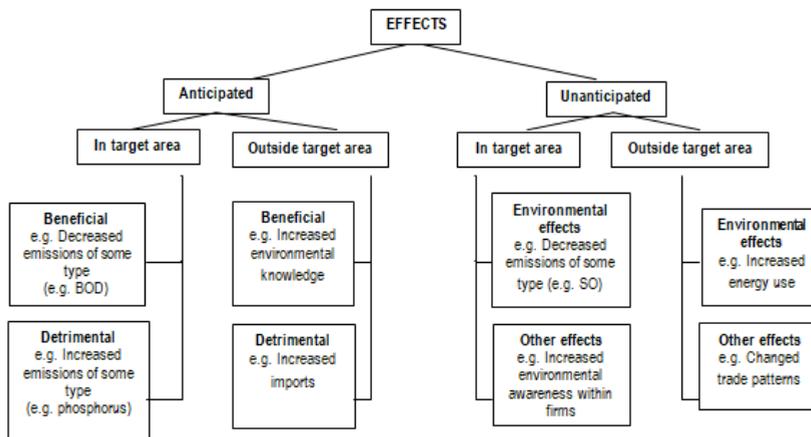


Figure 1. Different types of effects: classification and examples  
Source: (Mickwitz, 2006, p.28).

REM (1999) also advocates that any evaluation reflection or criterion falls into one of three basic categories:

1. Descriptive. Questions that seek solely to observe and measure environmental changes.
2. Causal. Questions that aim to analyse what happened in terms of cause and effect, which is to which extend the observed change happen due to the policy intervention and why did this policy have this particular effect in the given particular circumstances.
3. Normative. Questions that require a judgement to be made against targeted results or specific benchmarks. The majority of effectiveness criteria fell into this group, some of which will be discussed below.

Regarding the classification of specific effectiveness criteria, Mickwitz (2006) emphasizes the importance of multiple criteria approach and distinguishes three major groups of effectiveness criteria: general criteria, economic criteria, and criteria linked to the functioning of democracy. Criteria that can be used in evaluating environmental policies and examples of their interpretation are summarized in Table 1.

**Table 1.** Criteria of evaluation of environmental policies

Criterion	Related questions	Group
Impact	Is It possible to identify Impacts that are clearly due to the policy and Its implementation? All impacts may be considered in the light of this criterion, irrespective of their occurrence within or outside the target arm or whether they are anticipated or not.	A generally requested general criterion
Effectiveness	To what degree do the achieved outcomes correspond to the intended goals of the policy?	A generally requested general criterion
Relevance	Do the goals of the instruments cover key problems of environmental policy?	A seldom requested general criterion
Flexibility	Can the policy instrument cope with changing conditions?	A seldom requested general criterion
Predictability	Is it possible to predict the administration, outputs and outcomes of the policy instrument? Is it thus possible for those targeted, as well as others, to be prepared and take into account the policy and its implications?	A seldom requested general criterion
Persistence	Are the effects persistent in such a way that they have a lasting effect?	A seldom requested general criterion
Efficiency(cost-effectiveness)	Do the results justify the resources used? This is a cost-results criterion, in which benefits are not valued in monetary terms. Another possibility of how to consider costs is to use the cost-effectiveness criterion: Could the results have been achieved with fewer resources?	A general economic criterion
Acceptability	To what extent do individuals and organizations accept the environmental policy?	A criterion related to democracy
Transparency	To what extent are the outputs and outcomes of the environmental policies, as well as the processes used in the implementation, observable for outsiders?	A criterion related to democracy
Participatory rights	Who can participate in the processes through which the environmental policies are implemented?	A criterion related to democracy
Equity	How are the outcomes and costs of the environmental policy instrument distributed?	A criterion related to democracy

Source: (Mickwitz, 2006, p.30).

Field & Olewiler (2011) distinguish the following criteria for the evaluation of ecological policy effectiveness:

*1. Ability to achieve efficient and cost-effective reductions*

A large number of studies consider economic efficiency to be a crucial criterion in measuring policy effectiveness and a key indicator when it is not possible to measure marginal damage. It minimizes a total cost of reaching the targeted level of environmental conditions and if considered separately can provide better environmental quality comparing to economically inefficient policies thanks to saving extra costs Field & Olewiler, 2011. Another point of view, though, stresses that focus on economic utility is likely to produce a damaging effect on ecological effectiveness and should take place only in certain well-justified occasions (REM, 1999).

