BID-REX
Interreg Europe

European Union
European Regional
Development Fund

INFORMATION FLOWS

Conclusions of BID-REX Interregional thematic workshop

Budapest, 30-31 January 2018

THEMATIC WORKSHOP No. 3

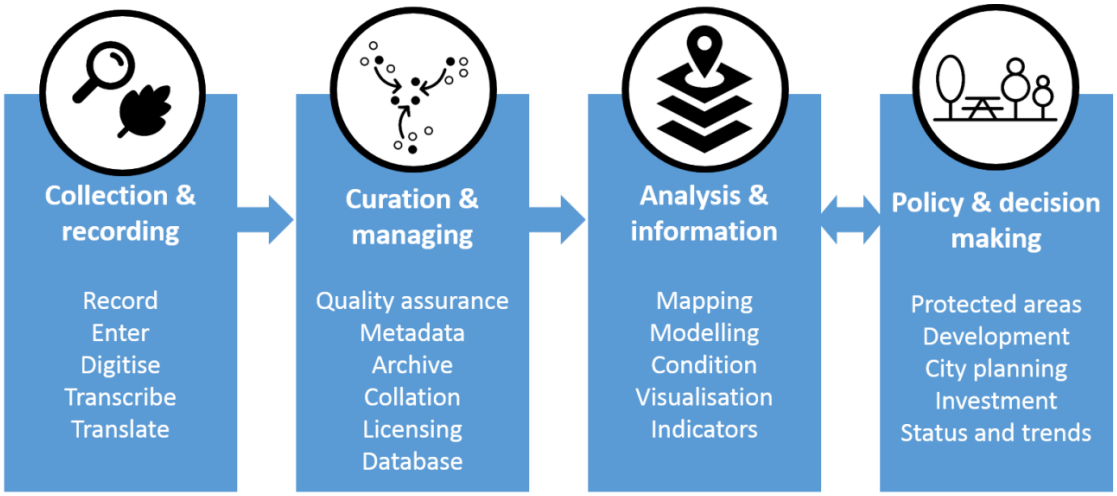
The third interregional thematic workshop was hosted in Budapest by the Hungarian partner of BID-REX project (University of Debrecen, Centre for Environmental management and Policy).

The meeting focused on biodiversity information flows and the potential to improve the process by drawing upon practical solutions and regional experience and lessons learned.

The structure of the workshop was based around the results and practices of the earlier project sessions and thematic workshops (Wallonia: Information needs for decision makers; and, Basque Country: Matching information to needs). A broad range of stakeholders from outside of the core project partnership participated in and contributed to this workshop.

As it is clear from the former chapters, we do not have to talk about the problem of missing data/information indeed, it is not a barrier of successful biodiversity conservation and enrichment programme or measure. At the same time, information flow, its efficiency is a key factor for the effective activities.

The main aim of the workshop was to better understand how to support the integration and efficient use of available knowledge and resources in development processes.



General framework and stages of the data processes for their consideration in the decision-making processes (Main conclusions of BID-REX workshop - 22 and 23 February 2017, Eghezée, Namur, Wallonia)

Simply put, 'information flow' is the process of passing data and information from the point of collection (i.e. field measurements and observations for example), through some form of interpretation or analysis to translate raw figures into understandable and informative content, all the way up to the final user (e.g. a decision maker).

In practice, information flow is a multi-component, multi-actor process with numerous steps, stages, and processes involved. This is true regardless of the field of application, and biodiversity and natural value preservation are no exception.

The length of time involved in the flow of data and information from source to end user will change depending on every individual context and area of application.

CHANNELS OF INFORMATION FLOW

There are different forms of information flow, ranging from verbal information transmission from person-to-person, to automated information exchange between information systems.

Examples channels of data and information flow include:

- paper-based
- verbal communication (i.e. telephone or face-to-face)
- e-mail or other electronic communication platforms
- web-based services (serves all information flow types)

DIFFERENT METHODS OF INFORMATION FLOW

Depending upon the information provider and information user, there are different methods of information flow: point-to-point flow, point-to-multipoint flow and multipoint-to-point flow.

