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**Working paper on an overview of activities to assess
public awareness on biodiversity in non-EU countries:
Towards an EEA wide public awareness indicator**

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Abstract

Raising public awareness is considered a fundamental process in support of biodiversity conservation (Article 13 of the Convention on Biological Diversity). However, not all European countries have yet incorporated public awareness mechanisms in their biodiversity strategies, as was established at the 10th meeting of the COP as reflected in the Aichi Strategic goal A and target 1. Of those countries that actively work on Public Awareness and Education (PA&E), only a few have developed indicators to measure the impact of their actions in the field of biodiversity PA&E. This document reviews the current state of development and implementation of PA&E programmes in the 12 European countries covered by the EEA but not member of the EU, and whether the effectiveness and impact of such policy are monitored by the use of specific indicators. It also explores the possibilities to compare EU and non EU countries in Europe through the use of a common and comparable measure of public awareness regarding biodiversity. SEBI26 indicator covers the EU Member States but there is a wish to compare the developments in public awareness regarding biodiversity across Europe, also outside the EU. The countries included in this report are Switzerland, Iceland, Liechtenstein, Norway, Turkey and seven Western Balkan countries. The main conclusion of the report is that although many countries include PA&E as an important priority in their Biodiversity Strategy, almost none of the countries have developed an indicator for public awareness. Options for comparing the level of public awareness across Europe include carrying out either one of the biodiversity barometer surveys (UEBT and Eurobarometer) to the 12 countries. Alternatively one could develop a new low cost alternative based on readily available data (such as, newspaper articles, or enrollment in biodiversity related university courses) across Europe. Examples of such alternatives are presented in this report.

Key words: Public awareness, indicator, biodiversity, EEA non EU countries, alternatives.

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Contents

ABSTRACT	3
ACKNOWLEDGMENTS.....	4
CONTENTS.....	5
INTRODUCTION.....	10
PURPOSE OF THIS DOCUMENT.....	12
METHOD.....	13
RESULTS	15
GENERAL OVERVIEW	15
COMPARISON OF THE SEBI AND BIP PUBLIC AWARENESS METHODS	15
1. COMPARISON OF THE EUROBAROMETER AND UEBT BIODIVERSITY BAROMETER SURVEY RESULTS	16
2. QUESTIONS OF SEBI AND BIP RELEVANT FOR THE PUBLIC AWARENESS INDICATOR	18
SYSTEMATIC COUNTRY REVIEW	18
1. ALBANIA	18
2. BOSNIA AND HERZEGOVINA.....	19
3. CROATIA.....	20
4. ICELAND	20
5. KOSOVO	21
6. LIECHTENSTEIN	21
7. MACEDONIA (FORMER YUGOSLAV REPUBLIC OF)	22
8. MONTENEGRO	22
9. NORWAY	23
10. SERBIA	24
11. SWITZERLAND	25
12. TURKEY.....	27
ALTERNATIVE MEASURES FOR PUBLIC AWARENESS	27
EXAMPLES OF OTHER PUBLIC AWARENESS INDICATORS IN USE	30
1. FREQUENCY OF VISITS TO NATURE AND FOREST AREAS	30
2. MEMBERSHIP OF NON-GOVERNMENTAL ORGANISATIONS FOR NATURE CONSERVATION	31
3. BIODIVERSITY AWARENESS SURVEYS.....	32
4. VOLUNTEER TIME SPENT IN CONSERVATION.....	34
PROPOSALS FOR POTENTIAL ALTERNATIVE PUBLIC AWARENESS INDICATORS	35
1. NUMBER OF NEWSPAPER ARTICLES MENTIONING “BIODIVERSITY”	35
2. EVOLUTION OF COLLEGE STUDENTS WHO CHOOSE ENVIRONMENTAL SCIENCE FOR REASONS RELATED TO THE PROTECTION OF BIODIVERSITY.	36

3. PARTICIPATION IN NATURE CELEBRATIONS AND EVENTS	36
4. CONSUMPTION OF ORGANIC PRODUCTS	37
POTENTIAL FOR THE APPLICATION OF ALTERNATIVE MEASURES OF PUBLIC AWARENESS IN NON EU EEA COUNTRIES.....	39
DISCUSSION	40
GLOBAL AND EU PUBLIC AWARENESS INDICATOR SCHEMES.....	40
PUBLIC AWARENESS INDICATORS IN EUROPE OUTSIDE THE EU	40
CONCLUSIONS AND RECOMMENDATIONS	42
LITERATURE CITED.....	44
OTHER LITERATURE CONSULTED	45
ANNEXES.....	46
STATISTICS WEBSITES	47

List of figures

Figure 1 Work flow for the research for this report	13
Figure 2: Volunteers in Norwegian Nature NGOs (in full time equivalents)	24
Figure 3: Frequency of visits to forest and natural areas, research centre of the Flemish Government (van Daele 2010).....	30
Figure 4: Membership of nature organisations, nature organisations in Flanders (van Daele 2010).....	31
Figure 5: Evolution of the number of members conservation organizations in The Netherlands (1990 – 2012).....	31
Figure 6: Numbers of members of conservation organisations in The Netherlands in 2012	32
Figure 7: Proportion of the German-speaking resident population with at least sufficient awareness of biodiversity (%)......	33
Figure 8: Importance given by the French to biodiversity issues	34
Figure 9: Index of volunteer time spent in selected UK conservation organisations, 2000 to 2011.....	34
Figure 10: Number of newspaper articles containing the word “biodiversity” (own work). Sources: CH: Neue Zürcher Zeitung; ICE: Morgunbaldid; NO: Aftenposten; TR: Hurriyet.	36
Figure 12: Evolution of the retail organic food sales in France, Germany, Italy and the	38

List of tables

Table 1: Comparison of the biodiversity barometers used for SEBI and BIP	16
Table 2: Biodiversity barometer results for question 1: understanding of biodiversity	16
Table 3: Results of the UEBT Biodiversity Barometer for European countries in 2013	17
Table 4: Relevant questions of the biodiversity barometers related to BIP and SEBI	18
Table 5: Biodiversity awareness indicators in Switzerland (pers. comm. Dr Rausch).....	26
Table 6 Significance of the organic sector in food consumption, source European Commission 1, 2010.	37

Acronyms

Acronyms	Meaning
BIP	Biodiversity Indicators Partnership
CBD	Convention on Biological Diversity
CEPA	Communication Education and Public Awareness
DETEC	Department of the Environment, Transport, Energy and Communication of Switzerland
GEF	Global Environment Facility
IPBES	Intergovernmental Panel on Biodiversity and Ecosystem Services
MEF	Ministry of Environment and Forestry Turkey
PA	Public Awareness
NBSAP	National Biodiversity Strategy and Action Plan
PA&E	Public Awareness and Education
SEBI	Streamlining European Biodiversity Indicators
UEBT	Union for Ethical BioTrade

The only way forward, if we are going to improve the quality
of the environment, is to get everybody involved.

- *Richard Rogers* -

Introduction

Habitat destruction, introduced and invasive species and climate change are only some pressures causing biodiversity loss. Underlying drivers of biodiversity loss include policies, markets, social development or demographic change. Generally speaking, most individuals do not have enough information about biodiversity issues and why and how they should behave to help conserve and protect it. That is the reason why public awareness and education (PA&E) on biodiversity can help to decrease the pressures on biodiversity. Article 13 of the CBD is focused on the importance of the public awareness to reduce biodiversity loss (Hesselink 2007). Strategic goal A. of the Aichi targets (“Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society”) states that by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. The CBD headline indicator to measure progress towards this targeted is formulated as follows: “Trends in awareness, attitudes and public engagement in support of biological diversity and ecosystem services”.

At the European level, “public awareness and participation” was included as an additional focal area in line with the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (EEA, 2012). Even though raising of public awareness is important for the protection of biodiversity, several countries have not yet developed an indicator for public awareness and education. This report explores the possibilities to compare the levels of public awareness regarding biodiversity across Europe, both inside and outside the EU. The primary focus of the research done for this report was to identify opportunities for an indicator for public awareness similar or comparable to the one developed in the framework of the SEBI process which is largely based on the results on the Eurobarometer on Biodiversity (Gallup). The countries included in this report are: Albania, Bosnia and Herzegovina, Croatia, Iceland, Kosovo (UN SCR 1244), Lichtenstein, Macedonia (FYROM), Montenegro, Norway, Serbia, Switzerland and Turkey.

In order to compare issues related to public opinion regarding a wide range of themes within the EU, the Eurobarometer methodology was developed in 1973. This is a series of public opinion surveys conducted regularly on behalf of the European Commission which consists of approximately 1 000 individual telephone interviews per Member State. The reports are published twice per year. One of the topics is public awareness on biodiversity (European Commission 2010). Unfortunately the survey on biodiversity has only been carried out twice, once in 2007 and the second report was published in 2010. Additionally there is the Pan-European SEBI initiative, which started in 2005. Its aim is to develop a European set of biodiversity indicators – based on those already existing, plus new indicators as necessary – to assess and inform about progress towards the 2010 biodiversity targets. From its inception SEBI linked the global framework set by the Convention on Biological Diversity with regional and national indicator initiatives. One of the principal working methods of SEBI is to build on current monitoring and available data to avoid duplication of efforts and to complement and not replace other activities to describe, model and understand biodiversity and the pressures upon it. This means that a large part of the 26 SEBI indicators originates from various external ongoing

programmes and processes at the national, European and global levels (Biala 2010). SEBI uses the Eurobarometer information related to public awareness indicator. Similarly, the Secretariat of the CBD initiated the Biodiversity Indicators Partnership, which is also known as BIP. It is a global initiative to promote and coordinate the development and delivery of biodiversity indicators in support of the implementation of the CBD policy and goals, and other relevant Multilateral Environmental Agreements (MEA), the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), national and regional governments and a range of other sectors. The BIP also includes in its list an indicator on public awareness. The Partnership brings together over forty organizations working internationally on indicator development to provide the most comprehensive information on biodiversity trends. In the case of the public awareness indicator, the information of BIP comes from the Biodiversity Barometer developed by the Union for Ethical BioTrade (UEBT) which is an association launched in October 2007 that promotes the 'Sourcing with Respect' of ingredients that come from biodiversity. In 2009, this association developed a measure similar to the Eurobarometer in order to provide insights on evolving biodiversity awareness among consumers and how industries report on biodiversity.

