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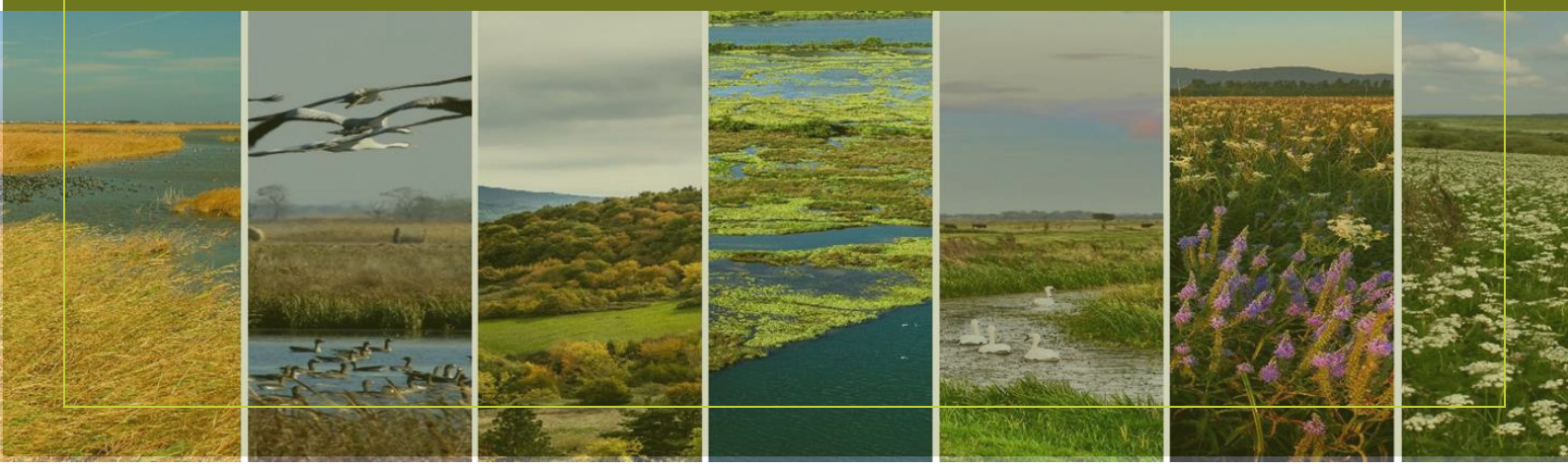
GUIDE FOR THE DESIGN OF KNOWLEDGE GENERATION PROJECTS ON BIODIVERSITY



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BID-REX - FROM BIODIVERSITY DATA TO DECISIONS: ENHANCING NATURAL VALUE THROUGH IMPROVED REGIONAL DEVELOPMENT POLICIES

This Guide is one of the actions planned to implement the fourth Focal issue of the Action Plan of the Basque Country of the Interreg Europe BID-REX project "Criteria for public financing". It aims to establish priorities in budget allocation and monitoring of the impact of actions financed by public funds to finance those actions that provide relevant information on biodiversity, ensuring that, in addition, the information produced can be reused to provide new public value.

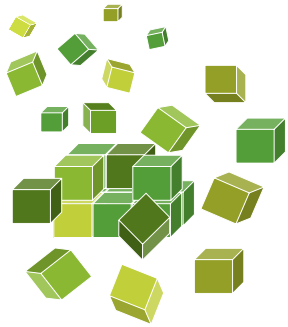
CONTENIDO

WHY A GUIDE FOR THE DESIGN OF KNOWLEDGE GENERATION PROJECTS ON BIODIVERSITY

Data is the best raw material we have available to make good decisions. Decisions that, from a shared perspective and action, allow us to conserve and promote the protection of biodiversity.

Each of us is, by default, generators and users of data, information. We are part of a system in which we share, through formal or informal flows, the information we have.

However, the data, although essential, are not enough to design better responses to protect biodiversity. ***We need knowledge, not just data***. Moreover, this implies that in addition to collecting data, we must be able to do much more:



- Integrate and manage
- Measure and record
- Describe and visualize
- Analyze and understand
- Explain and communicate
- Learn and train

In addition, if our goal is to build ***new responses and mechanisms that help us protect biodiversity***, we must collaborate. Because, to "do everything", we have to do it "among all".