POINT-TO-POINT INFORMATION FLOW

Point-to-point information flow is the basis of most information flow, and could be seen as the most efficient form. In this case the information provider and the user are in direct contact, so information reaches the user quickly and precisely. This connection usually includes an opportunity for feedback, allowing the information provider to ensure that the supplied information meets with the users need in terms of content and quality.

POINT-TO-MULTIPOINT INFORMATION FLOW

This is the further developed version of point-to-point information flow providing a way to give information to more users at the same time. If necessary the process can be divided to different point-to-point sections. The connection can be organized according to serial or parallel structure. In case of serial organization, point-to-point connections are built and broken up in a consecutive way. In case of parallel organization all connections can be built at the same time and information is forwarded parallel to all users. This is the practice of suppliers having huge data base.

MULTIPOINT-TO-POINT INFORMATION FLOW

This is the further developed version of point-to-point information flow providing a way to gain information parallel from more suppliers. If necessary the process can be divided to different point-to-point sections. The connection can be organized according to serial or parallel structure. In case of serial organization, point-to-point connections are built and broken up in a consecutive way. In case of parallel organization all connections can be built at the same time and information is forwarded parallel to all users. This latter one is more favourable concerning time factor but requires more expert capacity and high level internal coordination of the user.

OVERALL GOALS

Biodiversity has been an organic part of general thinking since the 1980s and appears in national policies as well. Spreading in a speedy way resulted in being a determining priority for international, national, regional and local strategies and programmes.

THE 2050 EU BIODIVERSITY VISION

"By 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided."[1]

THE EU 2020 BIODIVERSITY TARGET

"Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss."[2]

The six targets

TARGET 1 **To fully implement the Birds and Habitats Directives**	To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100 % more habitat assessments and 50 % more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50 % more species assessments under the Birds Directive show a secure or improved status
TARGET 2 **To maintain and enhance ecosystems and their services**	By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems
TARGET 3 **To increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity**	3a) Agriculture: By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement* in the conservation status of species and habitats that depend on or are

1 http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lowres.pdf

2 http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lowres.pdf

	affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management. 3b) Forests: By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size** (to be defined by the Member States or regions and communicated in their Rural Development Programmes) that or receive funding under the EU Rural Development Policy, in line with Sustainable Forest Management (SFM) so as to bring about a measurable improvement* in the conservation status of forest ecosystems and species and in the provision of related ecosystem services as compared to the EU 2010 Baseline **For both targets, improvement is to be measured against the quantified enhancement targets for the conservation status of species and habitats of EU interest in Target 1 and the restoration of degraded ecosystems under Target 2.* ***For smaller forest holdings, Member States may provide additional incentives to encourage the adoption of Management Plans or equivalent instruments that are in line with SFM.*
TARGET 4 **To ensure the sustainable use of fisheries resources**	Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock, through fisheries management with no significant adverse impacts on other stocks, species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive
TARGET 5 **To control invasive alien species (IAS)**	By 2020, Invasive Alien Species and their pathways are identified and prioritised, priority species controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS.
TARGET 6 **To help avert global biodiversity loss**	By 2020, the EU has stepped up its contribution to averting global biodiversity loss.

THE MID-TERM REVIEW OF THE EU BIODIVERSITY STRATEGY TO 2020

"Overall, biodiversity loss and the degradation of ecosystem services in the EU have continued as compared with since the EU 2010 biodiversity baseline, as confirmed by the 2015 European Environment — State and Outlook Report 1. This is consistent with global trends and has serious implications for the capacity of biodiversity to meet human needs in the future. While many local successes demonstrate that action on the ground delivers positive outcomes, these examples need to be scaled up to have a measurable impact on the overall negative trends."[3]

Member States developed National Biodiversity Strategies and Action Plans (NBSAP). National strategies reflect how countries intend to fulfil the objectives of the Convention on Biological Diversity in light of specific national circumstances, and the related action plans will constitute the sequence of steps to be taken to meet these goals.