This report explores the possibility of non EU EEA countries to adopt or develop an indicator in order to monitor public awareness about biodiversity and to compare this across the EU. For that, the available information about the existence of a Public awareness indicator or similar in those countries has been analyzed.

Purpose of this document

The purpose of this document is to explore the possibilities for assessing public awareness regarding biodiversity in the entire European area covered by the EEA, preferably by making the best use of existing public awareness indicators, or readily available (statistical) data that can be used as indirect measures for public awareness. The SEBI indicator 26 (on public awareness) is limited to the EU Member States because its source of information is the EuroBarometer, an EU wide public opinion poll only performed in the EU 27 Member States (28 as of 1 July 2013, when Croatia joined the EU). As other biodiversity indicators are calculated for the entire EEA area, there is a wish to increase the coverage of SEBI indicator 26 on public awareness as well, to cover the non-EU countries included in the EEA focal zone. The non EU countries of the EEA zone covered in this report are: Albania, Bosnia and Herzegovina, Croatia, Iceland, Kosovo (UN SCR 1244), Lichtenstein, Macedonia (FYROM), Montenegro, Norway, Serbia, Switzerland and Turkey. The main goal of this document is to provide proposals / recommendations / suggestions on how the SEBI 26 indicator developed for the EU based on the Eurobarometer on biodiversity results can be extended or completed beyond EU27.

Method

The method used in this report consisted of document analysis, e-mail consultations with experts on environmental indicators from the non EU countries involved and targeted searches on the internet, in particular national statistics databases and available online reports (i.e. NBSAPs, and reports to the CBD).

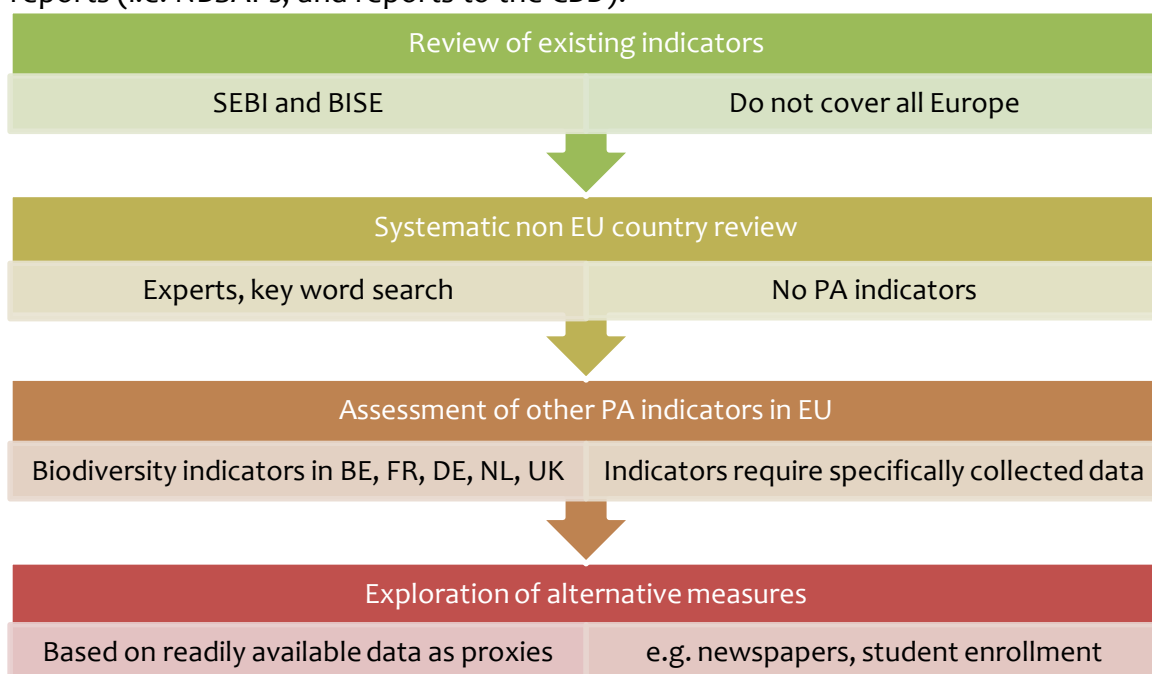


Figure 1 Work flow for the research for this report

The first step was to check if any national indicators exist related to this topic. The analysis of the documents focused on the collection of all available information related to biodiversity (or environment) public awareness indicator. E-mail consultations were performed by sending e-mails requesting information about the existence of a public awareness indicator in each country. Informants were identified from ECNCs network, and in particular from the participants in the indicators in the Balkans workshop organized by ECNC in Albania in June 2013. A list with all experts contacted is included at the end of the document (as an annex), including the experts' country, work position and the general nature of their answers. Websites of the national statistics authorities were consulted to find any other possible sources of information linked to public awareness about biodiversity. Additionally, the document published by van Koppen and Elands in 2007 related to public awareness and participation indicators was used as reference to generate further ideas about indicators on public awareness (van Koppen, 2007). Internet searches and consultations of the national statistics portals were performed by using the following key words:

- Volunteer / Volunteering + nature organisation

- Visit + Protected area + Nature reserve
- Membership + nature organisation
- Donation + nature organisation
- Outdoor activities
- Organic + bio production

Results

General overview

In this section we present the results of the comparison of the UEBT Biodiversity Barometer and the Biodiversity Barometer. This is followed by a systematic review of public awareness indicators related to biodiversity for the 12 countries addressed in this report. The review is based on a keyword search of the National Biodiversity Strategy Action Plans (NBSAPs), the Fourth National Reports to the CBD, national statistical databases and biodiversity clearing house mechanisms if existing. Finally we present other public awareness indicators developed and in use in different European countries (Belgium, France, Germany, The Netherlands, United Kingdom) as ideas for possible alternative measures for Europe-wide trends in public awareness regarding biodiversity.

Comparison of the SEBI and BIP public awareness methods

Trends in public awareness regarding biodiversity are measured to support monitoring the effectiveness and progress of the implementation of two major biodiversity strategies with relevance for Europe: the Convention on Biological Diversity at global level, and the EU Biodiversity Strategy at EU level. For both strategies an indicator of public awareness has been developed. The global indicator, part of the Biodiversity Indicator Partnership set of indicators, is based on the UEBT Biodiversity Barometer. The EU level indicator, part of the SEBI set of indicators is based on the Biodiversity Eurobarometer (Gallup). The approach and calculation methods of both methods are quite comparable and discussed in this section. However, together, these indicators cover only 27 of the 39 European countries generally included in the EEA set of indicators.

This section describes and analyses the differences and similarities between both measurement systems as well as relevant questions for each partnership. The following table shows the characteristics of the measurement system of public awareness indicator from both partnerships (SEBI and BIP).

Table 1: Comparison of the biodiversity barometers used for SEBI and BIP

	SEBI	BIP
Information Source	Eurobarometer	UEBT Biodiversity Barometer
Scale	EU state members	Global
Countries	27*	11 (European ones: Switzerland, Germany, France and United Kingdom)
Number of surveys	27.000 (1000 in each country *)	1.000 in each country
Frequency	Twice since 2007	Annually
First report	2007	2009
Last report	2011	2013
Kind of interviewed	Randomly citizens >15 years of age	Randomly citizens >18 years of age
Number of questions	12	9

*when the survey was done there were 27 Member States.

1. Comparison of the Eurobarometer and UEBT Biodiversity Barometer survey results

Both methods use apparently very similar questions in order to know the opinion of the costumers and citizens. Even though the questions are written in different ways there are two questions that could be found in both questionnaires. These questions are:

- Have you ever heard of biodiversity?
- Can you give the correct definition of biodiversity?

The tables below present the results of the Eurobarometer and Biodiversity Barometer surveys closest in time (2010 and 2011) and for the three countries they had in common.

Table 2: Biodiversity barometer results for question 1: understanding of biodiversity

	Heard of biodiversity?		Correct definition?	
	UEBT 2011	EU Barometer 2010	UEBT 2011	EU Barometer 2010
France	98	78	35	36
Germany	45	88	23	73
UK	64	58	22	28

The table shows that the results from both surveys are comparable for France and the UK. However, the results for Germany differ widely for both surveys. This raises the question whether the future data from the surveys will be comparable with the results of the EU Biodiversity Barometer.

It would be interesting and important to know if the marked difference in results observed for Germany are the result of:

1. The sampling method (i.e. the method and criteria to select the people included in the survey)
2. The sample size (i.e. that the sample size for such surveys is inadequate because it results in high uncertainty of the results)
3. The way in which the questions were formulated and presented
4. Other factors

The last UEBT Biodiversity Barometer, published in 2013, included one of the countries included in this report: Switzerland and three EU Member States.