*2. Fairness*

Fairness (or else equity) is another questionable criterion in evaluation of environmental policies. It is often unclear which groups of stakeholders should primarily benefit from a certain initiative and how to avoid political burdens that lay on policymakers.

*3. Incentives offered to people to search for better solutions*

Despite the fact that the initial quality of any policy depends on policy makers, its further effective implementation strongly depends on individual citizens and business units as it will be up to them to follow or ignore the policy incentives. Therefore, it is necessary to understand, how appealing and stimulating is the policy for these groups of stakeholders and how much technological progress is it likely to trigger within the given region.

*4. Enforceability*

There is no doubt that every policy requires a certain amount of administrative costs to ensure its smooth implementation. A range of leverage tools, which help to, basically, impose the policy and enforce its implementation, is definitely needed in every case. Unfortunately, for various reasons there will always be some participants, who will try to prevent its effective implementation. Thus, the effectiveness of a policy depends also on how enforceable it is on practice. Some policies may require sophisticated measures and costly technical approach. Quite often it may be better to go with a less perfect initiative that could be easily implemented.

*5. Extent to which policies agree with certain moral precepts*

Moral values extend far beyond the practical monetary aspects discussed above. The urge to weight what is right and what is wrong is historically rooted deeply in the human nature. During the last several decades ethical behaviour has become both, a practical necessity and a fashion trend, creating a new breed of citizens, often referred to as ethical consumers (Volokhova, 2015). It is, therefore, important for a policy to be able to stimulate such moral instincts in the mind and heart of its target group.

**Quantitative evaluation** of environmental policies effectiveness is a challenging task under any circumstances. The Oslo-Potsdam solution is the one most widely used in case studies (Helm and Sprinz, 2000; Underdal, 2002; Hovi et al., 2003). This approach attempts to bring a degree of standardization by using a formula to measure regime effectiveness based on two key concerns: what would have occurred if that regime did not exist (Young, 2011), and what is the distance between the actual current condition of the problem and the condition of the problem under an 'optimum solution' (Stokke, 2012). This is the condition that would occur if the perfect regime was assumed to be operating.

Mathematical expression of such dual approach is summarized in the following formula:  

$$\text{Effectiveness} = (\text{Actual Performance} - \text{No Regime}) / (\text{Collective Optimum} - \text{No Regime}) = AP - NR / CO - NR \quad (1)$$
 This formula provides a single number from 0 to 1, which, basically, describes the potential of a policy under evaluation, as well as provides a freedom of methodological choice while evaluating all the variables (Johns, 2018).

## 5. Casual Factors

Establishing casualty between a specific policy and actual environmental change is, probably, the most complicated issue in accessing policy effectiveness due to the complexity of both, nature and governance systems. Changes in a certain environmental trend may be caused by any number of casual factors, such as other policies (domestic or international), geopolitical dynamics, natural processes, or economic factors. Besides, the decrease in environmental quality will not inevitably indicate that environmental policies or cooperative efforts are not successful; because of other factors, outcomes from domestic and international efforts may not be immediately evident (Johns, 2018).

The present paper proposes to distinguish two main groups of casual factors. The first group includes sudden and unpredictable events, related to natural forces (such as environmental catastrophe, climatic cataclysms etc) and radical human interventions (such as abrupt changes of political regimes by force and wars). The second group, on the contrast, includes soft changes over longer periods of time, which very often can be predicted and weighted for in policy design. While the factors in the first group are quite straightforward and could be seen as a common sense, the second group is worth to be given further clarification.

Young (2011) outlines the following not directly related to policies factors, that are likely to play a significant role if policy effectiveness and require both, further academic research and attention of policy makers.

### 1. *Deep structures of international society*

Policy makers need to realize that the structure of our society does not remain static over time, especially in international perspectives. The new breeds of citizens emerge, bringing with them new prototypes and idols together with a new way of life, attitude towards ecological problems and environmental awareness. It is crucial, therefore, to take into consideration threats and opportunities, related to those changes.

