Proposal for Chapter 1 of the Technical Document
(Project output n°1)

Information needs for decision-makers

**Wallonia, March-April 2017**

0. Introduction

This document summarizes the discussions that took place during the first thematic workshop of the project. This workshop, organized by the General Directorate of Agriculture, Natural Resources and Environment of the Public Service of Wallonia (SPW-DGO3) on 22 and 23 February 2017 in Eghezée (Namur, Wallonia), brought together 41 participants, including the 9 project partners and stakeholders.

Focussing on defining **the information needs for decision-makers,** the workshop was logically positioned at the start of the project.

1. Assessing regional situations

The BIDREX project is aimed at improving the biodiversity data management processes in the different partner regions.

Prior to implementing the project strategy, it is necessary to establish an assessment process to determine the basis of each regional situations related to biodiversity data management processes (DMP).
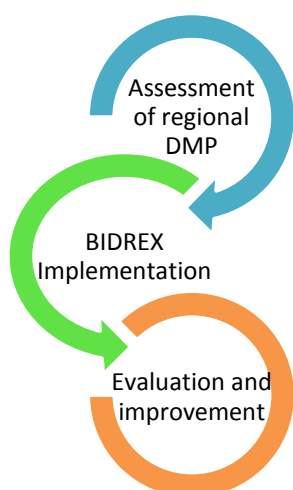
This evaluation will make it possible on the one hand to identify the different regional contexts in which the BIDREX project intervenes and on the other hand to quantify the progress brought by this project to each of the partners.

The initial assessment of regional situations will allow the definition of needs as well, i.e. the policy space which is required to be filled or bridged between the existing and the objective.

1.1   The scope of assessment

This assessment will aim to identify the regional processes about biodiversity **data** and to determine the **information** needed for decision-making at a general level and in terms of the regional policy instruments targeted by BID-REX.

By assessing the regional processes we mean to identify the strengths and weaknesses of the various **processes** that are in place for data management/dissemination and to identify lessons learned about current practices. The final goal is to identify and implement measures to improve efficiency within the regional processes.

Focus must also be placed on the **stakeholders** involved in these processes, and more specifically, on the relationship between decision-makers and their "biodiversity" information providers.

In the context of this project the decision-makers are seen as the final customers and as such their point of view plays a central role in the evaluation process specially when these actors many times are not directly involved in projects related to biodiversity information.

There can often be a discrepancy between the views and approaches of data providers and decision-makers, with regards to the importance and the management of the data supplied. Such preconceived ideas may skew the implementation of regional action plans due to this lack of understanding of the positions and contexts of each party.

Conversely, bringing decision-makers together with data providers can enable the development and introduction of good practice for the improvement of data service provision.

👍GOOD PRACTICE :

The ecosystem services assessment realized in the Spanish Basque Country (http://www.ehu.eus) has developped an integrative approach between science, policy-making and society. The methodology included mapping services at different scales, analyzing social preferences and creating indicators of multifunctionality. This study has been implemented in management strategies and politics, concluding that integration of science and stakeholders improves decision-making processes.

1.1.1 DATA

Biodiversity data is comprised of collections of hundreds, thousands, or even millions of single recordings of species, habitat, or other related information that, if collated, make up a database. There are many pathways through which data can flow from the point of collection, to its uptake in decision-making.

The collected data can be submitted and recorded in a local database, used in a research project, or logged in a national, regional, or global repository. Data from schemes can then be passed to data management organisations, such as the UK National Biodiversity Network.

By itself, a single recording is not very useful, but datasets of thousands of these recordings spanning an entire region over a number of years can provide decision-makers with large-scale information about distribution, condition, status, and trends in the conservation and spatial distribution of species and habitats. Increasing access—preferably online—to biodiversity data that are available in the required formats to be used to produce policy-relevant information, is therefore crucial to supporting effective decision-making at multiple scales.

1.1.2 ACTORS

Biodiversity data are curated by a range of data providers, from citizen scientists to nationally- or privately-funded bodies such as environment and nature agencies, universities, and a range of wildlife organisations. Effective data curators establish large networks of collaborators, experts and monitoring sites. An important part of data curation is quality assurance. Data curators ensure that all submitted data are standardised and comprehensive, with documented methods of data collection, analysis, and provision.