As with the data, ***public institutions cannot and should not be the only stakeholders involved in this task***. All the stakeholders and people who articulate the knowledge network - citizenship, associations and non-profit organizations, universities, companies, technology centres and administrations - are part of a ***value chain that generates knowledge for decision making***. Public-private collaboration is therefore essential to protect biodiversity.

Each of us, through our work, our projects, and each one from our area of responsibility and influence, add and provide value to this system. We generate information, we build relationships, and we value the importance of

Generate shared knowledge → Build network relationships → Highlight and promote awareness

WHAT IS THE OBJECTIVE OF THIS GUIDE?

This guide has a double objective. On the one hand, we want it to be ***an instrument for the allocation of public funds for projects to generate knowledge on biodiversity***. A tool for institutions (Town Halls, Provincial Councils and Basque Government) to share a common vision and support those projects that help us make public decisions based on knowledge.

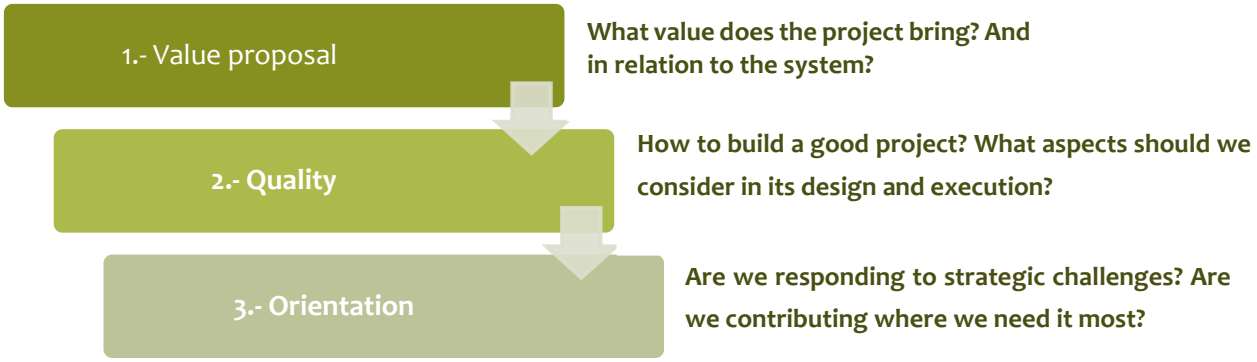
However, beyond this goal, we share a larger goal. We want this guide to serve as ***help and support to all stakeholders and people who are actively working on information projects for biodiversity conservation.*** That serves to build better projects, more oriented to the needs of Euskadi. Because regardless of the size of the projects (in resources, in times, in ambition, etc.), the goal is that, together, we add more.

We want this guide to be a tool for the stakeholders of the network of knowledge and institutions:

- To help us ***build projects with a clear value proposal, good and well-oriented projects*** that multiply the impact of our work and help us convert data into knowledge. From a common perspective and providing excellence and scientific knowledge
- That it is, ultimately, ***a useful and adaptive instrument*** that also helps us establish shared priorities, also for the allocation of funds, from a framework of action shared by all the stakeholder of the network of knowledge.

CRITERIA FOR THE DESIGN, IMPLEMENTATION AND EVALUATION OF PROJECTS

In this guide, we propose to build knowledge generation projects on biodiversity through a process with three pillars that, through questions we invite to answer, we hope will serve to define new projects or redesign existing ones:

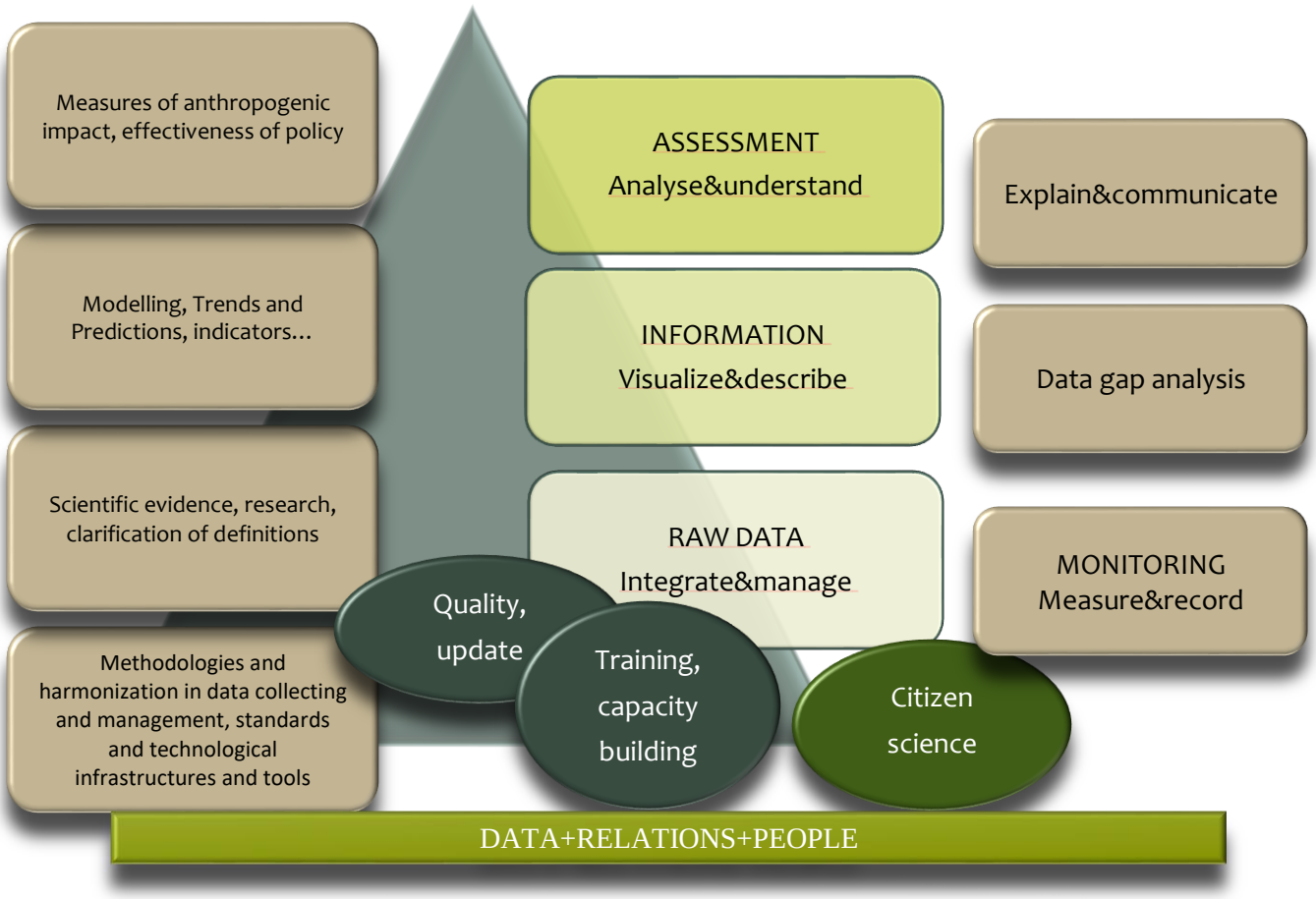


This shared reflection will in turn serve as the basis for the evaluation of the initiatives presented to obtain public funding.

1) VALUE PROPOSAL

The first question we must ask ourselves when designing our project is the following:

This implies analysing ***the value that contributes not only to our entity but also to the whole system***. For this, we must bear in mind that our goal is to start from the data to develop knowledge. This knowledge will enable us to make better decisions.



Taking this figure as a reference, we can place our projects in one of these three layers:

- ***DATA:*** we must be able to integrate and manage the raw data we produce: do we share them? Are they accessible? Standardized? Are they related to other available data?
- ***INFORMATION:*** we must convert that data into information. This implies interpreting, modelling, describing trends, making predictions based on them, designing indicators, visualizations ...
- ***EVALUATION AND UNDERSTANDING:*** we need to be able to analyse and understand that data and the impact of each of our actions. Only then will we be able to make good decisions.

Once we are sure from what dimension we are going to work, we need to define the VALUE WE PROVIDE.

It is about describing what we do the project for, and what adds to what we already have or already do. And reflect on it, being sure that we can add value both in the "what we do" and in the "how we do it".

For this, we propose the following steps:

WHAT IS THE NEED / CHALLENGE WE WANT TO FACE?