### 2. *Problem structure*

There is no doubt that some environmental problems are more complex in nature than others and require more sophisticated approach toward their solutions. Time is commonly considered to be the factor that makes it so complicated, as environmental issues require long-term policies, the effect of which could be measured only after a substantial time lag.

### 3. *Compliance*

Compliance and actual readiness of target audience to follow policy regulations is often seen as the most significant and complicated issue for a policy effectiveness. The absence of common regulatory body and punishment system, especially on international level, makes it extremely hard to achieve. Policy makers must take into consideration whether the problem could be solved with the compliance of one or few actors, as well as

whether the policy nature is highly regulatory on itself. Quite often soft managerial approach proves to be more efficient than the hard hand of strict mandatory regulations. The most important with this regard is to determine the exact circumstances, under which implementors will feel that their compliance is a fair deal and will be motivated enough to follow.

#### *4. Fairness and legitimacy*

Consistent with the logic of compliance, there is a need to understand, under which circumstances a sufficient level of fairness could be achieved. This could be especially true for issues that require higher degree of emotional involvement from the audience, comparing to strictly consequential frame-work issues.

#### *5. Policy instruments*

The “tool kit” available for policy makers at the time of policy design can play a significant role as well. Not only it is important to conduct correct measurements estimating specific environmental issue, and not only it is important to possess necessary instruments to ensure smooth implementation. It is crucial to understand which tools will prove to be the most efficient under given circumstances and be able to take into account possible technological progress.

#### *6. Interplay management*

Nowadays the nature of governing bodies and regimes become all the more complex. There is a need to shift attention from one individual regime to more complex structures and interactions and understand, under which conditions such multilayer assemblies can function as well-managed coordinated organisms, and under which they are more likely to produce chaos and disorientation. ``

#### *7. Nonlinearity*

Our life is full of nonlinear changes and the ideal regime should be flexible enough to adapt to those changes and respond to the needs of stakeholders while maintaining its vital core over time.

## **6. Evaluating Ecological Policies Effectiveness in Ukraine**

Ecology and environmental protection is an important social problem, which is connected to allocation of a huge amount of social (first of all, monetary) resources. Developed and developing countries crafting ecological policies together require more systematic and formally organized measures for their evaluation. Cooperation and openness are crucial to prevent duplication of mistakes, save efforts, and learn from successes and failures in order to solve environmental issues more efficiently. Even where such cooperation does exist, cultural and ideological tension across sectors, combined with geographic scales and political frictions, influence the success and structure of common initiatives (Keene, 2011).

European policies became a challenge for such countries as Romania, Poland, Hungary, Czech Republic, and other Central and Eastern European countries after they joined the EU regarding their comparatively long history of own policymaking in environmental sector (Sauer et al., 2012). In Ukraine, in contrary, ecology has always been a last-priority issue for the government. The year 2017, however, it has been proclaimed the priority for the state, first time since the independence of the country. In his official declaration the

Minister of Ecology of Ukraine has underlined the necessity of cooperation between the legislative and executive powers and adoption of a range of policies, which would radically change the approach to ecological issues in the country and mindset of its citizens.

Unfortunately, throughout the years of neglect Ukraine has developed a wide range of serious ecological problems and their solution primarily depends on the effective implementation control of new and existing policies. Among the 69 planned reforms under the Sustainable Development Strategy “Ukraine – 2020”, one of the priority places has the reform of governmental management, which aims to create transparent system of state governance, efficient governmental institutions and innovative system of their effectiveness control. It is believed that this reform should result in a creation of new effective, opened, transparent, and flexible structure of public administration, based on innovative information technologies and able to implement unified governmental politics of sustainable development and respond to internal and external challenges. The low level of policies implementation has been mostly blamed for the critical environmental conditions in the country.

In an attempt to address this issue Cabinet of Ministers of Ukraine has adopted the “Concept of Reformation of State Control System in the Sphere of Environmental Protection of Ukraine” of 31.05.2017. Taking into account the obligations of Ukraine took under the Ukraine – European Union Association Agreement, the Free Trade Zone Agreement, and the Plan of Governmental Reform Security and seeking to launch system of state monitoring and control, the Concept proposes to create the State Environmental Protection Service of Ukraine and eliminate the State Ecological Inspection of Ukraine.