STRATEGIC PLAN FOR BIODIVERSITY 2011-2020, INCLUDING AICHI BIODIVERSITY TARGETS (ABTS)

One of the determining factors of this 10-year "Living in Harmony with Nature" plan is translate this overarching international framework into revised and updated national biodiversity strategies and action plans within two years.

The twenty ABTs are grouped in five strategic goals[4]:

- A - Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.
- B - Reduce the direct pressures on biodiversity and promote sustainable use.
- C - To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.
- D - Enhance the benefits to all from biodiversity and ecosystem services.
- E - Enhance implementation through participatory planning, knowledge management and capacity building.

Regional/local level: Regional/local strategies, programmes also developed at regions.

THINK 2030[5]

"Informing a science-based agenda for European environmental policy beyond 2020, Think 2030 is a new sustainability platform by IEEP that convenes a diverse range of stakeholders to discuss and propose solutions to Europe's most pressing sustainability issues.

Think 2030 will produce policy recommendations for the next European Commission, Parliament and for Member States."[6]

[3] https://www.eea.europa.eu/ds_resolveuid/CZV1OXN30T
[4] https://www.cbd.int/aichi-targets
[5] For more information visit www.Think2030.eu and follow #Think2030
[6] https://ieep.eu/uploads/articles/attachments/8399886b-8e29-43f7-b98c-4a714a0f0cc8/t2030-ieep_sdg_globaldimension_final-1.pdf?v=63711750136 page 2

The platform focuses on valuing biodiversity and reversing its decline by 2030 instead to halt of loss of biodiversity by 2010 or 2020 programmes.

Policy options to achieve the targets:

- Building a social movement to halt biodiversity loss
- Stepping up action to implement existing EU policies
- Strengthening and reforming EU and national policy frameworks
- Making the EU budget work for biodiversity
- Increasing EU action to tackle global biodiversity loss
- Supporting EU action through better knowledge and evidence

Action plans of well-structured and well-constructed regional and local policies, strategies and programmes can strongly contribute to the conservation and enrichment of biodiversity during their implementation. For this purpose they require adequate information that has to be manipulated and applied in the most appropriate way in order to achieve the defined objective.

MOST RELEVANT INTERNATIONAL DATABASE SYSTEMS

"Global Biodiversity Information Facility: The GBIF network draws all these sources together through the use of the Darwin Core standard, which forms the basis of GBIF's index of hundreds of millions of species occurrence records."[7]

BID-REX project partner countries Belgium, Slovenia and Spain are voting, while UK partners are associated country participants.

[7] https://www.gbif.org/what-is-gbif

The Biodiversity Information System for Europe (BISE) is a single entry point for data and information on biodiversity supporting the implementation of the EU strategy and the Aichi targets in Europe. The structure is[8]:

Status	Ecosystems and habitats	**Benefits**	Ecosystem services
	Species		
	Genetic resources		
Threats	Climate change	**Responses**	Protected areas
	Invasive species		Green infrastructure
	Fragmentation		LIFE+ Nature and Biodiversity Projects
	Land use change		
	Pollution		
	Overexploitation		
Impacts	Tipping points		

The following flagship projects provide important information and knowledge in order to support decision-making processes at the European level:

- MAES - Mapping and Assessment of Ecosystems and their Services
- SOER - The European environment — state and outlook 2015
- SEBI - Streamlined European biodiversity Indicators

All EU Member States have biodiversity data and information bases with different levels of content. Regional databases mean further potential information for regional and local programmes and development.

The information flow between national and regional level is better to the direction of region than opposite -concluded by project partners.

Project partners, regions, and institutions invest important energy, finances, and time to set up biodiversity databases and information systems. Each start out from different base levels, with different interests and objectives, and with different financial situations.

AVAILABILITY AND OPENNESS

To implement development objectives, decision makers seek data and information that can underpin and strengthen their existing datasets in order to make the best decisions.

As it is included in previous chapters, we do not have to face the lack of biodiversity information, missing data doesn't mean obstacle for efficient development processes. At the same time we

[8] https://biodiversity.europa.eu/topics

have to state that this refers only for protected areas and species – in case of not protected areas and species we still have to face the lack of necessary data and information.