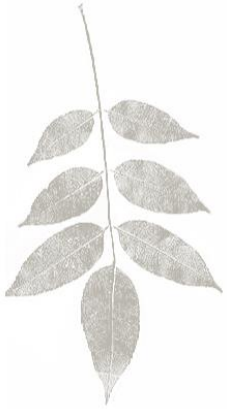
Think in terms of the whole system.

- Does it improve the monitoring of species and habitats at risk or with greater protection needs?
- Is there a gap of information or knowledge in this field?
- Does it improve the understanding of data and information already available?
- Does it produce interpretations / models / trends that help decision-making?
- Does it provide a more accurate view?

WHAT IS THE INNOVATIVE PROPOSAL / SOLUTION?

Reflect on the result and the process.

- The project seeks to produce ... data? Information? Knowledge?
- How is it different from existing solutions? Moreover, FROM what we already did?
    - Do we bring a new approach or methodology?
    - Do we produce non-existent information / knowledge?
    - Do you take as a starting point a previous project (own or foreign) and build from what is already done? Or do you part of a new starting point
- How are you going to develop the project?
    - Does it generate new relationships / collaborations between system stakeholders?
    - Does it generate a flow of information where there was none before?
    - Do we incorporate international standards?
    - Will your results be accessible?
    - *Are we going to evaluate it?*



WHAT ARE THE BENEFITS OF THE PROPOSAL?

Think to what extent the project can contribute to the answer being...

- More efficient (optimizes resources)
- Higher quality (accuracy, methodology, international standards ...)
- More accessible (reaches more people)
- Multiplier (responds to more than one need or meet more than one objective)
- Adaptable and flexible (allows transferring what has been learned to another area and / or target audience)
- Capacity and knowledge builder about biodiversity

WHO WILL BENEFIT FROM THE RESULTS OF THE PROJECT?

Think of direct and indirect beneficiaries of the project.

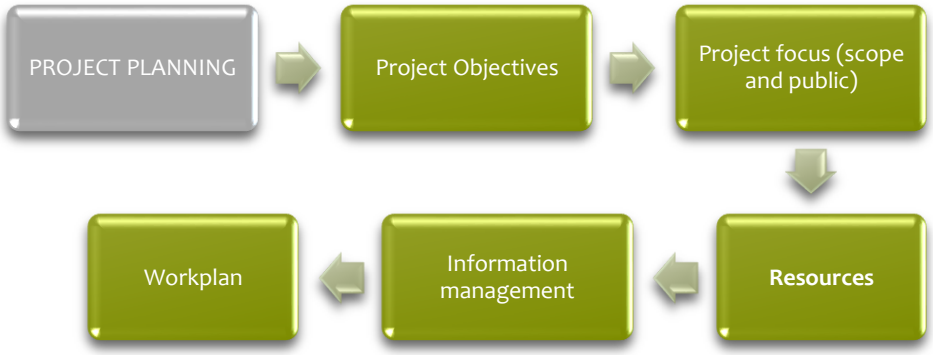
2) QUALITY OF THE PROPOSAL

Once you have defined the value proposition (what we want to contribute), the next step is how to set up a good project that allows us to realize what we want to do. A good project is one that in addition to having a ***realistic and reasoned design that allows us to evaluate*** whether we have achieved what we were looking for, ***also takes into account that once we start there are always unforeseen events.***

Biodiversity information projects are essential for the knowledge, management and protection of biodiversity. Based on these types of projects, the scientific community, environmental organizations and public authorities can plan and assess biodiversity in a given territory, identify medium and long-term trends, establish early warning management systems and assess the impact of human activity in ecosystems.

Biodiversity information projects are a necessary basis for decision making, so they must be well-planned and well-founded projects. Planning does not have to be pretentious, but effective.

ELEMENTS FOR GOOD PLANNING



1. Starting from the value proposition identified in the previous section, the first step is to ask about ***THE MAIN OBJECTIVE OF THE PROJECT***. The objective allows us to define the future state we want to reach through the project.