KEY MESSAGE:

Knowledge of the key players and their respective competencies is important.

It was observed that the prerogatives of the different levels of power vary from one country to another, even if all are able to influence the environment (region>province>metropolitan area or group of municipalities> municipalities).

In most partner regions, the environment is a regional competence, subordinate levels of power acting more on a voluntary basis when it comes to nature conservation.

Effective dialogue between the various actors, as stated previously, is very important throughout the whole decision-making process. In order to develop and achieve this dialogue, the organization of public meetings can help to make acquaintances and facilitate exchanges.

It was proposed that the BID-REX project partners could produce an "Actors" card. This could be used to set out a common methodology to describe the actors, their roles and their competencies within each of the project regions. Such a resource would aid the identification of relevant partners to team up with and facilitate exchanges between them.

1.1.3 PROCESSES

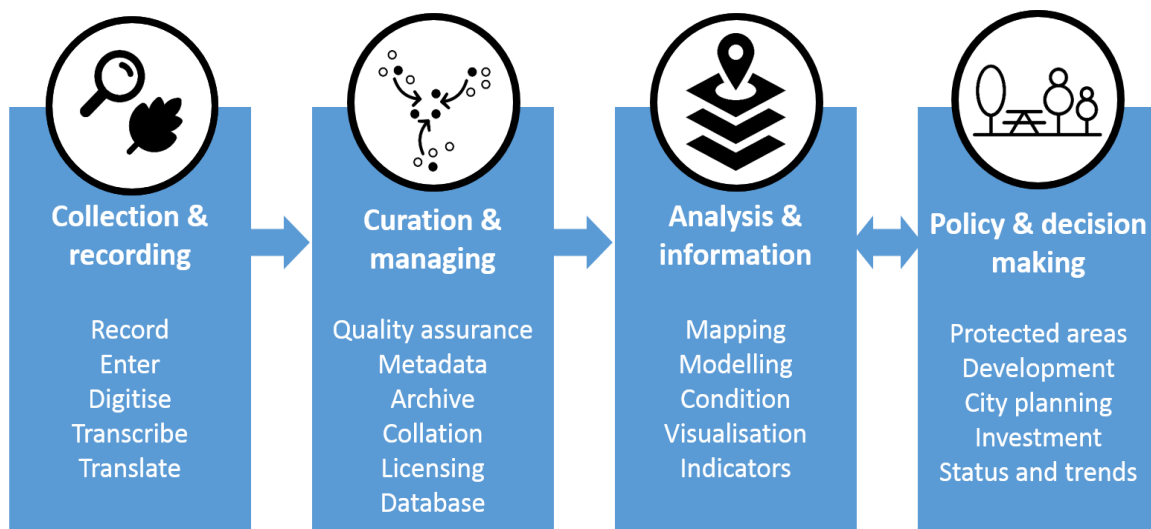| Collection & recording	Curation & managing	Analysis & information	Policy & decision making
Record	Quality assurance	Mapping	Protected areas
Enter	Metadata	Modelling	Development
Digitise	Archive	Condition	City planning
Transcribe	Collation	Visualisation	Investment
Translate	Licensing	Indicators	Status and trends
	Database		

Figure 1 : data processes

POLICY- AND DECISION-MAKING

Biodiversity data can be used to underpin good policy- and decision-making. Information products, like habitat maps, can inform decision-makers about the location of critical habitat that needs protecting, or provide the expertise required to minimise impacts of development on biodiversity (e.g. fish ladders to allow them to bypass dams, or amphibian tunnels under roads). The location of habitats associated with the supply of essential ecosystem services could be used to inform city planning or investment.