A key starting element of information flow is the **availability** of data and information. It is an advantage and a goal at the same time to have those collected together for regional and local developments, to access point-to-point information flow. One of the most important properties of effective data is accessibility, particularly in terms of online access. For a number of regions in the BID-REX project this has been already achieved fully or partly, but in others more effort is required. For example, Norfolk County Council introduced the Norfolk Biodiversity Information Service (NBIS).

OpenBioMaps (OBM)

In a collaborative project in Hungary, at University of Debrecen, an application suite and a data management system for biological data has been set up, specifically for biodiversity-related data. The aim was to provide effective tools for those projects, which usually develop their own private database solutions. Databases established governmental institutes, NGOs, and scientific research projects for example, usually do not share data and are not connected with other databases, even if they are online. The idea to overcome this was to develop a system which, on one hand helps to keep these projects running, and on the other hand help them to open their databases for public usage. Therefore, a free service was created for hosting databases which provide public data, and open-source software was developed to help people build their own databases based on standard, open-source tools. The name of this collaboration and software and the network of services is OpenBioMaps (OBM).

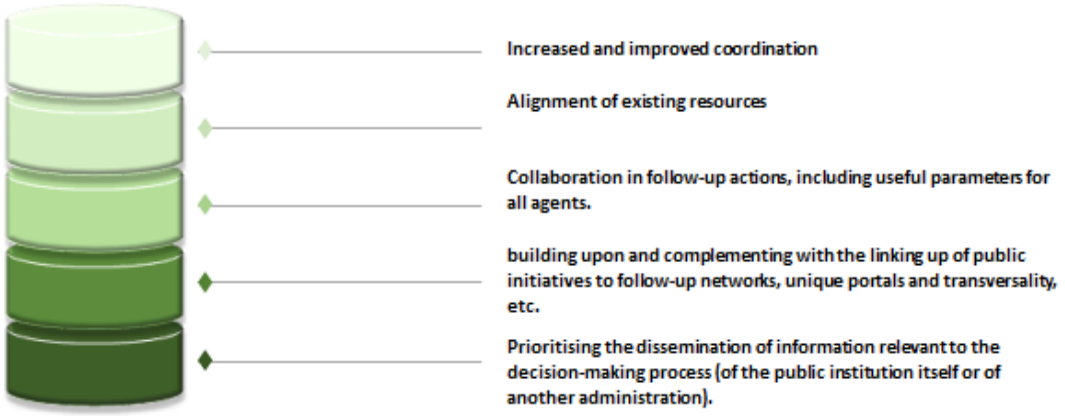
OpenBioMaps is a flexible tool and service for organising the collection and sharing of data. OBM also provides an interface for the development of communication between different end-user communities, including scientists, citizens, conservationists, and educational staff. OBM is based on collaboration between institutes and NGOs to maintain a public service (i.e. a web database framework) and to develop software applications (i.e. take-home database skeletons, mobile applications, flexible modules). The OBM database framework can integrate biological databases without structural or functional restrictions, allowing a high level of flexibility. OBM users form a community and the system provides built-in functions for data management and usage. Based on these communities and using these functionalities, OBM provides a solution to support and assist biodiversity data flow in Hungary.

Openness is a topical theme concerning not only the ownership issues of databases but other fields as well, e.g. scientific data and information. For biodiversity data there is a common understanding on the necessity of openness. Its implementation is different – not only for the special species. The willingness and interest of data owners and data suppliers sometimes is

missing; data are considered as their own property even in cases when the generation of data was financed by public sources. Another problem occurs when existing databases are not integrated with other relevant online databases. Strong efforts have been made to overcome this issue. An example of this, as achieved by the Hungarian partner institution, is presented in the box above.

BID-REX project partners from the Basque Country also made great progress in this area through the improvement of coordination and collaboration between producers, users and public administrations, despite the multi-layered nature of institutional organisation in the region.