A simple way to know if we have defined well the main objective of our project is to use the SMART technique. It is about analysing whether the objective we have set for the project meets the following characteristics:

SPECIFIC	*An objective has to be specific enough so that we know what we want to do and we can assess at the end of the project whether we want to obtain it or not. For example, objectives such as "improving the information available on X" or "developing simple visualizations about Y" would not be objectives specific enough to be able to assess their achievement (or not) through our project. Concrete as much as possible.*
MEASURABLE	*A good objective should allow us to measure whether or not we are approaching that new state. Sometimes it will be easy to quantify it (move from one number to another, increase or decrease by a certain percentage, do something for the first time, perform a specific number of actions ...), but sometimes not so much (when we measure behavioural changes, impact on the awareness…). Even so, we must find a way that approximates us to measure what we do.*
ASSIGNABLE	*It is about thinking in an ambitious way, but without going over. A good definition of objectives leads us to weigh the effort and the cost necessary to achieve it, what we have and what we need to achieve it, whose collaboration we need… It is about reflecting on what means we will put into the project to make it happen. For example, verb forms are often used in gerund (offering, investing ...) or expressions such as "to be able to ..." "through ..." in the definition of objectives.*
REALISTIC	*The objective of the project should provide us with information on why it is important to develop it. The relevance of an objective refers to the potential interest for your target audience (how your project helps you) or for your organization (in what adds to your role as a biodiversity stakeholder).*

TIME-RELATED	*Finally, a well-defined objective has to be defined taking into account how much time we have to achieve it. It must be based on a realistic and reasonable calculation between what you want to achieve and the time needed for it.*

2. It is also important to determine exactly what the ***FOCUS OF THE PROJECT*** will be.

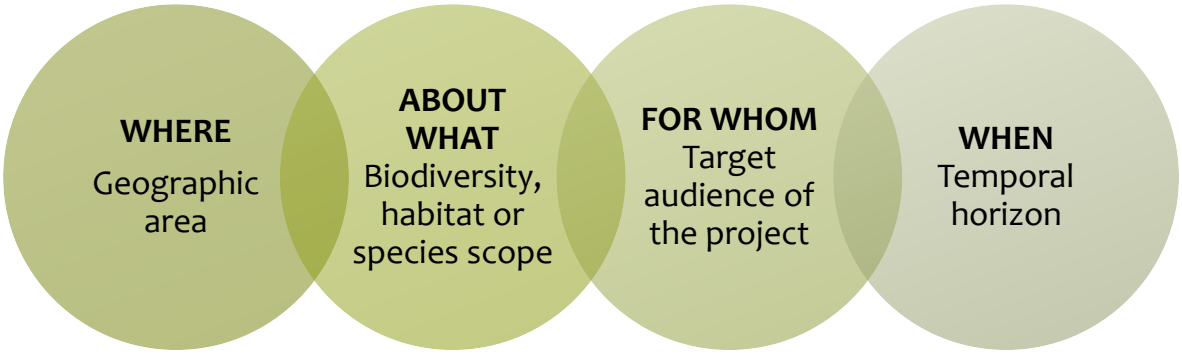
The ***focus of the project involves*** determining, first, if we are going to work on:

- a specific geographical area and / or
- a series of species and / or specific biodiversity scope

We must also define what the ***time horizon*** will be: if you are going to carry out a specific activity at one time of the year or another, or if follow-up mechanisms are proposed over time and how often.

Finally, it is advisable to define the ***target audience*** of the project to identify the actions.

- The needs for information, collection, data quality, as well as its visualization depend largely on the target audience to which the project refers.
- A project aimed at the management of a protected area, for example, must serve different audiences, while a project based on citizen science can respond to broader public.
- Since resources are limited, it is important to determine who will be the final beneficiary or beneficiaries of the project and how the information collected will be transmitted and communicated



3. Once you have defined the main objective and focus of the project, it is time to think about the ***RESOURCES*** available for the development of the project.

It is about analysing what resources we have and which ones we can obtain (through collaborations, for example). Understanding that ***a resource is everything we need to organize and materialize the project*** that we have proposed. The resources can be:

ECONOMIC RESOURCES
Own or third party funds that you can use for the project.

PROCESS RESOURCES
Methodologies, techniques or software that we will need throughout the project.

RELATIONS
All the social capital of our organization: partners, collaborators, social mass, customers, suppliers ... that can nurture us in the process.

SPACES
Facilities or places necessary to develop our activity.

EQUIPMENT
Instruments, devices and materials to perform a task.

PEOPLE / HUMAN CAPITAL
According to the size of the necessary equipment (how many people we need to involve and at what time), but also to the knowledge or know-how we need to add (qualification or profile).