The management of biodiversity data, in particular those used for analysis and producing information derived from biodiversity data, has an important role to play in the decision-making

process. Effective biodiversity information products are those which have a clear policy mandate, and are often developed in collaborat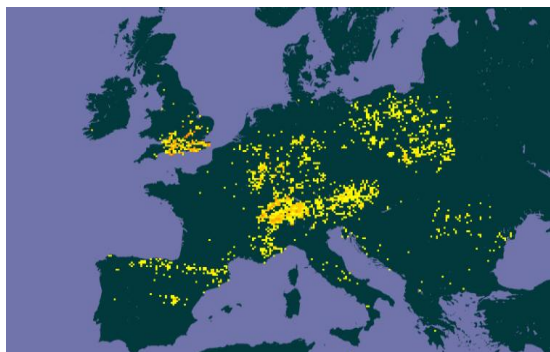ion, and iterative consultation, with key policy- and decision-making stakeholders, for use in indicators or other national government processes.[1] It is important that the development of these products is ongoing, with input from both sides of the science-policy interface, so they remain up-to-date. Collating and reporting on the metrics of product use can ensure that it remains relevant.The Internet has allowed a revolution in biodiversity data collation, management, and accessibility. Data uploaded and shared from all over the world, and its collation by data management organisations, means that biodiversity information products are more powerful than ever.

Figure 2. Recorded observations of the Chalk Hill Blue butterfly (Polyommatus coridon), which have been submitted to the Global Biodiversity Information Facility.

Biodiversity data can aid decision-makers in making informed choices for biodiversity conservation based on accurate information.

1.2 Performing assessment

The methodology for carrying out the assessment of the regional initial situations in biodiversity data processes depends on several factors:

- Institutional context (administration, university ...)
- Availability of stakeholders
- Available time
- Technical means
- Etc ...

Regional situations can be evaluated in a participatory way in a dedicated workshop, by organizing focus groups or working groups focused on specific points of the processes to be evaluated or by the use of a questionnaire…

They may be subject to internal evaluation or, on the contrary, be determined with the help of an external consultant.

2. How to identify and express needs of information?

In a decision-making process, multiple factors not only the one related to biodiversity, are interacting and conditioning the final decision. In this context, it is critical from the early beginning that the biodiversity information is adjusted at the maximum to the needs and demands of the decision-maker to be able to maximize the impact and increase its specific weight in the final decision.

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[1] Weatherdon *et al.* 2017. Blueprints of Effective Biodiversity and Conservation Knowledge Products That Support Marine Policy. *Front. Mar. Sci.* 4:96. doi: 10.3389/fmars.2017.00096

KEY MESSAGE:

Prior to meet the needs, understanding the needs of end users is the first crucial step.

The expression of 'information needs' or requirements by decision-makers is a vital stage towards informing effective implementation and action, as poorly expressed or imprecise definition of needs may lead to misunderstanding, and the provision of data or information that is not fit for purpose.

Furthermore, the clear and effective expression of data and information needs might impact the inventory methodology or approach to data processing employed by the data manager, and as such it is important to discuss this at an early point in the process.

GOOD PRACTICE :

The biodiversity audit approach conducted by the University of East Anglia in the UK has been used in Breckland Region (Norfolk, United Kingdom) to inform management of Natura 2000 sites. The methodology associates stakeholders from the start to the end. It begins with management questions, uses biodiversity data to define the aims (what biodiversity, how to manage), includes citizen science and expert knowledge, defines integrated « management guilds », takes into account evidence-base for better management and envisages a cost-effective support for priority biodiversity.

Shared points of analysis identified in this context are:

- A demand for data formulated by the decision-makers makes the process easier by creating a   climate of favorable collaboration;

- Requests for data by policy-makers are often motivated by the existence of external regulations   (e.g. international conventions, and European directives and regulations) or by a difficulty   to solve problems related to biodiversity considerations (for example, power outages following   electrical shocks to raptors and other large birds on power lines);

- To share experiences provides an opportunity to appropriate good practices

> ## ✉ KEY MESSAGE:
> - Establish a dialogue between applicants and suppliers;
> - Clearly define the needs, if necessary by formalizing them, the context of use of the data should be systematically expressed by the applicants;
> - Ensure that the context and demand are properly understood by suppliers;
> - Organize regularly an evaluation of the process on both sides.

3. How to meet the needs ?

In order to improve the relationship and understanding of needs and constraints between data managers and decision-makers, the parties should be brought together to integrate, as far as possible, the desires of the end users, and ideally to involve them in the methodology and processes of information gathering.

Such a convening of the actors would facilitate the identification, and understanding, of regional contexts and institutional arrangements that could be acting as impediments to dialogue and the establishment of good working relationships. Identifying these difficulties or problem areas through assessment processes allows for awareness raising and can be useful in terms of implementing ameliorative processes.