Table 3: Results of the UEBT Biodiversity Barometer for European countries in 2013

	Heard of biodiversity?	Correct definition?	Partial definition?
France	95	39	28
Germany	48	24	10
Switzerland	83	37	18
UK	64	20	19

If it can be ascertained that the survey methods are sufficiently similar, a possible way forward could be to investigate the possibility for the UEBT Biodiversity Barometer to include more of the EEA non EU countries in its survey (see recommendations).

2. Questions of SEBI and BIP relevant for the Public Awareness Indicator

The following table shows the questions from the Eurobarometer and UEBT Biodiversity Barometer that are used by SEBI and BIP regarding public awareness indicator.

Table 4: Relevant questions of the biodiversity barometers related to BIP and SEBI

SEBI (Eurobarometer)	BIP (UEBT Biodiversity Barometer)
Awareness of the Natura 2000 Network, share of respondents	What are the awareness levels of biodiversity amongst consumers worldwide?
Familiarity with the term 'biodiversity' in the EU-27	How many people have a good understanding of what biodiversity means – and can therefore take steps to conserve it?
What is the level of public awareness about biodiversity in Europe?	Are there differences between countries, between young and old, male and female, rich and poor, different levels of education?
Are people willing to take action?	

Systematic country review

In this section we present the results of our review of public awareness indicators in the 12 countries covered by this report. For each country, we first describe the policies and programmes related to communication and public awareness regarding biodiversity. Our main source of information for this section were the National Biodiversity Strategies and Action Plans and the Fourth National Reports to the CBD.

This is followed by a review of the indicators explicitly or potentially used to measure the development of public awareness regarding biodiversity.

1. Albania

Public awareness policies and programmes

The Fourth National Report to the CBD developed by Albania addresses in a general way the importance of education and public awareness to protect biodiversity. The document explains that there have been different activities and projects to improve biodiversity public awareness and education in the country. These initiatives were funded, promoted and developed by NGOs, volunteers from local groups and the Global Environment Facility (GEF) (Ministry of environment Albania 2011). Some of the activities carried out were the inclusion of environmental education in the curricula of schools or the

celebration of the International Day of the Environment. Although some progress has been made in the field of biodiversity public awareness there is not any public awareness indicator in the national biodiversity strategy. Therefore no indicators have been developed that establish the situation of the country in knowledge related to biodiversity. Nevertheless the country is working on finding new funds and techniques to develop and include public awareness indicators in its national strategy (Ministry of environment Albania 2011).

Measuring changes in public awareness

Although the Albanian government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs), it seems that no specific efforts are made to measure their effectiveness and their impact on public awareness. There is environmental statistical information available in two websites. Unfortunately none of them refer to communication or awareness issues, either directly or indirectly.

2. Bosnia and Herzegovina

Public awareness policies and programmes

Since the accession of Bosnia and Herzegovina to the CBD in 2002 there have been a number of advances regarding the protection of biodiversity in the country. Educational programs concerning sustainability, biodiversity and environmental care have been implemented. Additionally several NGOs have developed different materials to promote public awareness on biodiversity (Ministry of Environment Bosnia and Herzegovina 2010). In the future Bosnia and Herzegovina wants to invest in the development of specific activities and projects that give an impulse public awareness and education regarding biodiversity. Help and ideas are needed to promote the importance of biodiversity's protection within the country, both at regional and local levels. Private and public sectors should work together to promote public awareness among the countries, first inside Bosnia and Herzegovina and further on time at international scale. The development of a specific public awareness indicator would help to establish which is the situation of the countries related to biodiversity's knowledge (Ministry of Environment Bosnia and Herzegovina 2010).

Measuring changes in public awareness

Although the Bosnian government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs), it seems that no specific efforts are made to measure their effectiveness and their impact on public awareness. There is a website with statistical data related to environmental issues. Unfortunately there are no statistics that concern education or awareness on environment. Data are focused on agriculture and forestry.

3. Croatia

Public awareness policies and programmes

Croatia has worked on improving communication and knowledge relating to the care of biodiversity's conservation within Croatian society. In 2006, the government established a group of experts to improve biodiversity education (Ministry of Culture 2009). Citizen's participation became important as a tool for improving the protection of national biodiversity. Croatia promotes and reports the protection of biodiversity through various methods. The country celebrates important days related to the environment like Earth Day or Nature Protection Day. Additionally the government provides funds to develop national scientific research projects, organizes conferences and workshops to disseminate biodiversity knowledge within Croatia (Ministry of Culture 2009).

Measuring changes in public awareness

Although the Croatian government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes in cooperation with NGOs, it seems that no efforts are made to measure the impact of these policies and programmes on public awareness. Even though there is no statistical available data related to environmental public awareness or communication there are forestry and agricultural statistical data that can be adapted in order to develop some data base about communication.

4. Iceland

Public awareness policies and programmes

The Second National Report provided by Iceland to the CBD describes the progress that the country has made in the field of biodiversity conservation. The implementation of public awareness actions is limited due to the insufficient resources. Iceland does not actively promote the importance of preserving national biodiversity among its citizens and neither does it cooperate with other countries or organizations in biodiversity PA&E projects. A public awareness indicator is included in the national strategy and in general the country has not developed actions on this issue (Thrainsson 2009).

Measuring changes in public awareness

As the Icelandic government does not recognize the importance of biodiversity education and awareness raising as a priority, it is understandable that no specific efforts are made to measure their effectiveness and their impact on public awareness. Nevertheless Iceland has a website in which different statistical data related to the environment can be found. There is also a metadata part that contains one chapter focus on access to environmental information. In addition, three special publications on

environmental data were published in 1997 (Environmental Data, Iceland and Europe), 1998 (Environmental Statistics) and 2005 (Environment and Pollutant Emissions).

5. Kosovo

Public awareness policies and programmes

The Strategy and Action Plan for Biodiversity 2011 – 2020 highlights the importance of communication, education and public awareness as part of a comprehensive strategy for biodiversity conservation, and indicates that lack of resources hamper significant progress in this field. The “Promotion of effective education and communication for biodiversity” is the fourth strategic objective of the strategy. It has put together a “Working Group on Education, communication, information and public participation”.

Measuring changes in public awareness

Kosovo has not yet developed a comprehensive set of biodiversity indicators, but is working on this, although it is not clear if a public awareness indicator figures among the priorities. In 2009 the Statistical Office of Kosovo published a report called “Facts on the Environment”. It was about agricultural and environment statistics. One chapter was focused on biodiversity measurements. In fact none of the measurements had connection with communication or awareness.

6. Liechtenstein

Public awareness policies and programmes

The fourth national report written in 2008 by Liechtenstein and submitted to the CBD shows the progress that the country has made on biodiversity. Environmental education is part of the curriculum of compulsory education in schools. There are specialized teachers on biodiversity and environment in schools. With the help of these experts students are better prepared and can deal with problems related to biodiversity. To promote public awareness the government has declared days of environment in which diverse activities and meetings are organised to inform about the importance to respect and care for biodiversity (Gerner 2009). Additionally, the government allocates funds to schools in order to make trips and visit places and organizations of environmental interest to enrich the knowledge of students in environment and biodiversity. There are also funds to promote the use of environmentally friendly office and school material.

Liechtenstein's government also conducts public events as well as publishes articles in national newspapers to inform the public about the status of biodiversity in the country. Some examples of publications are: "Nature Research in the Principality of Liechtenstein", the Environment Calendar in 2009 is dedicated to the theme "environmentally friendly" or Flora of the Principality of Liechtenstein in Pictures. Finally Liechtenstein has a Nature House inside the Liechtenstein National Museum with a permanent exhibition that shows the natural history of the country. Visitors to natural

areas are informed of how they can collaborate in the fight against biodiversity loss. The government is not working alone. NGOs and different organizations are working together to promote the protection of biodiversity through public awareness throughout the country (Gerner 2009).

Measuring changes in public awareness

Although the Liechtenstein government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes in cooperation with NGOs, it seems that no efforts are made to measure the impact of these policies and programmes on public awareness. Several statistical data related to the environment can be found in one website. However, there is nothing that approaches awareness or communication on biodiversity.

7. Macedonia (Former Yugoslav Republic of)

Public awareness policies and programmes

In its Fourth National Report to the CBD, Macedonia does not reflect the implementation of PA indicators or the use of public awareness as a tool for promoting biodiversity protection as part of its national strategy. The possibility of involving environmental education as part of the educational programme is mentioned but details are not provided (Ministry of Environmental Physical Planning 2003).

Measuring changes in public awareness

Although the Macedonian government shows that it recognizes the importance of biodiversity education and awareness raising it seems that no specific efforts are made to include it in programs and actions or to measure their effectiveness and their impact on public awareness. Macedonia has a website in which environmental statistical data are collected. There are no data related to communication or awareness. The data is rather focused on forestry and agriculture.

8. Montenegro

Public awareness policies and programmes

The fourth national report published by Montenegro which specifies the national strategy on biodiversity to meet the agreement with the CBD reflects certain points related to public awareness and education on biodiversity. Montenegro has developed three strategies and an action plan to promote and enhance biodiversity conservation through education and public awareness (Ministry of Spatial Planning and Environment 2010). These strategies are: Strategy of citizens' rights and citizens education (2007 – 2012), Strategy for inclusive education (since 2008), Strategic plan of reforms of the Education system for the period 2005 -2009 and the action plan for integration of Sustainable development in the Education system for the period 2007 -2009. Even though Montenegro has limited resources and budget to invest in this field, the

government is trying to improve the situation because biodiversity is considered an important issue in Montenegro (Ministry of Spatial Planning and Environment 2010).