A need for improved inter-agency coordination



As a first step, parties signed a collaboration agreement with specific objectives, lines, actions and budget commitments.
As a next step, the approach in the Basque Country sought to develop common methodologies, protocols and standards.

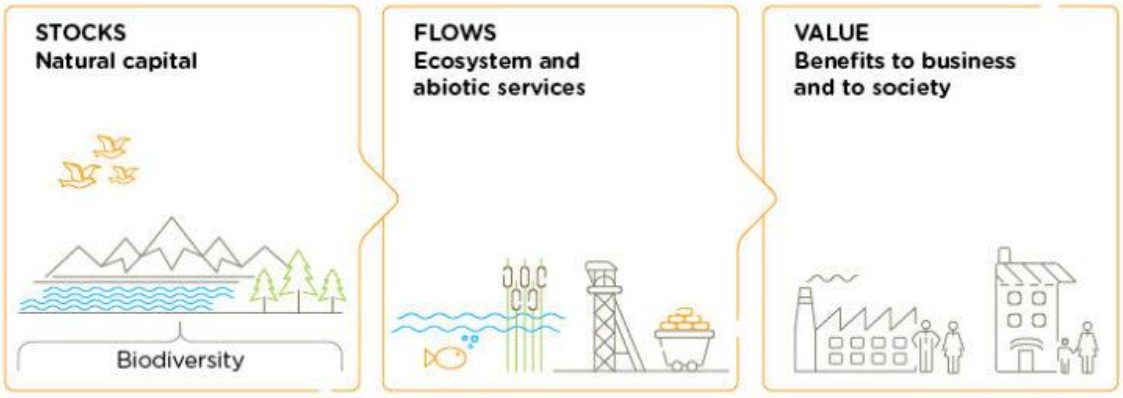
BIODIVERSITY DATA, WHAT ELSE?

In the case of nature conservation and development processes, biodiversity data and information create basis for the decision-making. This is especially true for small-scale local developments when site managers formulate their decisions according to available (particularly self-collected) data, and actions are implemented based on this information. In this situation, the information flow is short and efficient, reflecting the direct use of self-collected and owned data. This can achieve efficient and quick results, but there are potential endangering factors (e.g. focus on capercaillie excluding other species).

Biodiversity information used to support larger scale developments might also rely on some self-collected data and information, but significant external sources will also be used. In this case, internal and external data will need to be integrated.

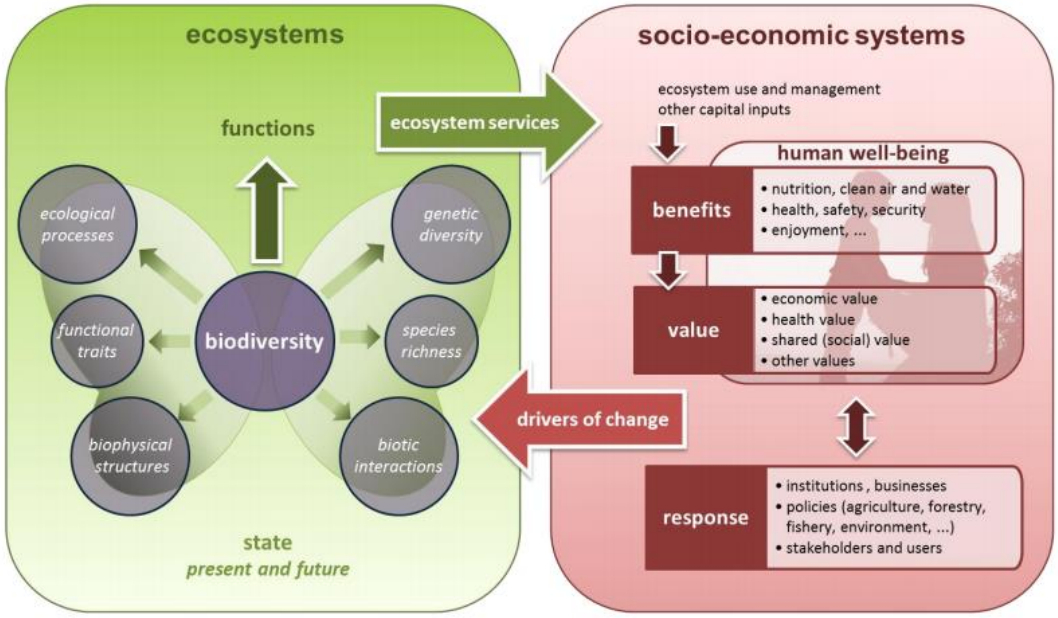
"Natural capital is a way to describe Earth's natural assets, including soil, air, water, and living things, existing as complex ecosystems, which provide a range of services to humans."[9]

