



“COOKBOOK” SERIES N^o 6

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Green Infrastructure social friction & opportunity analysis



Photo: Monika Suškevičs, stakeholder meeting at Harku case study site, Estonia.

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Foreword

Often the methodological side in (applied) biodiversity projects remains unelaborated as “tacit” expert knowledge after the projects end, is scattered across different guidelines, or is mostly elaborated in the method’s sections in respective scientific publications. This might hinder effective use of such knowledge and experiences.

The IMAGINE “cookbooks” is a series of guidelines intended to provide guidelines and support for scientists and practitioners working on Green Infrastructure issues. Our intention with this series is to make such methodological knowledge (“how to?”) more readily available for two main potential user groups:

- other scientists working on Green Infrastructure ecological or socio-political aspects;
- national, regional or local policy-makers and GI managers, who need some advice on practical aspects of GI governance.

This series consists of nine guidelines, with the following topical focuses for:

1. Evaluating ecosystem services capacity
2. Assessing GI vulnerability to ecosystem degradation at the landscape scale
3. Assessing detailed GI habitat quality for biodiversity and ecosystem services
4. GI management for ecosystem services
5. Analysing coherence between different policies affecting GI
- 6. Analysing GI stakeholders, social frictions and opportunities (this cookbook)**
7. Adaptive planning tools for the allocation of GI
8. Quantifying GI structure and connectivity in GI elements
9. Defining and evaluating ecosystem condition

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List of Abbreviations

ES	Ecosystem services
EDS	Ecosystem disservices
GI	Green infrastructure
SA	Stakeholder analysis

1. Background and objective of the cookbook

Green infrastructure (GI) are often complicated to implement due to its socio-institutional and bio-physical complexity. The purpose of this cookbook is to assist researchers and/or practitioners in getting a better understanding in the stakeholder landscape of GI, to identify potential or actual friction points between stakeholders, and to explore potential solutions. The expectation is that with such analysis in early stages of GI development, 1) practitioners can anticipate possible conflicts and avoid unnecessary delays in GI development, and 2) researchers can increase the relevance of their research by focussing at the social issues at stake. In general, we propose a three-stage process: i) Social context analysis (section 2), ii) Stakeholder analysis (SA) of GI challenge (section 3), and iii) GI social friction and opportunity analysis (section 4).

2. Social context analysis of Green Infrastructure

As a preparatory step, we recommend to identify and formulate the purpose of the GI (or “GI challenge”) and the building blocks (elements) and functions of the GI.

Formulation of the **Green Infrastructure challenge**: During this step the major problem/opportunity that GI will address is formulated. The challenge can be related with one major problem (e.g. water pollution), one major opportunity (e.g. corridor between 2 protected areas), or how different expected/desired functions of the GI can be combined in a sustainable and social acceptable way. Formulating this challenge should be best done together with GI project managers and the local key stakeholders. The latter step is important to certify that the GI challenge is really a major concern for the key stakeholders and to ensure that it is accurately described.

In a next step, the **GI elements and functions** will be formulated:

- The relevant *GI elements*: These are the biophysical structures, which are relevant/essential for the identified GI challenge. The wording of the GI elements should be understandable for local stakeholders. This could include for example: hedgerows, forest patches, trails, streams, agricultural fields, green roofs, etc.
- The *societal functions of the GI*: These are GI functions that society/stakeholders find relevant in relation to the GI challenge. These can include biodiversity conservation goals, desired ecosystem services (ES), ecosystem disservices (EDS), and possibly other functions. In addition, here it is best to start from a list of functions that are perceived relevant by local stakeholders. This list could be expanded – in consultation with other local stakeholders - with additional functions which are considered relevant for higher level policy. Finally, functions suggested by researchers can also be integrated (e.g. less visible ES such as groundwater maintenance, or air quality regulation).

Important is that the GI elements and GI functions are at least validated with at least 3 key informants (preferably more), who have a helicopter view on the focussed GI. This could be planners of municipality, land-use planning and/or sectorial representatives.