The analysis of the expression of needs reveals the following central elements:

→ An adequate response to these information requirements should be based on quality and reliable data properly **interpreted** according to the decision context.
→ **Biodiversity information infrastructures** are tools specially suited for this purpose, allowing heterogeneous data to become standardized, shared, long-term stored, analyzed and, ultimately, trustworthy and relevant.

INTERPRETATION – FROM DATA TO KNOWLEDGE

The interpretation of the data is considered an essential element to ensure its use.
Biodiversity data need to be accessible.
Databases are often highly complex and difficult for non-experts to understand. This is the reason why translation (or packaging) of data into useful information is key. Through analysis and computer modelling, data can be translated into information products tailored to decision-makers' needs (e.g. maps, graphs of trends).

Information products derived from modelling and analysis can highlight trends over space and time, such as a change in species' migration patterns, a decline in the extent of saltmarsh, or an increase in numbers of farmland birds. These trends can be visualised in maps, graphs, diagrams, reports and other products which decision-makers require.

In addition to supplying fit for purpose data to meet the context of demand, which is highlighted as the major factor influencing decision-makers' use of data, further elements to include or consider, such as indicators or trends, explanation of the absence of data or lack of knowledge, and verification and validation, should be factored in.

Biodiversity information infrastructures are tools specially suited for this purpose, allowing heterogeneous data to become standardized, shared, long-term stored, analyzed and, ultimately, trustworthy and relevant.

👍GOOD PRACTICE :

ALERC (Association of Local Environmental Records Centres (http://www.alerc.org.uk) regroups the different local biodiversity data collectors and managers centres working for one or a group of local authorities in United Kingdom. Those local centres gather data from amateurs, volunteers, consultants, studies… and use shared infrastructures to generate outputs needed by many users such as local authorities, national agencies, citizens…

To address the issue of data infrastructure and the practical arrangements required to meet the needs of decision-makers to effectively input into the decision-making process, it is important to consider the following:

Data must be **standardized** at the outset, sufficiently complete in terms of content, time series, and the territory concerned. The methodology for data collection, analysis, and making available must be **documented** and include **quality assurance**. **Technical support** for data management must ensure their long-term preservation and must be scalable, and **user-friendly**. The **publicity** of the available tools should allow the users to be informed. Human, technical and financial resources must be guaranteed over the long-term.

In order to answer the question of whether the infrastructure set up for the dissemination of biological data has an influence on the decision-making process and attempt to identify good practices, four priority areas were identified:

1. Networking, cost-effectiveness or stakeholder involvement are considered essential to ensure an efficient data infrastructure to influence the decision-making process.

2. Tools and technical aspects are a major factor influencing the use of data infrastructure. Among the most important elements are the **quality and standardization** of the data, the presence of **metadata**, the **flow or the format** used.

3. The **interpretation** of the data is considered an essential element to ensure its use.

4. **Access to the data** characteristics, (reliability/confidence intervals, confidentiality,   etc.) is essential, as is an understanding of any restrictions on use and access.

The elements most frequently associated with others that are considered to be crucial in data-related infrastructures are **data quality, data interpretation, and trust in the data**. Without these important factors, the uptake and use of biodiversity data in decision-making processes will be limited.

To minimise the risk of this occuring, a number of recommendations for data managers providing information infrastructures useful for decision-makers:

🞦 Clearly identify information priorities based on mandates and responsibilities

- Make the best use of financial resources and networks to mobilize biological information to inform decision-making processes
- Quality databases must be made accessible, with accompanying interpretation. The "raw data" are generally useless. It is essential to present interpreted and user-friendly data to the end users. Thematic maps are often the most popular deliverable.
- Build the understanding and confidence of the end users such that they are comfortable and confident to take it into account in the decision-making process
- Sharing of the results of data use by the end-users could lead to increased financial resources and network development.