Measuring changes in public awareness

Although the Montenegrin government recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs), it seems that no specific efforts are made to measure their effectiveness and their impact on public awareness. It is possible to find statistical data on the environment, which are obtained in the annual reports submitted by enterprises engaged in industry and mining, agriculture, utilities and municipal assemblies managing public water supply and sanitation.

9. Norway

Public awareness policies and programmes

The last report submitted by Norway to the CBD does not reflect any action related to public awareness. Although there are no official documents or laws governing the communication and public awareness in biodiversity this concept is important and is reflected indirectly in other aspects of the country's environment strategy (Environment 2008). All issues addressed in the strategy in some way or another shows public awareness involvement, either in an informative way through conferences related to specific topics and in schools programmes for lessons on how to help protect the environment (Ministry of Environment Norway 2011).

Measuring changes in public awareness

Although the Norwegian government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs), it seems that no specific efforts are made to measure their effectiveness and their impact on public awareness.

Within the Norwegian list of environmental indicators, public awareness has been left blank. The Norwegian statistical website presents nothing specific for communication or awareness but there are data that concern recreational areas and areas for recreational hiking. Also the online statistical database holds information on volunteering for nature, based on registered full time equivalents working in nature conservation NGOs.

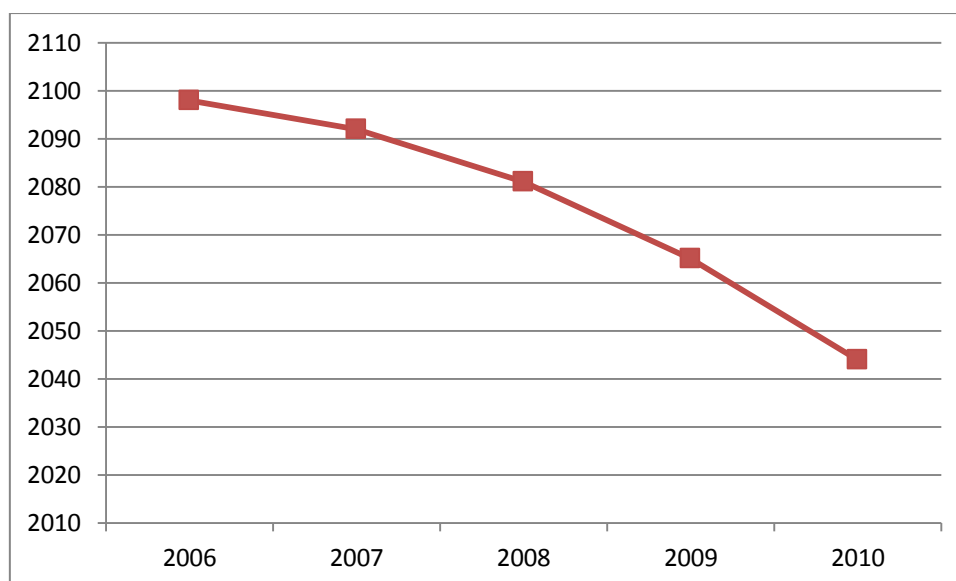


Figure 2: Volunteers in Norwegian Nature NGOs (in full time equivalents)

This information could be useful for the future in order to establish an awareness indicator.

10. Serbia

Public awareness policies and programmes

In 2010 Serbia submitted the fourth report to the CBD. Despite covering many ecological aspects of great importance to biodiversity's protection, public awareness and environmental education were not covered and they were treated at very low level. The government is not working on the promotion of these aspects although they are considered very important issues by the CBD and they are part of the Aichi targets. It could be possible that the available information is not updated and the government is in progress to develop public awareness and environmental education actions in biodiversity but the documents and information are not available (Ministry of Environment Serbia 2010).

Measuring changes in public awareness

As the Serbian government does not recognize the importance of biodiversity education and awareness raising as a priority, it is understandable that no specific efforts are made to measure their effectiveness and their impact on public awareness.

11. Switzerland

Public awareness policies and programmes

Raising awareness of the role of biodiversity is one of the priorities for the Swiss government. The goal number four from the Swiss national strategy of biodiversity is focused on the improvement of public awareness and communication in order to achieve a better understanding about the importance of biodiversity among the members of the Swiss society (Wiedmer 2010). This objective has three main plans, which are: all parties should implement a communication, education, and public awareness strategy and promote public participation in support of the Convention, every party to the Cartagena Protocol on Biosafety has to promote and facilitate public awareness, education and participation in support of the Protocol and key actors and stakeholders, including the private sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectorial and sectorial plans, programmes and policies (Wiedmer 2010).

Measuring changes in public awareness

Although the Swiss government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs, it seems that no efforts are made to measure the impact of these policies and programmes on public awareness.

Table 5: Biodiversity awareness indicators in Switzerland (pers. comm. Dr Rausch).

Biodiversity: available indicators				
Subcategory	Indicators according to DPSIR-list	Available in survey	Operationalization	Remarks
	Subjective threat biodiversity	Umweltsurvey	Percentage interviewees, who estimates the danger from species diversity loss as high or very high	Data for 2007 and 2011 available (for 2011 only if US and Omn. Comparable)
	Attitude towards animals	Umweltsurvey	Percentage interviewees, who agrees partially or completely with the statement "animals should have the same moral rights as humans"	Data for 1994 and 2007 available
			Percentage interviewees, who agrees partially or completely with the statement "experiments with animals are justified if these can save human lives"	Data for 1994 and 2007 available
			Percentage interviewees, who accept/tolerate the presence of lynx in Switzerland	Data for 2007 available
			Percentage interviewees, who accept/tolerate the presence of wolf in Switzerland	Data for 2007 available
			Percentage interviewees, who accept/tolerate the presence of bear in Switzerland	Data for 2007 available
	Subjective need for action in nature and landscape protection	Univox Umwelt	Percentage interviewees, who holds that the authorities should do more for nature and landscape protection	Data since 2008 available

However, Switzerland has been included in the 2013 edition of the UEBT Biodiversity Barometer, which means that the country has data about PA on biodiversity for the year

2013. Additionally Switzerland has developed a system of environmental indicators. There are 8 indicators. Three of them are focused on society but they are not related to awareness or communication.

12. Turkey

Public awareness policies and programmes

The fourth report of Turkey to the CBD in 2009 took into account the need for public awareness to advance environmental and biodiversity protection. The National Ministry of Education in collaboration with the MEF conducted initiatives and public awareness activities related to biodiversity. The government has created a website which contains information about the state of Turkish biodiversity, the character of this site is public and it is available in two languages, Turkish and English. The work done by NGOs and other organizations is essential to promote biodiversity public awareness among citizens. The government supports projects and initiatives designed by NGOs to improve environmental knowledge of Turkish. Limited resources and funding are major barriers which hinder the process and do not be able to perform all desired activities (Ministry of Environment and Forestry Turkey 2009).

Measuring changes in public awareness

Although the Turkish government shows that it recognizes the importance of biodiversity education and awareness raising and also invests quite substantially in PA&E programmes (in cooperation with NGOs), it seems that no specific efforts are made to measure their effectiveness and their impact on public awareness.

Alternative measures for public awareness

Public awareness is defined by the CBD as “understanding of the importance of, and measures required for the conservation of biodiversity”. Public participation is defined as “nature related activities of people within the domains of conservation, consumption, and politics”. Public awareness together with public participation, constitute an adequate headline indicator for people's effective concern for biodiversity (van Koppen 2007).

Following the criteria presented by van Koppen and Elands in their report from 2007 of PA indicators in the Netherlands, a good public awareness indicator should (van Koppen 2007):

- be in line with the global CBD process.
- reflect present (social) scientific insights concerning biodiversity.
- fit in with the SEBI 2010 process and offer comparability with other European countries.
- be realistic in view of the state of biodiversity awareness and participation of the public.

We cannot forget that indicators are influenced by other factors as: available research data and time series, limited budgets and limited experts.

A review of biodiversity public awareness indicators in use in various EU countries has resulted in the following (non exhaustive) list of measures for monitoring public awareness:

- Visits to nature reserves or forested areas (Belgium, The Netherlands)
- Membership of nature conservation / environment NGOs (Belgium, The Netherlands)
- Volunteer work in the field of nature conservation (United Kingdom, The Netherlands)
- Use of environmental information (The Netherlands)
- The Importance of biodiversity as a policy theme
- Participation in decision-making processes related to environment (The Netherlands)
- Use of environmental information (The Netherlands)

In addition, we propose three other measures that could be considered as indicators and be computed with relative ease for all EEA area countries:

- Organic farming production
- Frequency of mentions of “biodiversity” in newspapers
- Number of students choosing a biodiversity/conservation related study

The following sources of information were used to compile the overview of alternative measures of public awareness

Belgium

The Research Institute for Nature and Forest of the Flemish Government has developed a website on which the public can consult the status of Belgian nature and biodiversity through the measurements of different environmental indicators (van Daele 2010). On this list we can find two specific indicators related to public awareness and participation.

France

France also has its own survey in order to measure biodiversity public awareness. The last research has been done during in 2013. The paper presents the first results of the questions included in early 2013, the request of the Office of the knowledge and the national strategy for biodiversity in permanent CREDOC survey on "Living and aspirations." The investigation, follows the first study in 2010 (Croutte 2013).