Once the GI social context is formulated and validated, then the next steps of the analysis can be conducted:

- ❖ Stakeholder analysis (SA) of GI challenge (Section 3).
- ❖ GI social friction and opportunity analysis (Section 4).

3. Stakeholder analysis (SA) of the GI challenge

3.1. What are stakeholders?

In the context of GI **stakeholders** are **defined** as “*all who (can) affect and/or are affected by the ecosystem (dis)services provided of green infrastructure*”. This may include local and/or (inter)national government agencies, businesses and industries, local communities, citizens, landowners and land managers, professional lobby groups, NGOs/civil society organisations, researchers, etc.

3.2. What is stakeholder analysis?

Stakeholder analysis of the GI challenge is a **process** that identifies:

- i) the stakeholders who are related to the GI challenge (“affected by” or “can affect”), and
- ii) how these stakeholders are related to the GI challenge.

(modified from Reed *et al.* 2009)

3.3. Objective of the stakeholder analysis

The aim of the stakeholder analysis of the GI challenge is to identify and characterize the present involved stakeholders in relation to the GI challenge. It will provide a solid social basis for planning GI project development activities and/or research activities. As such, stakeholder analysis has to be considered as an intermediate, but essential step.

3.4. How to conduct a GI stakeholder analysis?

There are several ways on how to conduct a stakeholder analysis. This document will present a pragmatic method to get an overview of stakeholders and their positions in relation to the GI challenge for each case study. The ‘BiodivERsA Stakeholder Engagement Handbook’ is used as a starting point of this guideline (Durham *et al.* 2014). For additional background information, this handbook can be consulted or downloaded [here](#).

Summary stakeholder analysis:

- Who? Key informants (4-7) with relevant and different backgrounds.
- How? Group discussion (Figure 1).
- Required resources: 1 facilitator, 1 note taker, map of the local GI, ppt/sheets explaining predefined GI challenge/elements/functions (see Section 2), coloured cards (or rectangular post-its), markers, a wall/table where you can hang the stakeholder cards.
- Estimated duration: 2 – 3 hrs

Preparation

The results of a stakeholder analysis rely on the key informants who participate in the exercise. Thus, applying triangulation when identifying stakeholders is an important element. In doing so, you try to **minimize possible biases** by inviting **key informants** who have a helicopter view (e.g. project managers, municipality staff, NGO coordinator, local ‘champions’) with different backgrounds (e.g. agriculture, forestry, planning department, etc.), by creating an atmosphere of trust, by stimulating a respectful discussion among the key informants, and by asking the key informants to explain their perspectives. The invited key informants do not need to do any preparations before the workshop. They just have to bring their own expertise.

The identified key informants will be invited for a **group discussion**. It is important to start with a **general introduction**: introduction of all participants, the GI challenge, aim of the GI project, the objective of the workshop, and explain why the participants were selected as key informants.

It is also important to emphasize the **confidentiality** of the collected information. Concrete, this means that only the overall results will become available via a report (no reference will be made to who has said what), and only the participating organisations/stakeholders will be mentioned (no individual names will be mentioned). In any case, as confidential information might surface during the discussions, it is good to make clear agreements about what will be (and will not be) mentioned in the report. In addition, the quality of the results is very likely to become better when there is an open, informal atmosphere, and when there is mutual trust between the participants and facilitator(s).

Under your facilitation, they will conduct the stakeholder analysis. It is good if a **consensus** is reached, but this is **not essential**. If there are contrasting opinions regarding the questions to be addressed, please note them down in the template.

All the information required by a MS Excel template “**Stakeholder frictions analysis**” (see **Appendix 1**) will be collected. It is **not recommended to work directly in the Excel template** during the group discussion, because this is not very visible attractive, as it limits participation, and as it gives proportional much more power to the one is actual typing.



Figure 1. Stakeholder analysis in action (Photo: Francis Turkelboom).