KEY MESSAGE :

Data managers have **to be agile** to adapt to the needs of the end user and should provide relevant, useful, and timely data. This can be achieved through numerous approaches, including some of the following, as identified by the partners:
- *use participatory approach and coordinate contact with the end users*
- *involve end users in the collection structures and methodology*
- *optimize the methodology if necessary by increasing the number of inventories*
- *integrate upstream of the parameters identified by the end users*
- *improve data availability*
- *use innovative ways of disseminating data i.e.broad-access or more customer-oriented portals*
- *guarantee flexibility in tools*
- *strengthen interpretation*
- *improve the "after-sales service" by producing manuals and guides for understanding and interpretation*

4. The use of biodiversity information in decision-making processes

The effective use of biodiversity information in decision-making processes is influenced by intrinsic and extrinsic factors that interact and modulate the final outcomes.
The concept of intrinsic or extrinsic is to be considered in relation to the data management process itself.

4.1 Internal factors

A number of **internal** factors influencing the use of biodiversity information were identified during the discussions :
- It is important to provide concise information, adapted to the context and to the recipients.

- Biological information should be accompanied by a risk analysis of the various options that have an impact on biodiversity and, if mitigation measures can be envisaged, they should also be proposed to decision-makers.
- Biodiversity data should be supplied with an indication of the scale of relevance, i.e. is it applicable at the local, regional, or global level(s).
- Finally, the stage at which biodiversity data feeds into the decision-making process can also be important and should be considered.

→ *Nevertheless, one of the main internal factors in the decision-making process and most influencing the taking into account of biodiversity information in decisions is the credibility of the data provider.*

THE CREDIBILITY OF THE DATA PROVIDER

The credibility of the data provider is considered essential in the decision-making process. Such credibility and reputation depends upon a number of factors, such as independence of political power, impartiality, objectivity, professional reputation, stakeholder consideration and transparency.
Conversely, any uncertainty gives rise to lack of confidence and willingness to use the information supplied.
The credibility of the data provider and the confidence of the information supplied, include the uncertainty assessment of that information (temporal and spatial scale, risk analyses, etc.), but also how (or when) the information is used to feed into decision-making process.

The credibility of the data provider is also influenced by the quality of the data they manage and supply.

Long-term monitoring and inventory data for species and habitats, age of data, relevance of geographic scale and accuracy (systematic versus opportunistic, interpretation of no data), and establishment of validation processes are factors that also influence the perceived quality and credibility of data managers.

Finally, credibility is also a function of the quality of data interpretation. The format of the data used for communication (e.g. maps, tables, graphs, reports, etc.), the level of detail required, explanations of data uncertainty, transparency of methods and use of recognized methods are important factors influencing credibility.

4.2 External factors

As with those internal factors set out above, there are also **external** factors that can have impacts on decision-making processes; some examples were identified and are set out below:

Some of these are *socio-economic factor*s, such as personal understanding and appreciation of biodiversity, the influence of lobbying processes, the local and regional economic context, the public interest and the acceptability of the project, the creation of jobs directly linked to the project team and subcontractors, the additional cost of establishing compensation or mitigation measures for biodiversity loss, the opportunities for (co-) funding, the ecosystem services as a result of a restoration project, the uncertainty about how projects will have economic and societal influence.

Other external factors that were identified *relate more to the political and legal context*, namely the legal provisions that prevail, the legal status of habitat and species protection, the level of decision (local or regional) and the possible drift of corruption, or the existence of national / regional / local planning documents…

4.3   Combined factors

There were also a number of factors identified that combine both internal and external elements and have an impact on the consideration of biodiversity data in decision-making processes; these include:

- the development and use of 'think tanks', which can include all stakeholders, to support decision-making.
- Communication of the value of habitats and species, and ecosystem services, is considered as important.
- Efficient communication and flows of information, use of a common language and terms, and the formation of a climate of trust between departments of the administration.

→   *One remarkable combined factor is the improvement of conservation priority setting, especially taking into account different socio-economic scenarios with constrained budgets.*

PRIORITY SETTING FOR NATURE CONSERVATION IN A LIMITED BUDGET CONTEXT

Among the various criteria to be taken into account when setting priorities some are linked to the biological information itself. These include the legal and conservation status of the habitat or species of community interest, the IUCN status, the presence on a regional red list of endangered, threatened or endemic species, location of habitats/species including consideration of range, population, area, information on data availability, quality, relevance, assessment of the impact of the proposed actions on the conservation status of the habitat/species (and related indicators) and on the consequences of non-action, the technical feasibility of the project including the definition of its duration and the timing for results.