4. Also, in the project planning phase, it is important to reflect on how we are going to ***MANAGE THE INFORMATION*** that we generate throughout the process

In a project on biodiversity information, it is inevitable that new information will be generated (data, reports, evaluations, etc.). If the shared objective is how to make this information useful in decision-making, we must share it so that it is a source of knowledge. It is something that must be a major factor in the planning: how are you going to manage the information generated, both internally and externally (in terms of dissemination or awareness).

The first aspect to consider is the ***DIGITALIZATION OF INFORMATION***. Digitalization is a requirement today, so we must anticipate what formats and standards to work to have a good starting point. It is also important to choose well the application or software that we will use to manage the data (processes of collection, treatment and distribution of information on biodiversity).

On the other hand, it is also interesting to determine if ***THE INFORMATION WILL CONTAIN IMAGES, SOUND OR VIDEO***. Because the use of multimedia can enrich the information, but complicate its subsequent treatment.

It will also be necessary to determine the ***TECHNICAL OR TECHNOLOGICAL INFRASTRUCTURE NEEDED FOR THE COLLECTION AND DIGITALIZATION PROCESS***.

Working in a network implies, by default, working in formats and processes that are understood by each other, so the platforms we use must guarantee compatibility with the Nature Information System of the Basque Country.

Regarding the management of information at the external level, it is always convenient to think about what new uses can be derived from the more technical or specialist information that we generate. The simplification of language and the summary of main contents (focusing on the challenge and the contribution of the project in the conservation of biodiversity) are keys that serve as the basis for any dissemination product. Good information management, linked to awareness actions, can also help us add new people to the project.

5. Once we have reflected on all of the above, it is time to work on a ***WORK PLAN***.

A work plan is nothing more than a scheme in which we collect the tasks that we will perform in the framework of the project, and indicate when and who will perform them.

To do this we must collect:

WHAT	• the actions / tasks that we are going to perform
WHEN	• the start and end moments of each job
WHO	• the person or team responsible for making each task happen and who they should involve
HOW	• the process that we will follow in each action (methodology, place, channels ...)
IMPACT	• what is the result (deliverable) of each task to consider that it has been performed (or not)

In addition, in an information project on biodiversity, we must pay special attention to all those tasks that have a direct impact on information management. For example:

• ***The use or not of databases***, based on their commercial nature, open source, operability and compatibility with repositories and global networks, etc.

• ***The work process***, including the flow of information from the collection of information, the checking of the quality of the information, the taking or not of images, the ordering and processing of the information, and the structured storage and conservation of it.

• ***Existing risks***, including backup strategies or other incidents that hinder or prevent the development of the project.

Once we have prepared the work plan, it is important to review it.

Does it respond to the objective we had set? Is it well focused? Do we have enough resources? Have we clearly determined who, when and what we will do? Adjust and rewrite all that is necessary!

ONE STEP BEYOND PLANNING - EXECUTION AND EVALUATION

Once we have planned the project, and when we enter its execution phase, everything can change. A good design will help us to have a good starting point, but we have to be aware that projects are rarely developed as planned.

Therefore, it is important to anticipate what the risks or obstacles may be and to reflect (without pressure and without haste) on the possible solutions that we could implement if they happened. The ***RISK CONTROL*** associated with the projects also allows us to understand in advance what points are critical and which are not. Not all the phases we plan or all the results of the project will have the same importance in the final objective.

It is important that we work on answers to possible problems in those actions that we must carry out. For example, one of the most common (and foreseeable) risks in projects is not to have the participation of a partner who had confirmed their collaboration in it. Suppose entity X committed before the presentation of the project to collaborate, but now it indicates that it cannot do so due to lack of time.

A good risk management would lead us to answer these questions before it happens, and to develop the most valid or possible option at the moment, gaining time and efficiency. These are some of the questions we could ask ourselves:

- Is the participation of this entity essential? Alternatively, can we take on their tasks without affecting the outcome?
- Is it replaceable? Do we know any other entity that can make a contribution of similar value? Could we contact that entity in an agile way? Who can help us?
- If we need the collaboration of that entity (and not another), can we do something to participate? If the reason they claim is lack of time, can we reduce the involvement of that partner in the project? Alternatively, what will happen if you add a new collaborator to support its tasks?

Another critical aspect is the ***EVALUATION***.