Step 1 - Validation of the GI challenge (see Appendix 1, sheet 1)

The two introductory GI **questions** (Q1 & Q2) are meant to ensure that the key informants get familiar with the selected GI case study area and the case study GI challenge. At the same time, it is an opportunity to find out whether they have similar or contrasting views on the proposed local GI and GI challenge. These are open questions aimed at stimulating a discussion among key informants. Therefore, take your time and be patient to hear all opinions. It is a plenary discussion, where one person facilitates and one person takes notes.

Symbol legend:

- The bullets represent different steps in the workshop.
- Q: These are formal questions that need to be reported in the Excel sheet.
- ➔ Arrows give some more detailed explanation of the question.

- Introduction of the GI area (preferably with a map which is easy to understand, possibly supported by pictures).

Q1. Do you recognize the demarcated area as a relevant green infrastructure (GI)? If not, why?

- The proposed GI challenge (as developed in the preparatory stage) incl. the GI elements and societal functions is presented (see section 2). These GI functions and elements are defined beforehand by key informants with a good local knowledge of the case study area, and are also formulated in words and language which is easy understandable for local stakeholders. This list is presented and explained to the participants (via ppt or poster with pictures and an oral explanation). At the end, you show an overview of the GI functions and elements on one slide/poster. The participants are asked if they agree with its formulation and focus. If participants have suggestions, they are discussed and decision about possible changes is made in group.

Q2. Do you find the proposed GI challenge relevant? Can you sharpen the formulation of the GI challenge?

Q3. Do we miss important societal functions which are related with the GI challenge?

Q4. Do we miss important GI elements which are related to the GI challenge?

Note down the additional GI functions/elements. Ask if the group agree about the suggested additions, and note down the reasons why they are important as well (and perhaps why they were not yet mentioned?). The consolidated list will be used in the next step.

Step 2 - Stakeholder identification (see Appendix 1, sheet 2)

Q5. What are the relevant stakeholders related to the GI challenge?

- Every key informant is asked to individually identify relevant stakeholders from their perspective and write them down on post-its (one stakeholder per post-it). It is important to ensure that all relevant stakeholders are considered. However, stakeholders with a very limited and/or very indirect 'stake' can be left out to avoid unnecessarily long stakeholder lists.
- You consolidate all the suggestions in one stakeholder list (Q5). A suitable way is to do 'rounds': you ask the first key informant to suggest one stakeholder, and ask to the others if they have the same (or very similar) stakeholder(s). In doing so all similar post-its can then be clustered. It is important that the other key informants agree that the proposed stakeholder is relevant to the GI challenge.
- In order to keep the workshop manageable (esp. the scoring during the stakeholder analysis – step 3 below), you should try not go beyond 30 identified stakeholders. If there are more, you have 2 options: you can ask to group stakeholders with very similar stakes (in relation to the GI challenge), and/or ask if the GI challenge is formulated too broad?
- Each time a stakeholder has been identified, you ask what 'stake' is of the stakeholder in relation to the GI challenge (Q6 – this refers to their interest and/or use of the GI). Then you continue to the next participant to propose another stakeholder, and do the same process, until all relevant stakeholders have been identified.
 - In the Excel sheet, first put the original name (as mentioned by the key informants) on their post-it, and then add the English translation of the stakeholder name + short description (unless official name is self-explanatory) in column C.
 - Classify each stakeholder within the stakeholder typology (for comparison between case studies). This can happen after the group discussion:

- **Local and regional government agencies** (with a territorial mandate), such as municipality, province, national government.
- **Sector-focussed government agencies**, such as spatial planning organisation, park authority, tourism promotion agency).
- **NGOs, unions** (e.g. farmers' union, land-owners' union) **and CBOs** (community-based organisations).
- **Companies**: Private companies which are using resources and/or services produced in the GI, OR, who are affecting resources and/or services of the GI.
- **Land-users/managers**: These are land-occupying and land-managing land-users - e.g. farmers and foresters.
- **Citizens and local communities**.
- **Recreationists and tourists**.
- **Research organisations**.
- **Other categories** can be made if the above categories are not applicable.