Some other considerations from the case studies are highlighted:

- taking account of biodiversity data upstream of the process leads to a significant budget saving

- the costs of monitoring (improving the efficiency of measures) must be weighed against the cost of non-targeted measures, compensation or possible incentives
- the importance to define habitats and the targeted favorable status of conservation of these habitats, otherwise there would be unclear conservation objectives

5. After the decision

5.1 The need of a feed-back

Data providers confirmed the need for decision-makers to provide feedback. They emphasized the importance of doing so for the establishment of indicators and for the improvement of their data and adaptation to the decision-makers' needs through an iterative process.

KEY MESSAGE :

Systematic feedback procedures allow decision-makers to inform data suppliers of the actual follow-up of the decisions taken and the impact of the data provided*.*

This information enriches the dialogue between parties and promote long-term data providing.

Tools that can be used to encourage decision makers to provide feedback include the organizing of public events or targeted satisfaction surveys.

5.2 The real impact of the biodiversity information on conservation policies

Fortunatelly, some decisions are made taking biodiversity into account using data and information provided by reputable and credible oganisations. The results and the scale of consideration to which decision-makers take biodiversity data into account in their decisions and what influence this data can have on plans and projects are particularly interesting to be aware of.

The fact that experiences of biodiversity information being taken into account exist, probably means that it was also sought to identify win-win situations by preserving the natural heritage without loss of economic value to the projects.

These success stories must be used to identify the conditions that have made it possible to gain access to this win-win situation. These situations are indeed the ideal goal to achieve. It is useful to analyze these factors more thoroughly in order to guide future decision-making processes in this direction.

👍 **GOOD PRACTICE :**

In Belgium, ELIA (Power Supply Group, http://www.elia.be) takes into account biological information (based on cartographic information about distribution of species, migration, feeding areas and information on bird victims near overhead HV lines) provided by ornithologists associations (Aves http://www.aves.be, Natuurpunt, https://www.natuurpunt.be,...)

Thanks to that collaboration, Elia is able to develop and implement technical solutions in order to reduce bird mortality with high and veryhigh voltage power lines in Belgium.

In order to be able to analyze these factors of success, data managers need firstly to be informed of the consequences of their work through feedback procedure discussed above.

They would have, for this purpose, a strong interest to organize the monitoring on how the information they provide to decision-makers is used. The final goal will be to assess how the positive feedback has impact and influence to better guide the relevance of information and ultimately lead to better decision-making.

Workshop participants highlighted the importance of defining a strategic process for assessment of the impacts of a decision on biodiversity. This strategic assessment would result in an operational plan(s) for impact assessment on biodiversity. Aspects related to biodiversity should be integrated upstream in the planning process and the monitoring of species and habitats should be independant from the policy makers.

The establishment of an independent biodiversity observatory at the regional level would make it possible to collect, validate, and disseminate data, and to consult decision-makers to assess and specify their needs and to provide their feedback.

5.3   The importance to build mutual trust

Problems of trust exist in both directions.
Decision-makers must have confidence of the information supplied, including the uncertainty assessment of that information in order to make the best use of it in decision-making process.
On the other side, data providers must have confidence in the decision maker who must not divert the meaning of the data transmitted to him. To get it,

✉ **KEY MESSAGE :**

An environment of mutual trust should be established and reinforced through an usual dialogue between parties.

This effective dialogue between the various actors is very important throughout the whole decision making process.

In order to develop and achieve this dialogue, the organization of public meetings can help to make acquaintances and facilitate exchanges.

A very useful practice which must be systematically planned at an appropriate frequency should be **the satisfaction assessment of bilateral expectations.**

Mutual trust between data providers and decision-makers is also relevant to prolong biodiversity information providing and its usage in decision-making processes.

The other following elements that can establish or reinforce this mutual trust emerged from the workshop :

- Person-to-person relationships, especially when they are maintained and stable over time (e.g. within administrations);
- The sharing of a common technical or cultural vocabulary between suppliers and decision-makers
- Development of international networks of experts.
- Transparency, validation, and communication on the procedures used to generate the data and its recognition by the decision-maker;
- The official accreditation systems for data management and analysis provided to the supplier;
- The status of the supplier guaranteeing its independence (example: the creation of an independent observatory).