- ***What we have obtained and what not***. The more concrete we are defining what the result of each action is (deliverable, indicator ...) the easier it will be to know if we are deviating and if we are getting what we were looking for. It is also important to collect what we have not done and why, because it is not always a bad sign: it may be due to bad

management of time or risks, but it may also be that a planned action was not necessary to obtain the result or that two tasks have come together in one.

It will also be interesting to analyse whether the project has contributed directly or indirectly to improve decision-making in a specific area of biodiversity conservation.

- ***How we have obtained it***. It is always important to think and ask (through evaluation questionnaires or meeting with the people or entities that have the answer) if the project has helped us to:
  - Develop or strengthen skills and knowledge in the work team.
  - Generate new relationships, contacts or alliances.
  - Improve our positioning.
  - Incorporate transversal elements: technological, use and management of languages, gender equality, territoriality ...
  - Develop an informative work of the impact on biodiversity of a general action.
- Finally, it is always interesting to reflect on what differential contribution we have made with our project. ***There may be different solutions***, at the local, state or international level, and it is interesting to analyse:
  - What can we learn from them to improve our project.
  - Moreover, what characteristics have our project that make it different and unique comparing with the projects of other entities.

3) STRATEGIC ORIENTATION

How do we align efforts among all stakeholders and allow a better-integrated understanding of biodiversity?

As stated in the Action Plan, moving towards a common and shared approach implies assuming a more active role and a co-responsibility framework. This means that ***beyond the objectives of our organization and project, we are part of a system to which we must feed with knowledge*** to improve decision-making.

In this strategic construction process, we have taken as a starting point ***the criteria prioritized in the GBIO framework, which offer an opportunity to align efforts among all stakeholders and thus allow an integrated understanding of biodiversity***. The GBIO framework identifies ***four main focal areas***, each with a number of basic components, to help coordinate efforts and funds.

Likewise, to incorporate it into the guide, it has been considered necessary to incorporate ***a fourth dimension, that of decision-making that allows us to establish an integrated monitoring, evaluation and information framework on the state of execution of policies*** that contribute to stop the deterioration of nature, loss of biodiversity and degradation of ecosystem services.

Using this framework in Euskadi, completing it and adapting it to the local needs of Euskadi, allows us ***greater coordination and integration with existing initiatives*** (from local to global).

Culture

- Open and collaborative management of data
- Data Standards
- Policy incentives for data exchange
- Long term storage and archival

Data

- Mobilize data from all sources
- Data is collected once and reused
- All types of data sources (field surveys and observations, sequences and genomes, collections, automated remote-sensed)

Evidences

- Tools to convert data into evidence
- Collaboration to improve quality and fitness-for-use
- Taxonomic framework
- Aggregated species data (traits, interactions, ...)

Undestanding

- of biodiversity and our impacts on it
- Apply evidence in models and visualization tools
- Identify gaps to prioritize new data capture

Decision making

- Improve the results of public policies
- Stop biodiversity loss by applying the best available knowledge

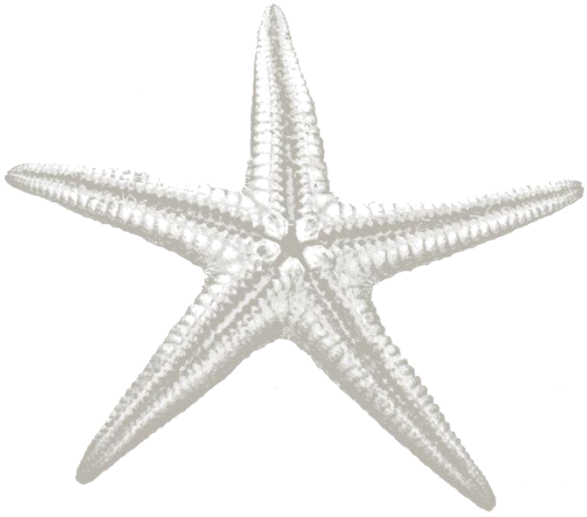
Working on this starting point, its prioritization and translation to the local reality with the collaboration of the different entities and people who have participated in the participatory workshops, has allowed us to identify some of the challenges on which we have to act as a system.

Each project and action that seeks to conserve biodiversity in Euskadi, through a more effective and information-oriented management, must try to make a unique and own contribution to what we have identified as a shared challenge. Beyond the value of each project, we must be able to provide value in what the whole needs.