[9] http://ec.europa.eu/environment/integration/research/newsalert/pdf/natural_capital_accounting_taking_stock_IR16_en.pdf



Natural capital: stock, providing ecosystem services or benefits
Source: https://naturalcapitalcoalition.org/natural-capital-2/

"The 'flow' provided by natural capital comes in the form of ecosystem services. *Ecosystem services* are the contributions that ecosystems make to human well-being:"[10]



Conceptual framework for EU-wide ecosystem assessments
Source: Mapping and Assessment of Ecosystems and their Services: An analytical framework for ecosystem condition. Publications office of the European Union, Luxembourg.

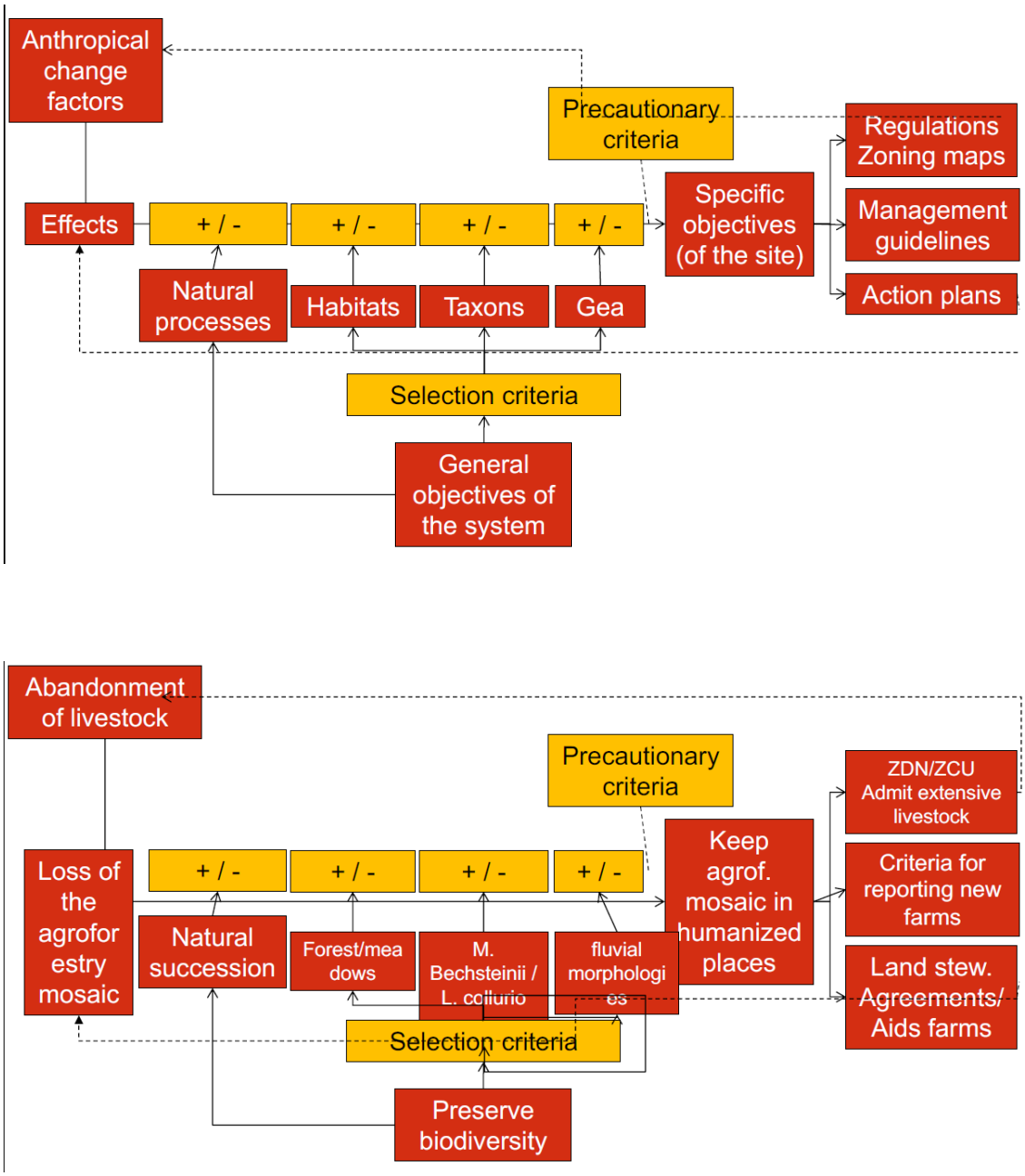
During the design and implementation of developments there is a growing need to know the elements of the driver of change beyond the classic biodiversity data and information (e.g.