Q6. What is the 'stake' of each stakeholder in relation to the GI challenge?

→ Why is the GI important for the stakeholder? This could refer to use or non-use.

Step 3 - Stakeholder analysis (see Appendix 1, sheet 2)

- Now the actual stakeholder analysis can start (Q8 -> Q11). Four stakeholder characteristics will be assessed for all the identified stakeholders. This will be done by group scoring. This means that the key informants ideally agree about a certain score for a certain stakeholder (if there are disagreements, please note down).
- To facilitate this scoring, it is suggested that you do this on a flip-over, on a wall or on a table, where a criterion and the 5 possible scores (e.g. -2 to +2) are written down on the X axis (1 page per criterion). The group scoring process is about agreeing where a stakeholder post-it should be placed along the axis with the 5 possible scores. The advantage of scoring via the post-its, is that the scores can be easily moved. Always ask the reason(s) for give a specific score. When you finished one criterion, you ask the key informants to compare the relative position of the scores of the different stakeholders. This can result in still reshuffling some of the stakeholder scores. Then you move on to the next criteria.
- One practical way of scoring the 4 criteria is as follows: You start with the 'interest criteria' (Q8) on an X-axis, and then add the 'influence criteria' (Q9) as a Y axis. In a following step, 'experienced impact' (Q10) and 'dependence' (Q11) can be scored and noted down on the individual stakeholder post-its. However, at least as important as the score is to elucidate the reasons for the score.

Q8. Interest of the stakeholder in the GI (Score: 0->4)

→ To which extent is the stakeholder interested in the state/quality/condition of the GI.

Q9. Influence of the stakeholder on decision making related to the GI challenge (Score: 0->4)

→ Estimation of the influence a stakeholder group has on the decision making related to the GI challenge (Q2). This is an indication of their 'power' in relation to the GI challenge.

Q10. Experienced impact of the GI challenge on the stakeholder well-being/welfare (Score: -2->+2)

→ The key informants are asked to score the actual impact of the GI challenge on the respective stakeholders' welfare and/or well-being. This can range from very positive, neutral to very negative.

Q11. Dependence of the stakeholder to the GI (Score: 0->4)

→ To which extent is the stakeholder dependent on the GI for his welfare and/or well-being. For example: a farmer whose farm is located within the perimeter of the GI is totally dependent; whereas locals who use the GI only for leisure have a medium to low dependency to the GI.

- At the end of the discussion, an open question is asked about which stakeholders have similar interests (Q12) and which stakeholders have conflicting interests (Q13). Also here enquire about the reasons.

Q12. Which stakeholders have similar interests in relation to the GI challenge, and why?

Q13. Which stakeholders have competing interests in relation to the GI challenge, and why?

3.5. Optional: Further analysis of the SA results to help further GI planning and/or research

A **stakeholder matrix** can be made based on a combination of 2 of the 4 stakeholder criteria mentioned above (i.e. interest, influence, experienced impact, dependence). Consequently, 6 different matrices are possible. Depending on the local GI context, you can design those matrices, which are most relevant for managers and/or for research activities.

Example: Stakeholders can be mapped according to their interest (Q8) and influence (Q9) in the GI (**Figure 2**). This stakeholder matrix is useful for local project managers how to engage stakeholders in future project process activities. Each of the 4 quadrants proposes another involvement strategy: involve, collaborate, inform and consult. **Figure 3** provides more information on these categories. For example, such matrix enables to identify those groups or persons with whom it is necessary to closely collaborate, due to their high potential interest in project outcomes but also due to their high potential influence on GI-related topics in the GI. It is up to the local project managers to decide how many stakeholders they want to include and how inclusive they want to work. However, higher levels of inclusion results in a lot of advantages (see BiodivERSa guidelines). For researchers, the matrix can help to select stakeholders for workshops, reviews, survey invitations, but also for the analysis and interpretation of results and findings.