The key legislative document that regulate state ecological politics in the country is the Law of Ukraine “On the Basis (Strategy) of Governmental Ecological Politics of Ukraine for the Period Until the Year 2020” of 21.12.2010 which describes 7 strategic aims and 104 strategic tasks to implement and achieve. For the analysis of the effectiveness of its implementation authorities used the following procedure.

First of all, the most important indicators of effectiveness are identified for each task and conduct expert evaluation of the level of their implementation and success. Each evaluated indicator must have certain well-defined aim, result and end product. Should such aim, result and product be achieved – the analysis is concluded. If they are not achieved - further analysis and scrutiny is required, such as, for example, feasibility evaluation. Here experts are trying to assess the existing risks which could cause failure of a specific task in question and assume potential actions to improve the situation and reach the targeted indicators. Conclusion are then given regarding the level of implementation status and its effectiveness on each specific task, and, combining tasks of each aim – to the aim overall. The output of all the aims indicates level of effectiveness of the Law in question as such.

Already at this point of time it is clear that the above-stated Law needs further modification. The absence of information on a large number of indicators makes it impossible to evaluate the effectiveness of ecological tasks and aims it provides. The major problem with this regard is that there is no monitoring infrastructure and control system for those indicators, which leads to the failure of the policy to be seen as serious authority by public (SBS Evaluation Report, 2014). In its turn it leads to low level of compliance in business sector and emotional involvement of individual citizens.

Ukrainian legislation has made an attempt to address the drawbacks of the acting Law in the future policies. Project of the Law of Ukraine “On the Basis (Strategy) of Governmental Ecological Politics of Ukraine for the Period Until the Year 2030” proposes new methodology and provides completely different efficiency indicators comparing to its precedent. On our opinion, such methodology can estimate certain separate indicators, but not their effectiveness for ecological problems in the country. It also does not reflect the effectiveness realization of concrete ecological aims as it does not take into account all the instruments and criteria of ecological principles and tasks. We, therefore, suggest that those two Laws should be combined, and jointly they would be able to provide evaluation for all the necessary indicators while concluding an overall effectiveness of governmental ecological policies.

## 7. Conclusion

Evaluation and assessment of environmental policies effectiveness is a very challenging task due to peculiar nature of environmental problems themselves. Time and space dimensions, combined with human – environmental interactions bring the need for complex solutions, which are often hard to identify. Multiple and diversified approaches to effectiveness evaluation produce quite a high degree of confusion for academics, policy-makers, and stakeholders since different types of evaluation tend to ask different questions and use wide variety of methodological approaches. A great number of various and often not systemized effectiveness criteria is widely used throughout studies. The most complete seems to be a multiple criteria approach that aims not only to evaluate policies from the perspective of set ecological targets, but also to take into account hidden and indirect social effects, costs, and benefits. Still, there is a very thin line between considering economic utility and losing focus on ecological effectiveness. Policy-makers and other stakeholders should not forget that the prime purpose of a certain ecologic policy is ecologic benefit, not economic efficiency. Apart from the criteria, attributed to the policy itself, it is crucially important to take into account other casual factors that influence policy effectiveness externally. Such factors can be sudden and unpredictable events, or soft changes, gradually developing over time. In Ukraine some efforts have already been made in complex evaluation of its ecological policy effectiveness. It still remains quite problematic, though, due to the absence of monitoring and control infrastructure. There is a sharp need to restructure managerial and monitoring governmental bodies, and invent radically new approach to addressing ecological issues, which would pivot the attitude of business organizations and individual citizens toward environmental problems in the country. In terms of concrete ecological policies, we suggest to combine the existing and projected legislation act, which jointly could be able to provide evaluation for all the necessary indicators while concluding an overall effectiveness of governmental ecological policies.

We suggest that the future academic research on the topics of ecological policies effectiveness evaluation should be focused on understanding how exactly specific soft casual factors moderate the effectiveness of ecological policies, as well as identify wider range of such factors. This is especially true for Ukraine, which has not yet enjoyed a sufficient number of case studies on the effectiveness of its environmental policies.