[10] https://www.eea.europa.eu/soer-2015/synthesis/report/3-naturalcapital

pressures, threats, trends). These provide directly applicable information and knowledge particularly for the elaboration and update of management plans.

The following figure shows the process of biodiversity information flow through nature conservation development projects.

CATALONIA: INFORMATION FLOW STRUCTURE AND APPLICATION FOR NATURAL SITE PLANNING



Improving biodiversity data flows in Catalonia
(Source: Government of Catalonia)

In this case, from the general objective to preserve nature, the process arrived at an agreement with the main local economic actors, the farmers.

In regional development, environmental and economic sectors have their own legal and practical regulations for the establishment and implementation of their projects and plans. To avoid harmful impacts and damages, there is a need for responsible activities. One of the tools to apply for this purpose is the Environmental Impact Assessment (EIA) Directive[11] adapted by each Member State. This Directive includes obligatory application concerning numerous activities. Besides other important elements, the topic of nature value forms part of the assessment process as well (see BID-REX Good Practice, Supporting information tool for the Environmental Impact Assessment of Projects).

Mainstreaming biodiversity and the values of our ecosystems into all elements of regional and local development is essential. This is also supported in various global conventions, for example the Strategic Plan for Biodiversity 2011-2020 of the Convention on Biological Diversity. For example, under Aichi Biodiversity Target 2, it states that, by 2020 "biodiversity values have been integrated into national and local development".

With regards to different sectors, mainstreaming biodiversity is especially important for agriculture, forestry, and fishery for example, as these sectors have significant impacts on biodiversity while being directly dependent upon them at the same time.

The preservation of genetic diversity of cultivated plants, farmed and domesticated animals, and their wild relatives is addressed by Aichi Biodiversity Target 13. Flora and fauna genetic banks are virtual or real inventories sharing data and information.[12]

The main actors of biodiversity information flow are data providers, users and public administrations. A smooth biodiversity information flow depends on how their main actors are able/ready for an intensive and continuous joint work. All have a specific working environment, their own interests, own future image. A case basic, temporary joint work for a better coordination and cooperation between them is more and more requested. Mainly for a better performance in concrete cases, but more important factor is the long-term cooperation between actors based on signed cooperation agreements and joint project development.

The case study presented by the BID-REX partner from Wallonia, "*Implementation of municipal development area*", shows that different actors support implementation with different tools. In the case of development projects, the participation of stakeholders requires different composition and their contribution is of significant scale.

Another partner example, presented by the **Marche Region,** demonstrated that by working together with numerous regional partners to restore an area following an earthquake, development plans can be implemented effectively. During this process, Regional Ecological Network (REN) implementations were integrated as specific projects at the local scale (see BID-REX Good Practice 'REM in Marche Region': example of Cittá di Porto Sant' Elpidio and restoration of the area affect by the earthquake).