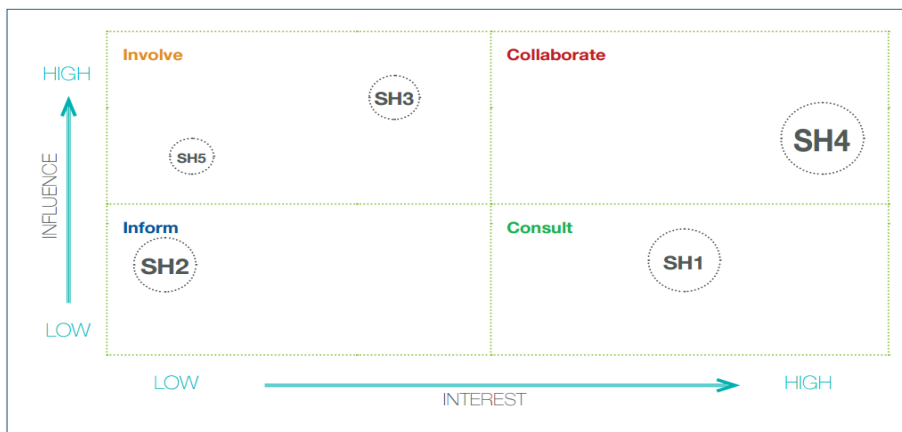


Figure 2. An example of an interest-influence matrix (Source: Durham et al: 43).

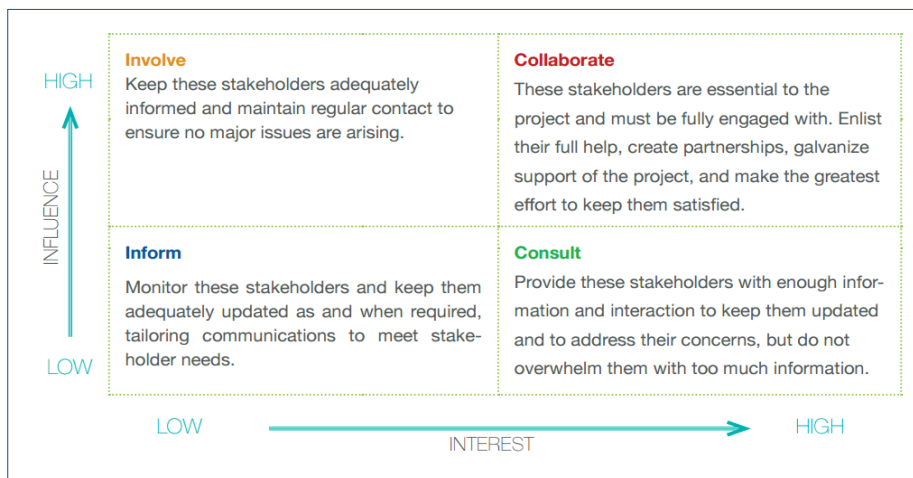


Figure 3. Levels of engagement in function of interest and influence (Source: Durham et al 2014: 42).

Furthermore, the typology of stakeholders (column D to M in the Excel file, see Appendix) is also important information. Each of these stakeholder categories (government, NGO, etc.) usually hold different types of knowledge.

4. GI social friction and opportunity analysis

4.1. What are ‘social friction points of GI’?

‘Social friction points of GI’ are defined as important disagreements between stakeholders about the desirability of GI elements (e.g. hedgerows are desired by nature protection NGO’s, while farmers want hedgerows to be removed in order to easy operate in their fields with large tractors) and GI functions (e.g. hedgerow for bioenergy production versus hedgerow for biodiversity conservation). These friction points provide an indication about present or potential future conflicts between different stakeholder groups.

4.2. What is the objective of the social friction and opportunity analysis of GI?

The objective of this analysis is to detect entry points in order to address the overarching GI challenge. The social friction points give an indication where exactly stakeholders are most concerned about, and where there are potential opportunities for win-wins.