## References

- Complementary Support to the Ministry of Ecology and National Resources of Ukraine for the Sector Budget Support Implementation. Оцінка виконання стратегії державної екологічної політики України на період до 2020-го року та Національного плану дій з охорони навколишнього природного середовища на 2011–2015 року (Проект). Kiev, 2014.
- EEA. Effectiveness of Environmental Taxes and Charges for Managing Sand, Gravel and Rock Extraction in Selected EU Countries, European Environment Agency: Copenhagen, 2008.
- Field, B. Olewiler, N. Environmental Economics. McGraw-Hill Ryerson; 3 edition (Feb. 28 2011).
- Helm, C., & Sprinz, D. (2000). Measuring the effectiveness of international environmental regimes. *Journal of Conflict Resolution*, 44(5), 630–652.
- Herbert Kitschelt (1988). *Organization and Strategy of Belgian and West German Ecology Parties: A New Dynamic of Party Politics in Western Europe? Comparative Politics* Vol. 20, No. 2, pp. 127-154.
- Hovi, J., Sprinz, D., & Underdal, A. (2003). The Oslo-Potsdam solution to measuring regime effectiveness: Critique, response, and the road ahead. *Global Environmental Politics*, 3(3), 74–96.
- Johns, C. T., Adam Vannijnatten, D. (2018). *Environmental regime effectiveness and the North American Great Lakes Water Quality Agreement*. International Environmental Agreements : Politics, Law and Economics, 2018, pp.1-19.
- Keene, M. A., Pullin, A.S. (2011). *Realizing an effectiveness revolution in environmental management*. <https://www.sciencedirect.com/espopen/yd.bham.ac.uk/science/article/pii/S0301479711001010?via%3Dihub> - [aep-article-footnote-id2](#). *Journal of Environmental Management*, Volume 92, Issue 9, pp. 2130-2135.
- Mermet, L. Bille, R. Leroy, M Narcy, J-B Poux, X. (2005) *Strategic Environmental Management Analysis: a Framework for Assessing Effectiveness in the Pursuit of Ecological Goals*. Natures Sciences Societies, Vol.13(2), pp.127-137.
- Mickwitz, P. *Environmental Policy Evaluation: Concepts and Practice*. The Finnish Society of Sciences and Letters, 2006.
- OECD. Tradable Permits – Policy Evaluation, Design and Reform, Complete Edition. Organisation For Economic Co-operation And Development: Paris, 2004.
- REM (1999). Defining Criteria for Evaluating the Effectiveness of EU Environmental Measures. Available at <https://www.eea.europa.eu/publications/rem/defining.pdf> (Accessed 02.04.2018).
- Šauer\*, P. Kreuz, J. Hadrabová, A. Dvořák, A. (2012). *Assessment of Environmental Policy Implementation: Two Case Studies from the Czech Republic*. Political Journal of Environmental Studies Vol. 21, No. 5, pp. 1383-1391.
- Stokke, O. (2012). *Disaggregating international regimes: A new approach to evaluation and comparison*. Cambridge: MIT Press.
- Underdal A., Young O.R., Andresen S., Wettestad J. (2004) in *Case Studies of the Effectiveness of International Environmental Regimes in Regime Consequences*, eds Underdal A, Young OR (Kluwer, Dordrecht, The Netherlands), pp 27–48.
- Underdal, A. (2002). One question, two answers. In E. L. Miles, S. Andresen, J. Wettestad, J. B. Skjærseth, & E. M. Carlin (Eds.), *Environmental regime effectiveness: Confronting theory with evidence* (pp. 3–45). Cambridge, MA: MIT Press.
- Volokhova, A. (2015), *Crafting Brand Experience for Ethical-Luxury*, Modern Science, 2015(6), pp. 21-31.
- Young O.R., ed (1999). *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms* (MIT Press, Cambridge, MA).
- Young, O.R. (2011). *Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies*. PNAS, 108 (50), pp. 19853-19860.
- Закон України Про Основні засади (стратегію) державної екологічної політики України на період до 2020 року (Відомості Верховної Ради України (ВВР), 2011, № 26, ст. 218).
- Розпорядження Кабінету Міністрів України від 31.05.2017р. № 616. *Концепція реформування системи державного нагляду (контролю) у сфері охорони навколишнього природного середовища*. Урядовий кур'єр від 23.09.2017 - № 179.