[11] Directive 2011/92/EU as amended by 2014/52/EU

[12] www.divseek.org

Conservation measures must be adapted to environmental objectives in order to be effective, taking into account the socio-economic context, because the stakeholders (i.e. farmers) are economic actors.

WALLONIA: CASE STUDY "IMPLEMENTATION OF MUNICIPAL DEVELOPMENT AREA" PRESENTS THE USE OF DIFFERENT TOOLS BY DIFFERENT ACTORS

		PROCESSES							
		Data collection and recording		Data validation and management		Analysis and information		Communication	
		Actors	Tools	Actors	Tools	Actors	Tools	Actors	Tools
Development project	Implementation of a municipal development area	Public administration Nature associations Specialized consulting firms	Agreements and conventions Impact assessments Regulatory provisions	Public administration Nature associations Quality control team	Dedicated data base Procedures	Dedicated working groups (adm + assoc)	GeoData Maps Lists Hab & Sp Pressures and threats	Managing departments inside administrations Consulting firms Municipalities	Management plans Protection measures Mitigation measures

The most common data needed for developing programmes and strategies are biodiversity data, for example species distribution, preferably in a spatial, GIS form, detailing conservation status, and conservation and monitoring activities conducted in the area. However, population trends and sensitivity of species are also used for long-term planning. Ecosystem Service valuation and accounting of Natural Capital is becoming more widely used to inform development planning also.

In most cases, biodiversity data is taken into account only to the extent where it is necessary and obliged by law (e.g. under SEA (*Strategic Environmental Assessment*) and AA (*Appropriate Assessment*) procedures). There is space for further improvement in this field, for example the inclusion of biodiversity data to a greater extent in policies, in particular of other sectors than the environment. Nature conservation is usually only a separated part of the strategy, a separate chapter; it is not sufficiently mainstreamed into other sections.

Close cooperation between sectors is still not a common practice. Scientists and policy makers are working separately with insufficient knowledge exchange, collaboration and common meetings. Lack of a common ground for meetings and collaboration is one of the reasons for problems to occur. In addition to that, there are no operational guidelines how to include biodiversity data into policies. Despite goodwill on both sides, there still might be difficulties to cooperate, by reason of lack of practical knowledge on facilitation and communication on both sides. Having personal relations between scientists and policy makers encourages common understanding and builds trust. Therefore, joint events should be promoted.

The comprehensive policy process which uses biodiversity data should comprise three steps:

The *first step* should be the preparation of the strategy, which should be treated as an intention or a goal to achieve in the next decades. It should include references to biodiversity data.

The *second step* would be a translation of the overall goal to the sectoral level, where nature shall be mainstreamed to all sectors.

The *third step* is the regional level which uses the most detailed biodiversity information which is necessary for making the policy operational and translated to the guidelines for territorial planning.

Often, even if national policy frameworks encourage cooperation, it is not translated to lower, regional levels. One of the reasons for this is the absence of action plans that translate the concept of the policy into concrete steps and tasks.

Communication about the benefits of including biodiversity data into policies should be translated into economic terms using ecosystem service valuation, for example. This way, it is easier to include it in other sectors, for example, speaking about health, employment safety, economic, and other benefits.

In some regions, like Catalonia for example, scientists create lobby groups to target policy makers with their messages. They have regular meetings where they discuss specific issues, creating an opportunity to convey key messages and information to decision makers.

The **Prioritization Action Framework (PAF)** is a multiannual programming tool developed by Member States for the period 2014-2020, formulating the measures needed for Natura 2000 and green infrastructure. Linked relevant EU funding at EU level: LIFE, Horizon 2020; at national level: EAFRD, ERDF, EMFF, ESF and smaller programmes: Cross-Border Cooperation, Territorial Cooperation as well as national government sources (see your national PAFs).

Summarising is based upon the lessons learned, experience and results of the period so far as well as the definition and development of PAF for the upcoming period of 2021-2027 by Member States. The discussion with the European Commission is expected in the first months of 2019.

This document was authored by the BID-REX partner University of Debrecen