4.3. How to conduct a social friction and opportunity analysis?

Summary social friction and opportunity analysis:

- Who? People from different relevant stakeholder groups (10-30) identified beforehand during the SA. They will be called ‘participants’ in below text.
- How? Workshop including individual scoring and group deliberation.
- Required resources: Sufficient facilitators (5-8 participants for one facilitator), note takers, map of the local GI, ppt/scoring sheets explaining predefined GI Challenge/functions/elements, social valuation Excel tools (see Appendices), predefined small discussion groups (with mixed participants), large paper with the 7 desirability scores (-3 to +3), large paper to list the social friction points, a wall/table where you can hang the large paper, rectangular post-its, markers, small coloured stickers (red, yellow, blue).
- Estimated duration: 4-5 hrs

Preparation

Same as for the stakeholder analysis. Representatives of the stakeholder groups are invited for this workshop. The stakeholder analysis figure (**Figure 3**) can help to select the stakeholders to be invited: people from stakeholder groups of the ‘collaborate’ quadrant (high interest and high influence) should certainly be invited, but it is also important to invite representatives of the ‘involve’ and ‘consult’ quadrants. The number of participants can vary between 10 and 30, but make sure that there is a good balance between the different stakeholder groups.

You can motivate people to participate by mentioning that: 1) they are invited as expert related to the GI challenge, 2) the workshop will focus on their concerns and needs, and 3) the responsible people that manage the GI will take the outcomes of the workshop seriously (of course, this need to be agreed

beforehand with them...). The invited participants do not need to do any preparations before the workshop; they just have to bring their own expertise.

What to do if invited people do not show up? It depends on the other people who do participate in the workshop. If you can reasonably assume that the opinion of the absentee(s) is/are reasonably represented by other participants, then you can leave it as it is (just note down their absence in the workshop report). However, if this assumption cannot be made, then there are two options:

- Before the workshop: Ask the absentee to fill in the desirability scores beforehand (so they can be included in the 'Social valuation Excel tool', see Appendices 2 and 3).
- After the workshop: It is recommended that you contact the absentee personally and ask for a short interview/feedback moment. During this interview you will try to detect if there are other important ideas which were not covered during the workshop. They can be added to the workshop report (but clearly show that these opinions were collected later).

Step 1 - Validation of the predefined GI functions and GI elements (see Stakeholder frictions analysis tool, Appendix 1, sheet 1)

Similar as during the stakeholder analysis, the GI challenge, GI functions and GI elements are explained (preferably via ppt/poster with pictures and an oral explanation). At the end you show an overview of the GI functions and elements (projected or on poster), and ask the following questions:

Q3. Do we miss important societal functions which are related to the GI challenge?

Q4. Do we miss important GI elements which are related to the GI challenge?

Note down the additional GI functions/elements. Ask if the group agree about the suggested additions, and note down the reasons why they are important as well (and perhaps why they were not yet mentioned before?). The consolidated list will be used in the next step.

Step 2 - Individual social valuation of GI elements and societal functions (Social valuation Excel tools, Appendices 2 and 3)

Social valuation (or non-monetary) valuation of GI elements and societal-desired functions aims to assess how stakeholders value these aspects of the local GI. No monetary metric is used, but relative preferences of functions and elements are elucidated via scoring. The objective of social valuation of GI is to get a better understanding on the diversity of stakeholders' opinions regarding the desirability of GI functions and GI elements. Desirability refers to the medium-near future (10-15 years from now).

First, all participants are requested to **score individually** on an A4 paper (or digitally) the desirability of all the GI functions and GI elements (with possibility to add more GI functions and/or elements if agreed in the previous step). The participants are requested to answer based on their own expertise, not from an (official) organisational/union/sector point of view.

The key question is the following:

Q14. From your perspective, how desirable are the mentioned functions/elements of the concerned GI?