Germany

Germany published a document in 2010 in which environmental indicators are described in detail (Gödeke 2010). For public awareness Germany carries out surveys between the German population with similar questions used by SEBI, the difference is that Germany designed their own survey for its biodiversity PA indicator.

The Netherlands

Apart from Dutch documents published for several organizations and public authorities there is a website which contains all information related to Dutch environmental indicators. The most relevant one in the area of PA is the one that measures the evolution of the number of members of private nature and environmental organizations (Compendium voor de Leefomgeving 2013). There are other references in which we can find indicators that are used for environmental and biodiversity PA issues. The following list shows the PA indicators in the Netherlands (van Koppen 2007):

- Number of members of private nature and environmental organizations
- Volunteer work for nature and landscape conservation
- Use of environmental information
- Visits to nature and forest areas

United Kingdom

The UK Biodiversity Indicators were developed and published between 2007 and 2010. A new Strategic Plan was adopted by signatories to the United Nations Convention on Biological Diversity (CBD) in 2010. Following this change, the UK indicators were reviewed. In the document published in 2012 called “UK Biodiversity Indicators in your Pocket” there is an explanation about the different indicators that the country has implemented in order to conserve biodiversity. Related to public awareness there are three specific indicators. Two of them are still in the development stage, so there are no data available. Nevertheless the following indicator has been measured in UK for a long period of time. It is a useful example for our report (Department for Environment Food and Rural Affairs Nobel House 2012).

Examples of other public awareness indicators in use

1. Frequency of visits to nature and forest areas

This indicator shows how frequently Flemish people visit forest or nature areas. The data are collected from a social-cultural survey among 1,500 Flemish people (van Daele 2010).

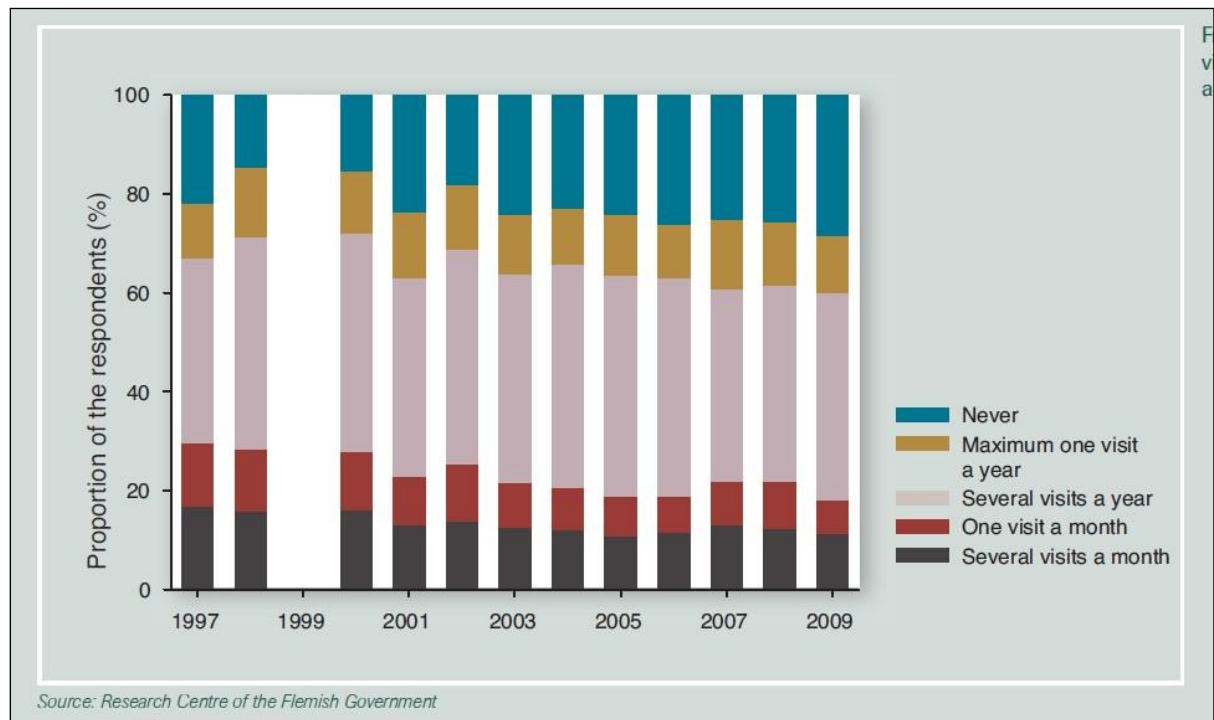


Figure 3: Frequency of visits to forest and natural areas, research centre of the Flemish Government (van Daele 2010).

2. Membership of non-governmental organisations for nature conservation

This indicator shows the number of members of non-governmental organisations (NGO) for nature conservation that are active at the Flemish regional level (van Daele 2010).

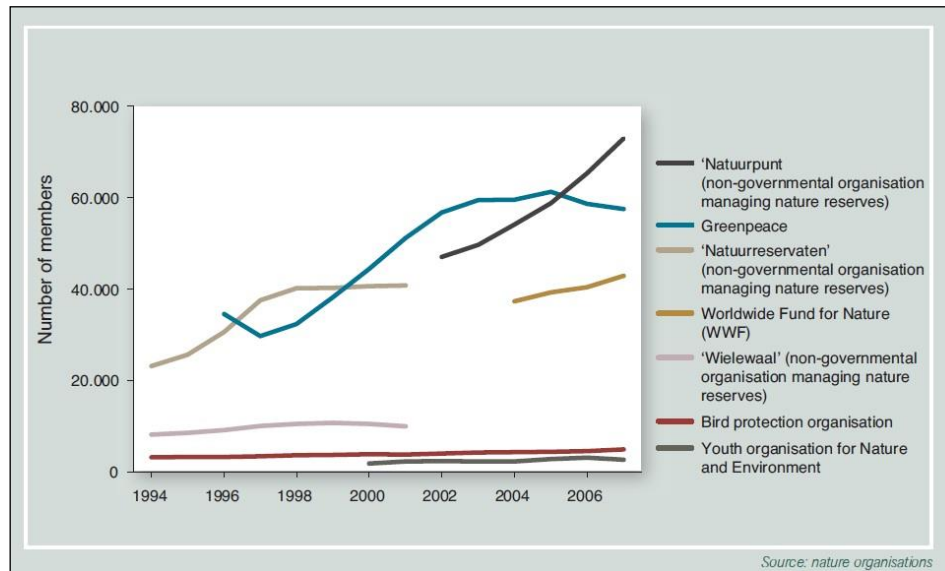


Figure 4: Membership of nature organisations, nature organisations in Flanders (van Daele 2010).

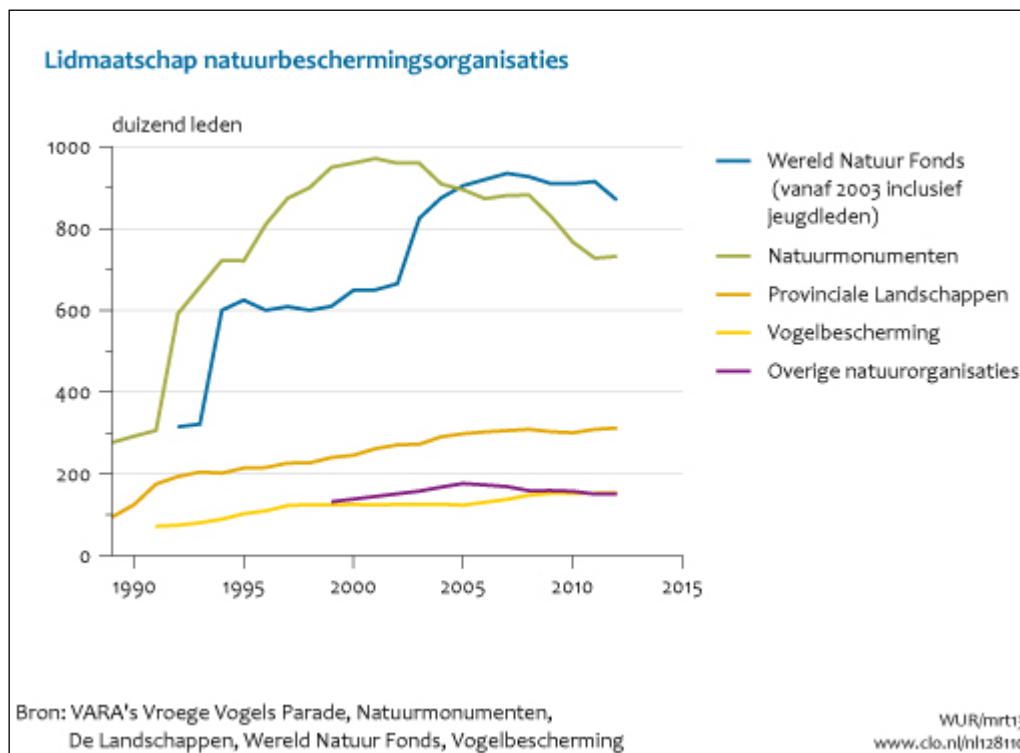


Figure 5: Evolution of the number of members conservation organizations in The Netherlands (1990 – 2012)