THE OPEN DATA POLICY : A WAY FOR BUILDING CONFIDENCE ?

Biodiversity data are increasingly published online, available for download and use by anyone, as "open data". This is partially facilitated by the rise in scientific journals requiring open data as a condition of publication, but also national regulations. Increasingly, data creators, curators and owners are advised to use standardised and machine-readable licenses such as "Creative Commons", which offers several levels of accessibility (from completely unrestricted, to a non-commercial use restriction). Archives of open data can allow users to access current and historical data; access to long-term data is particularly important to conservation, a field where data can be costly to collect. Greater access to biodiversity data can support more robust analyses and the provision of information of greater relevance to decision-makers.

👍GOOD PRACTICE :

In the Spanish Basque Country, a nature information system has been developed at the request of the Government (http://www.euskadi.eus/natura) to provide open biodiversity data to all users. A network of knowledge is feeding this common technological infrastructure which interacts with other open data information systems, as GBIF for example, and publish the data needed for decision making, reporting, diffusion and communication, education…

One of the undeniable advantages of Open Data practice is the transparency, both of the data and of the processes used by the presence of the metadata.

However, publication by the supplier of the biological datasets does not equate to an interpreted data or information product, or a source of information that is adapted to the needs of the decision-maker.
In addition, the question of the management and financing of Open Data, data management infrastructures remains open.

A certain balance must be ensured between the risk and the profit generated by the diffusion of the data. This is particularly true for so-called "sensitive" data, such as location data for rare and protected species (e.g. orchids, wolves etc.).

The Open Data policy should be integrated into the broader framework of Open Science, as developed by the Center for Open Science, a non-profit organization whose aim is to promote openness, integrity and replicability Of scientific research.

6. SUMMARY AND CONCLUSIONS

In a nutshell, the points of importance raised during the discussions are subdivided according to the different themes and will serve as a conclusion in the first chapter:

1. Assessment

- Establish an assessment process to determine the basis of each regional situations related to biodiversity data management processes (data, actors and processes)
- Periodically replicate evaluating regional data management processes
- Regional situations can be evaluated in a participatory way in a dedicated workshop, by organizing focus groups or working groups focused on specific points of the processes to be evaluated or by the use of a questionnaire…

2. Identification and expression of needs

- Using the participatory approach to define needs and to monitor data processes.
- Involving decision-makers and end-users of data in the development process and discussion phase of the data collection approach
- Systematically explaining the contexts of the need and the use of the desired information
- Consideration of the needs, position, and context of the end user/data supplier

3. Meeting the needs

- An adequate response to the information requirements should be based on quality and reliable data properly interpreted according to the decision context.
- Develop and use biodiversity information infrastructures specially suited for this purpose, allowing heterogeneous data to become standardized, shared, long-term stored, analyzed and, ultimately, trustworthy and relevant.

- Make data accessible and user-friendly by focussing on, and investing in data dissemination and communication through efficient interfaces and media
- Invest in updating data
- Accompany data with an interpretation and metadata report
- Implement quality assurance systems or protocols
- Consider the context of data requests

4. The real impact of information on decision

- Intrinsic factors encompass the credibility of the data provider and the confidence of the information supplied, including the uncertainty assessment of that information (temporal and spatial scale, risk analyses, etc.), but also how (or when) the information is used to feed into decision-making process.
- Extrinsic factors include from political and legal background (conservation vs. development laws) to local and regional economic context (economic feasibility of projects) and the influence of lobbies.

- Setting priorities in conservation policies has often to be done in a context of limited budget. Criteria to perform this selection may derive from the analysis of several socio-economic scenarios or are linked to the biological information itself.
- The way to take these criteria into account and the possibility to assess what would happen if they were not considered could be useful in that context.

5. After the decision

- Systematic feedback procedures should allow decision-makers to inform data suppliers of the actual follow-up of the decisions taken and the impact of the data provided;
- To organize the monitoring on how the information they provide to decision-makers is used;
- To understand the success factors of identified win-win situations wher the natural heritage has been preserved without loss of economic value to the projects ;
- an environment of mutual trust should be established and reinforced through an usual dialogue between parties
- Systematically assess user-satisfaction and organize at an appropriate frequency the satisfaction assessment of bilateral (Data providers as well) expectations.