HOWEVER, WHAT ARE THESE CHALLENGES ON WHICH TO GUIDE OUR ACTION?

Training, as the keystone of the system.

We need to be able to multiply our abilities and knowledge. This implies that projects must generate spaces so that people and entities can transfer and share knowledge. It also involves identifying with which stakeholders or people (with what knowledge) we need to connect and collaborate. The projects can also involve people of different profiles: researcher, expert, citizen ... We must generate itineraries that allow the growth and development of new capabilities. Moreover, move towards a distributed validation system based on recognition and legitimization of the knowledge and capabilities of the stakeholders of the network.



The Action Plan identified a good practice that we can take as a strategic reference:

FSC Field Studies Council: Bringing Environmental Understanding to All

Field Studies Council, FSC, is an environmental education charity providing informative and enjoyable opportunities for people of all ages and abilities to discover, explore, and understand the environment.

BioLinks is a project for FSC to facilitate the development of volunteers to a high competency level in the identification and recording of a selected range of difficult-to-identify and data-deficient species groups. BioLinks Learning Pathway has been designed to provide a clear outline of how the project activities will enable development of volunteer participants in four key competencies: Knowledge, Skills, Motivation and Confidence. It is a tool for volunteers to use to assess their competency level and determine which activities are suitable for them as individuals.

Openness, reuse and transparency, as working principles

To move towards evidence-based decision-making, it is necessary to convert data into information and knowledge. This implies working openly, reusing what already exists and moving forward in everything that involve an improvement in the understanding of information: trends, predictions, context, visualizations...

More specifically, and in relation to the data, projects should incorporate measures in this line:

- Maintain an open data policy that meets the criteria for availability, access, reuse and redistribution.
    - Using internationally recognized standards in the use and collection of data
    - Publishing the results in an accessible or indexed way.
    - Including the use of information in a way that allows automated processing
    - Including tools and processes for collecting information in the field for its dump and automated use
    - Providing a standardized, transparent and public mechanism for reviewing data records.
    - Detecting gaps in existing data on biodiversity and improve the integrity of historical series.
    - Adapting the collection and processing of multimedia and unstructured information, in accordance with international standards.
- Promote actions to improve the understanding of information on biodiversity:
    - Including dynamic data visualization tools with the objective of improving the understanding of biodiversity.
    - Promoting the use of data for predictive models and trend analysis.
    - Including surveillance and monitoring systems to generate early alerts.
- Contribute to the feeding of global biodiversity information networks

Collaborate with different actors, as a way to enrich the projects

Networking and the generation of new alliances allow us to incorporate complementary skills and knowledge to the project and our usual activity to those we already have.

The incorporation of new perceptions and perspectives, techniques and work processes will help us maximize the value of the information we generate and contribute value to the public policy cycle (information as the basis for decision-making).

Likewise, collaboration with stakeholders and people from other disciplines or fields of knowledge has positive impacts on:

In this sense, projects must take steps to:

- Incorporate a transversal view through the involvement of non-specialized sectors in biodiversity.
- Contemplate communication and feedback mechanisms with the units and decision makers of public policies.

Strengthen the social basis, promoting actions that allow the participation of citizens in the conservation of biodiversity

One of the great challenges identified by the stakeholders who have participated in the different workshops has been how to strengthen the social basis and guarantee the transfer of knowledge and experience motivated by the necessary generational replacement.

To promote citizen participation in projects it is important:

- Recognize the value of that participation - what results are possible thanks to it and what role it plays in the project in general
- Try to involve local stakeholders to promote contextualized participation in which the community closest to the challenge we want to address feels challenged in the search for the solution
- Facilitate access to project information, which implies adapting the language we use to communicate and develop specific materials that explain the whys and wherefores of participation.

In this sense, it is interesting to reflect on whether:

- The project is based on citizen science / crowdsourcing initiatives through tools such as those described in this guide.

- The project promotes citizen science approaches to monitor biodiversity and generate new data.
- The project contemplates the intergenerational relationship and addresses actions in which people of different ages participate.
- The project collaborates with local entities for its implementation and development.
- The project generates new materials that promote public outreach and communication (before, during and after).

The potential of each project to generate the change we need is limited. However, many few add up a lot. If we direct our action towards this framework that we have built in collaboration, we will be closer to achieving our goal.