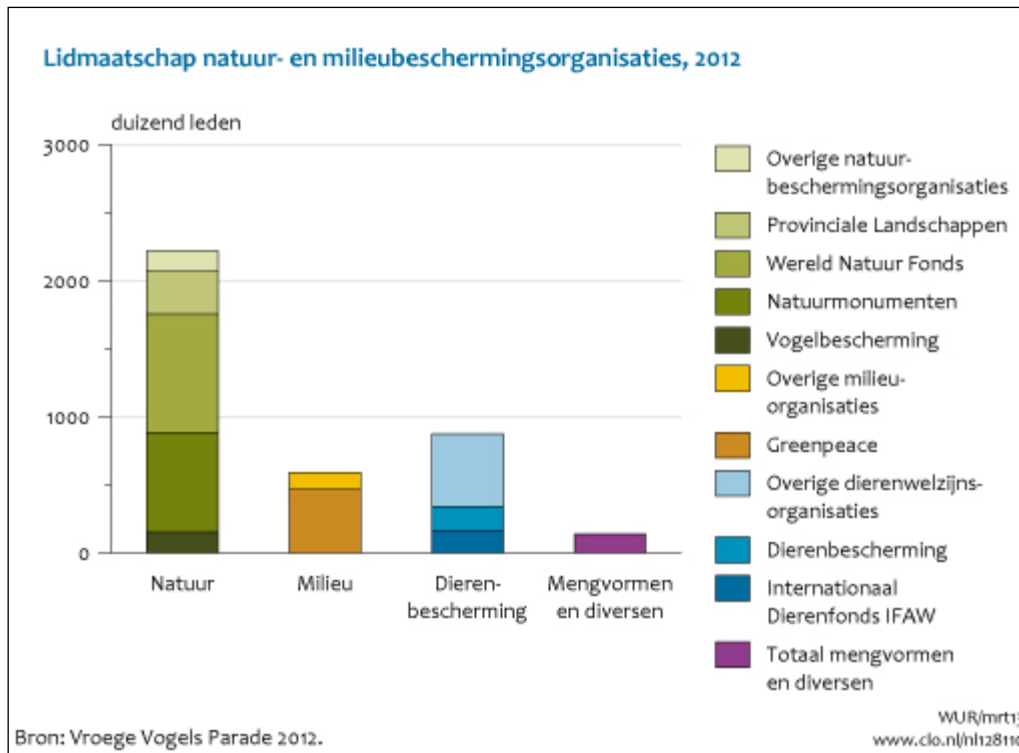


Figure 6: Numbers of members of conservation organisations in The Netherlands in 2012

3. Biodiversity awareness surveys

Some European countries measure biodiversity public awareness through surveys designed by their own, outside the SEBI 26. Examples of this are Germany or France. The German indicator assesses awareness of biodiversity in the German-speaking resident population aged 18 or over. The survey focuses the attention in three sub-indicators (Gödeke 2010):

- the term 'biodiversity' and knowledge of its meaning.
- the value attached to biodiversity by survey respondents.
- the willingness of respondents to act in various areas relevant to the conservation of biodiversity.

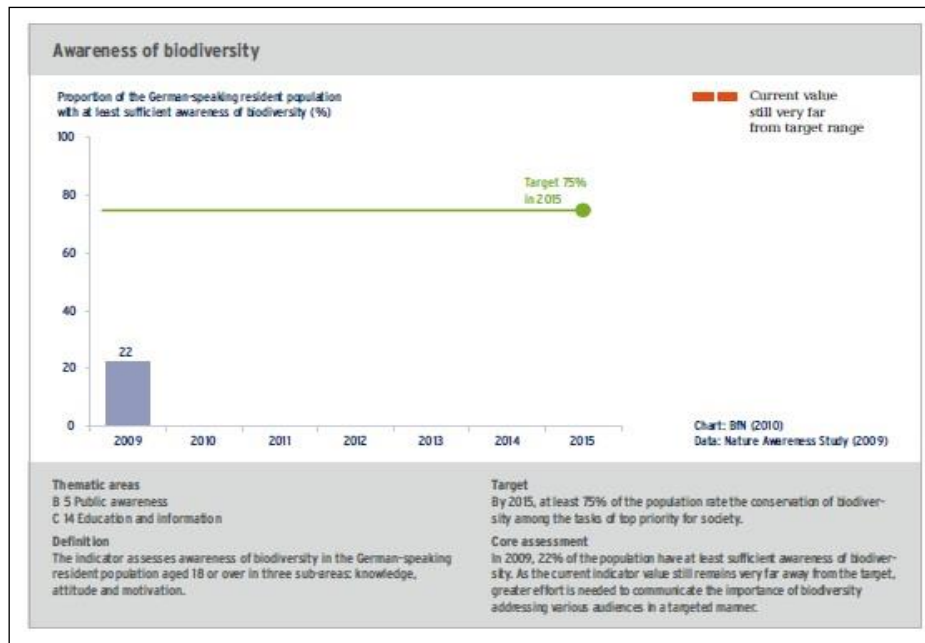


Figure 7: Proportion of the German-speaking resident population with at least sufficient awareness of biodiversity (%)

The case of France is similar to Germany. Questions from the survey are once again similar to the Eurobarometer ones but they are adapted to the French public. The questionnaire is based on 6 questions related to biodiversity, nature and how the population deals with these terms. The PA indicator based on this survey is called (Observatoire National de la Biodiversité 2013) “Development of citizen involvement in participatory science related to biodiversity”.

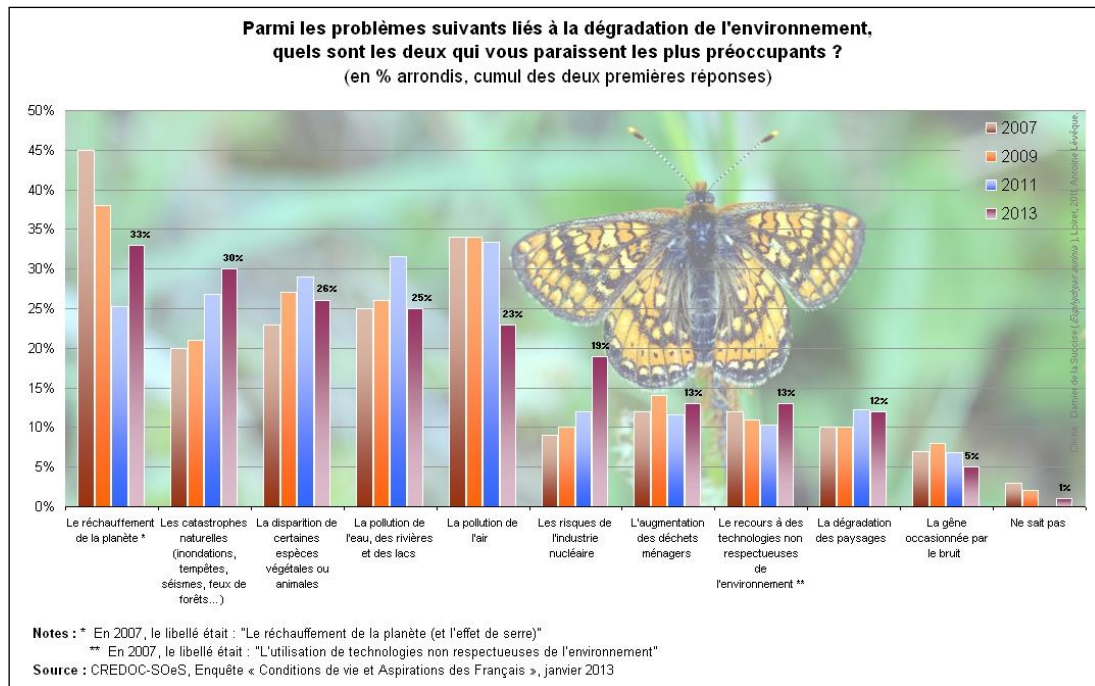


Figure 8: Importance given by the French to biodiversity issues

4. Volunteer time spent in conservation

This indicator shows the amount of time people spend volunteering to assist in conservation in part reflects society's interest in and commitment to biodiversity. The work undertaken by conservation volunteers includes: assisting with countryside management, carrying out surveys and inputting data, assisting with administrative tasks, and fundraising (Department for Environment Food and Rural Affairs Nobel House 2012).

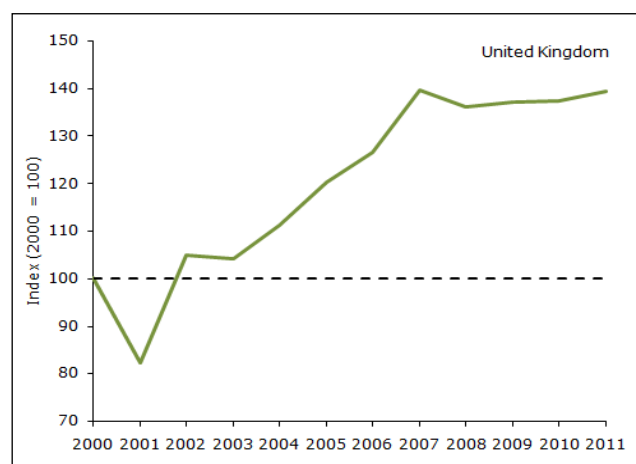


Figure 9: Index of volunteer time spent in selected UK conservation organisations, 2000 to 2011.

Proposals for potential alternative public awareness indicators

As the systematic country review has shown that there is a lack of readily available information on public awareness regarding biodiversity, we thought about alternative measures for biodiversity public awareness that could be applied at the Europe-wide level, using existing data. Here we present four potential surrogates or proxies to measure the level of public awareness regarding biodiversity:

- Frequency of biodiversity related articles in the press
- Enrollment of students in biodiversity related higher education courses
- Participation in nature celebrations and events
- Production of organically farmed products

1. Number of newspaper articles mentioning “Biodiversity”

In his PhD study on biodiversity indicators, Harold Levrel proposed a public awareness indicator based on the number of articles published in a particular newspaper that included the word biodiversity in a year (Levrel 2007). He computed this indicator based on the archives of the newspaper “Le Monde”. Nowadays many European newspapers have their archives online and searches can easily be made and number of articles per year mentioning biodiversity can be obtained.

This seems to be an indicator with the potential to be quite easily applied with little additional investment and allow pathways for public awareness comparisons across the EEA zone. Political inclination of the newspapers might bias the data, but if a standardized index is computed on the basis of the results this bias might be filtered out. This would also allow to present the data for several countries in the same graph.

This metric combines both the educational part of public awareness (articles about biodiversity inform the readers about the concept) and about the public interest for the matter (if people or society show interest for the subject, it is more likely to receive attention in the press).

The following graphs show preliminary results for some countries. The graph shows clear peaks in 1992 (Rio Convention), 2002 (Rio +10 Summit in Johannesburg) and 2010 (International Year of Biodiversity).

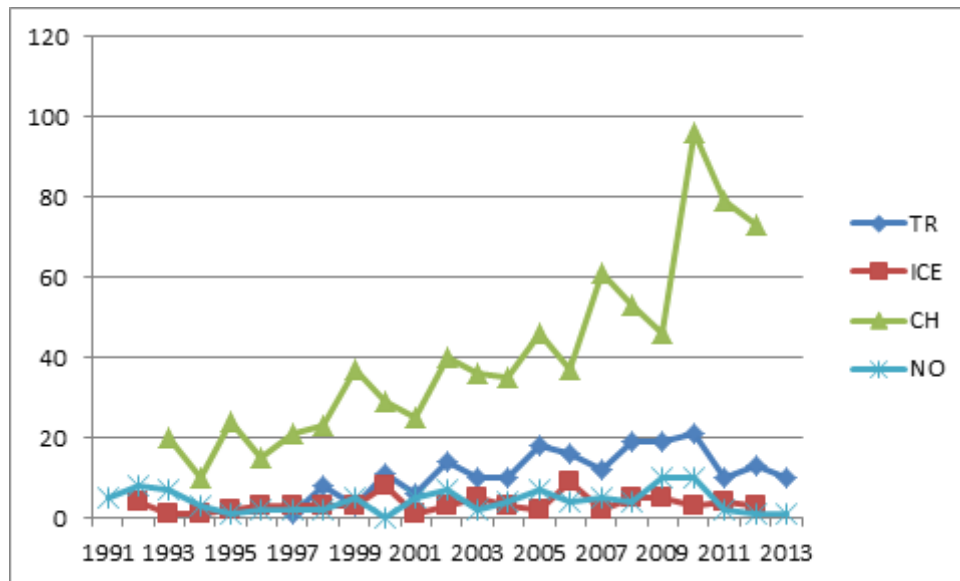


Figure 10: Number of newspaper articles containing the word “biodiversity” (own work). Sources: CH: Neue Zurcher Zeitung; ICE: Morgunbaldid; NO: Aftenposten; TR: Hurriyet

2. Evolution of college students who choose environmental science for reasons related to the protection of biodiversity.

Even though we have not found the data, it is very likely that governments have information about the numbers of college students who choose environmental sciences or other biodiversity related studies every year. However, these data do not tell us reasons for these choices. It would be an idea to develop a survey in which students were asked about their reasons that made them chose these studies. This survey could provide information about the evolution of biodiversity awareness among students.

3. Participation in nature celebrations and events

There are international days dedicated to environmental issues all over the World, such as Earth Day (22th April), the World Biodiversity Day (22th May), World Environment Day (5th June) or the World Oceans Day (8th June). The main purpose of these days is raising awareness of environmental issues. Making a statistical analysis of the participants in the activities performed during these days could be used as indicator of public awareness. However we must keep in mind that the data cannot be objective. This is because in many cases common citizens do not become informed about the organization of special activities during these days. Participants tend to have direct or indirect links with experts or people related to biodiversity and the environment.

4. Consumption of organic products

The rationale for suggesting this indirect measure for public awareness is the assumption that citizens increased awareness about biodiversity and the factors that threaten it (i.e. traditional intensive farming) is reflected in their choices to buy organic products. The consumption of organic products is increasing. There are statistics about retail sales of organic products. These statistics are generated by the European Commission on an annual basis.

A report published in 2010 shows the organic products consumption in EU Member States in 2006-2007. Over 80% of the total EU expenditure on organic products (€14.4 billion) came from France, Germany, Italy and the UK (European Commission 1, 2010).

Table 6 Significance of the organic sector in food consumption, source European Commission 1, 2010.

		Organic food expenses mio €	Share in total food expenses %	Organic food expense per capita €
Belgium	2007	283	1,3	26,6
Bulgaria	2006	1	0,0	0,1
Czech Republic	2007	52	0,5	5,0
Denmark	2006	434	3,8	79,8
Germany	2007	5.300	3,7	64,4
Greece	2006	60	0,2	5,4
Spain	2007	200	0,2	4,5
France	2007	2.069	1,4	32,4
Italy	2007	1.387	1,0	21,4
Cyprus	2006	2	0,1	1,9
Luxembourg	2006	41	3,7	86,4
Hungary	2006	20	0,2	2,0
Netherlands	2007	519	1,8	31,7
Austria	2007	739	4,8	89,0
Poland	2006	50	0,1	1,3
Portugal	2006	70	0,4	6,6
Romania	2006	2	0,0	0,1
Slovenia	2006	4	0,2	2,0
Finland	2006	65	0,6	12,3
Sweden	2006	379	2,2	41,7
United Kingdom	2007	2.835	2,7	41,9
EU-15		14.381	1,9	35,9

The following figure shows the evolution of the organic food retail sales in France, Germany, Italy and the United Kingdom. As it can be seen on these markets the increases are significant.

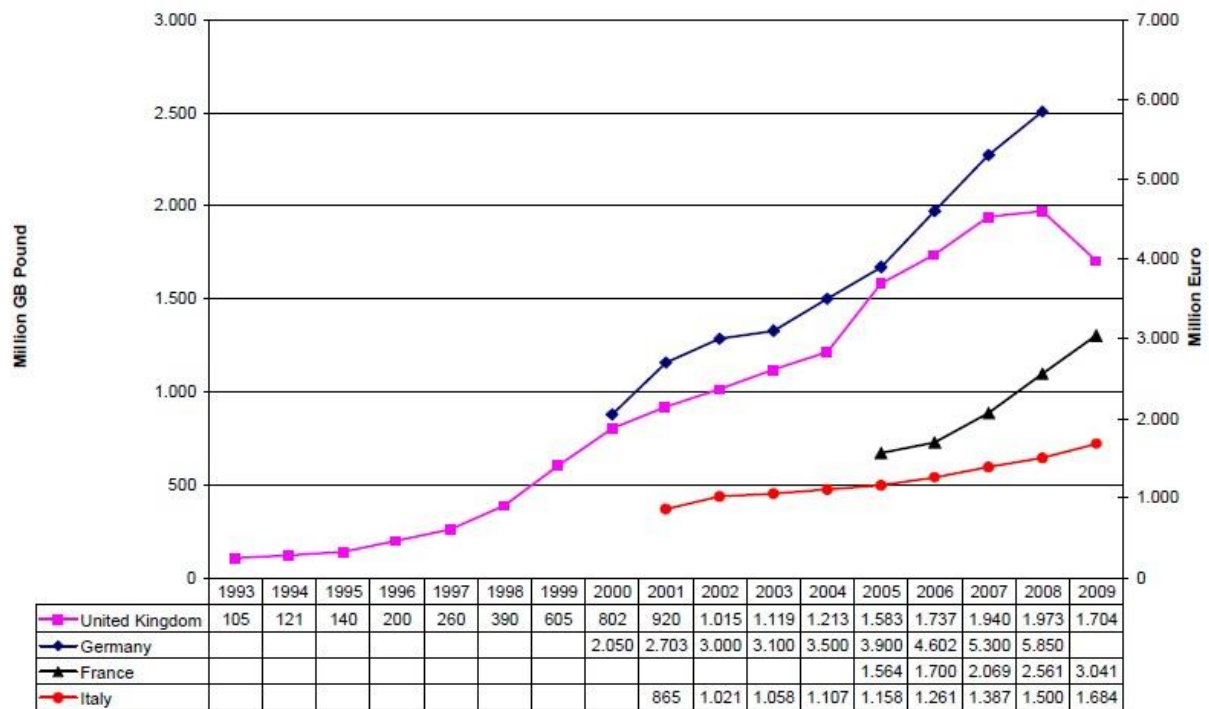


Figure 11: Evolution of the retail organic food sales in France, Germany, Italy and the United Kingdom. Source : European Commission 1, 2010.

These figures can be interpreted as a translation of citizens' concern for the environment (including biodiversity) and their associated change in purchasing behavior (increased demand for organic products). The major organic products in the market (France, Germany, Italy and UK) are vegetables, fruits bread and eggs (European Commission 1, 2010).

Potential for the application of alternative measures of public awareness in non EU EEA countries

The following table shows if there is available statistical information in the countries related to the proposed alternative indicators on biodiversity public awareness.

Table 6: information available for alternative indicators on public awareness

Country	Volunteering + nature organization+ NGOs	Visits to protected areas, nature reserves	Donations to nature NGOs	Outdoor activities	Newspaper articles	Organic bio consumption
Iceland	No	No	No	No	Yes	Yes
Norway	Yes	Yes	No	Yes	Yes	Yes
Liechtenstein	No	No	No	No	Yes	Yes
Turkey					Yes	Yes
Switzerland	No	Yes	No	No	Yes	Yes
West Balkans						
Albania	No	No	No	No	?	Yes
Bosnia-Herzegovina	No	No	No	No	?	Yes
Croatia	No	No	No	No	?	Yes
Kosovo	No	No	No	No	?	No
Macedonia	No	No	No	No	?	No
Montenegro	No	No	No	No	?	Yes
Serbia	No	No	No	No	?	Yes

Note: the results in the above table are based on our search of the internet and of the official statistical websites of the countries concerned. Maybe other documents exist that can provide additional data. Nevertheless if those documents exist, it is not easy to find them. Due to the language barrier, some existing sources of (statistical) information might have been overlooked.

Discussion

Global and EU public awareness indicator schemes

The indicators in use to monitor the progress of awareness programmes in the context of the Convention on Biological Diversity and the EU biodiversity policies (in particular the EU Biodiversity Strategy) seem to be comparable if judged by the method.

The UEBT Biodiversity Indicator and the Biodiversity Eurobarometer are both based on direct interviews with randomly selected citizens. The sample size is 1 000 interviews per country, and some of the questions are very similar. However, the results are not consistent for one out of three countries covered by both barometers.

Better coordination between the two indicator processes (SEBI and BIP) and the providers of the data (UEBT and Gallup) could result in some positive synergies. This would require that the methods (in particular selection of the interviewees, specific formulation of the questions) should be better streamlined. In addition it would seem to make sense, if the methods have been adapted to be fully compatible and generate comparable results, to avoid duplication of efforts, that is to avoid that France, UK and Germany are covered by both processes. On the other hand, having a limited overlap enables to verify that both schemes yield comparable results.

Public awareness indicators in Europe outside the EU

Although the policies and statements of most of the countries included in this report recognize the importance of awareness raising about matters related to biodiversity, only part of those countries has developed, implemented or funded programmes in support of CEPA.

Even the countries that recognize and underline the importance of CEPA for an effective protection of biodiversity do not seem to monitor the impact and effectiveness of their policies and programmes in this field. None of the countries has developed a specific indicator linked to Public Awareness about Biodiversity.

Only one of the countries (Switzerland) has been included in an international scheme to assess public awareness regarding biodiversity worldwide (BIP 2013, UEBT 2013), which provides a direct and comparable link to the SEBI Public Awareness Indicator.

Based on the review of available information (NBSAPs, Reports to CBD, biodiversity clearing house mechanisms, online statistics databases, expert information and general internet searches), it seems that no specific data are collected to measure the level of public awareness in the 12 countries considered in this report.

Some countries, such as Norway and Liechtenstein, do collect specific data that could be used for measuring public awareness: voluntary work spent on nature protection, membership of nature conservation NGOs (Holger Frick, pers. Comm.).

Information for the calculation of alternative measures of public awareness based on biodiversity-related newspaper articles, student enrollment, organic farm production should be available for most countries and would allow to make some Europe-wide analysis of public awareness at relatively low cost.

Conclusions and recommendations

Resources are limited and in some cases they do not exist. There is not much literature about public awareness indicator in those countries. In some countries it is due to the fact that this indicator has not been developed and in other cases it is because publications that contain PA information is not easy to find or are being drafted and these documents are not still in circulation.

Filling the gap of the SEBI indicator for the non EU EEA countries

Extending Biodiversity Barometer to non EU countries - The most straightforward approach to filling the gap for non EU EEA countries is to include these 12 states included in this report in the Eurobarometer on Biodiversity, carried out for the European Commission by Gallup.

- Advantage of this approach is that there is a tested and robust methodology which would allow a direct comparison across the EEA zone.
- Main disadvantage is the high cost of carrying out an additional 12 000 telephone interviews. Also other considerations that apply to the use of the Eurobarometer as an indicator (e.g. standard sample size of 1 000 interviews irrespective of the population size) apply to this option.

Carrying out UEBT Biodiversity Barometer in non EU countries - Alternatively, public awareness indicators in non EU countries in the EEA zone could be based on the UEBT Biodiversity Barometer. In order to ensure comparability of the results, the methods used by UEBT should be fine-tuned with those in use by Gallup. In addition, UEBT should be prepared to include the 12 countries in its surveys. Regarding the comparability of results, special attention should be given to: sampling strategy, sample size, similar questions and coordination of the years in which the surveys are conducted.

Using existing alternatives measures for public awareness

Public awareness indicators for biodiversity have been developed by several EU Member States, but are not yet widely applied and fine-tuned to allow EU wide comparisons to be made. However, some of these approaches could be developed and applied in order to make Europe wide comparisons of the development of public awareness regarding biodiversity. These include: number of visits to protected areas or forests, volunteering for nature, donations for nature etc.

- Advantages include: the fact that the methods for these indicators have been developed and tested
- Disadvantages include: the fact that the data are perhaps not available for all countries, because they have not been measured (e.g. numbers of visitors to protected areas) or not publicly available (membership of conservation NGOs).

Developing new alternatives measures for public awareness

As long as resources for extending either the EU Biodiversity Eurobarometer or the UEBT Biodiversity Barometer to European countries outside the EU have not been found, and that no agreement has been reached about an alternative indicator for biodiversity to cover the whole of Europe that would require new monitoring strategies to be put in place by the Member States (e.g. measuring visits to protected areas), an intermediate approach could be to obtain an indication about public awareness by devising a measure based on readily available data. A suggestion here is made to use analysis of newspaper archives, although other options are presented in the report.

Newspaper analysis - A good resource to measure public awareness could be found in the analysis of newspapers. Counting the number of times that the word biodiversity appears in the local and national press (also magazines) may indicate a change in the interest of citizens for biodiversity. If the readers demand more information about biodiversity, newspapers respond to that demand through the publication of articles related to the field, which in turn help increase awareness of biodiversity.

- Advantages include: the fact that increasingly newspapers publish their archives on line. These archives can be searched. This provides in principle a cheap and easy way to measure the development of public awareness.
- Disadvantages: no methodology to ensure the comparability of the results has been developed. In addition to that carrying out a comparative study of the occurrence of biodiversity articles in the written press requires the command of all languages of the EEA countries. It is therefore difficult to be carried out by one and the same agency and would require some collaboration with key contacts in all EEA countries.

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Annexes

Biodiversity PA questions from the Eurobarometer:

- Q1. Have you ever heard the term "biodiversity"?
- Q2. Can you please tell me what the phrase "loss of biodiversity" means to you?
- Q3. How informed do you feel about the loss of biodiversity?
- Q4. I will read some statements to you why it can be important to halt the loss of biodiversity, and please tell me how much do you agree or disagree with them:
- Q5. How serious is the decline and possible extinction of animal species, flora and fauna, natural habitats and ecosystems in your [COUNTRY]? It is a.....
- And how serious is the problem in Europe? It is a..?
- Finally, how serious is the problem globally? It is a..?
- Q6. Do you think that the decline and possible extinction of animal species, flora and fauna, will have an impact on you personally?
- Q7. I will read out a list to you. Please tell me, from the following list, what threatens biodiversity the MOST?
- Q8. What measure to protect biodiversity should the European Union take as a priority?
- Q9. Have you heard of the Natura 2000 network?
- Q10. What do you think are the two most important roles of nature protection areas, such as those included in Natura 2000 - Europe's largest network of nature protection areas?
- Q11. Sometimes economic development results in damage or destruction of nature protection areas, such as Natura 2000 sites.
- Which of the following statements comes closest to your opinion?
- Q12. Would you say that you personally make an effort to protect biodiversity?

Biodiversity PA questions from UEBT Biodiversity Barometer

- 1- How many people have already heard of biodiversity?
- 2- Do they know what biodiversity really is?
- 3- How does the media cover biodiversity sourcing practices?
- 4- How does industry report on biodiversity?
- 5- Do consumers trust industry?
- 6- What do consumers expect from industry?
- 7- How do consumers view the importance of ethical sourcing of biodiversity?
- 8- How do you define biodiversity?

Statistics websites

List of websites of national statistics offices per country

- Albania: <http://www.instat.gov.al/en/themes/population.aspx>
<http://data.worldbank.org/country/albania>
- Bosnia <http://www.bhas.ba/index.php?lang=en>: found nothing so far
- Croatia: <http://www.nationmaster.com/country/hr-croatia/env-environment>
- Iceland:
http://www.statice.is/pages/1823/?src=../vorulysingar_en/v_transporter.asp?filename=Vo1111.htm
- Liechtenstein: <http://www.nationmaster.com/country/ls-liechtenstein/env-environment>
- Macedonia <http://www.stat.gov.mk/>
<http://www.stat.gov.mk/Publikacii/20YearsOfINDEPENDENTMACEDONIA.pdf>
- Montenegro <http://www.monstat.org>
- Norway: <http://www.ssb.no/en/natur-og-miljo>
- Serbia: <http://www.eea.europa.eu/data-and-maps/data-providers-and-partners/statistical-office-of-the-republic>
- Switzerland: <http://www.bfs.admin.ch/bfs/portal/fr/index/themen/02/06.html>
- Turkey:
http://www.turkstat.gov.tr/Kitap.do?metod=KitapDetay&KT_ID=3&KITAP_ID=57