Potential scores are:

-3	-2	-1	0	1	2	3	?
Very undesirable	Undesirable	Bit undesirable	Neutral	Bit desirable	Desirable	Very desirable	No idea, no opinion

After completing the individual scores, you could ask the participants to check their scoring by comparing them (e.g. are all the +3 scores similar desirable?).

Second, all the scores of Q14 are entered in two ‘**Social valuation Excel tools**’ (one for GI societal function, and one for GI elements, Appendix 2 and 3), preferably during a coffee/lunch break. This tool enables to generate figures that show the median and deviation of individual opinions. The results will be shown during the following plenary session.

Step 3 - Deliberative social valuation (Appendix 1, sheet 3)

The facilitators select the GI functions (minimum 3) and GI elements (minimum 3) for which the greatest controversy was observed (= high deviation of desirability scores).

Next, these GI functions and elements (minimum 6) will be discussed within small groups (5-8 participants + 1 facilitator). In order to have a fruitful discussion, it is important that the groups are predefined in order to make sure that there is a good mix of different stakeholders in each discussion group.

At the start, you ask the participants to select a topic (one of the min. 6 GI functions and elements with highest deviation) they are interested in, and then you ask the below questions. When the first topic is completed, you ask to select a next topic, and so on.

Q15. What could be the reasons for the high diversity of opinions for the GI function/element?

→ Why? Where? When? Who?

Q16. How would you score the desirability of this GI function/element as a group?

→ The group scoring happens by placing a post-it with the GI element/function on a large paper with the 7 desirability scores (-3 to +3).

→ This question usually triggers a discussion about management, border conditions, context dependency etc. All these considerations should be noted down duly.

Step 4 - Discussion about social friction points (Appendix 1, sheet 4)

Based on the discussions of step 3, the facilitators extract ‘social friction points of GI’ and make a consolidated list (ideally during a coffee/lunch break). The list is checked by all facilitators to ensure that the formulations are clear and easily to understand.

Social friction points could be formulated as a trade-off between GI functions and/or GI elements which are required/desired/valued by different stakeholders, but which cannot be (completely) fulfilled at the same time and/or the same location. Examples are: ‘biodiversity corridor objectives and need for urban expansion are competing with each other’, ‘high groundwater level required for nature development versus low ground water level for agriculture’, ‘(over)-recreation versus biodiversity protection’, ‘hedgerows are appreciated by nature NGOs and recreationists, but are a burden for modern farming techniques’. It is important to use as much as possible the own words used by the

workshop participants. Sometimes, the social friction points can also take place between 3 or more desired GI societal functions and/or elements.

The longlist of identified social friction points will be projected/written down on a large paper and explained in the plenary. All participants are asked if they agree with this summary of friction points. If not, the formulations can be refined (but always get a consensus of the participants). Then, they are asked to score the friction points with small coloured stickers (Q17 – Importance of friction point). The participants can use as much stickers as they want, but max. 1 sticker per social friction point:

- Red: Important social friction point of the GI.
- Yellow: Medium social friction point of the GI.
- Blue: Latent social friction point of the GI (which means, not a big issue now, but could become important in the future).

Based on this scoring, 2 to 4 (depending on the number of participants) most crucial social friction points which are pertinent to the GI challenge are selected ('social friction points shortlist'). For each of the selected friction points, a separate small group is made to discuss the friction point in more detail. Participants can choose their group, but if a key stakeholder is missing in a discussion group, you request a missing stakeholder to (temporary) join your group. The following questions will be discussed. During a second round, the participants choose another social friction point.

Q18. Who are involved and why?

- ➔ 'Why' refer to stakeholder motivations, which could be related to e.g. use, non-use value, experiencing negative impact, stakeholder goals.
- ➔ Make additional rows for each involved stakeholder.

Q19. What is the impact of the friction point for the concerned stakeholders?

- ➔ Could be visual impacts, economic impacts, social impacts, etc.

Q20. How do concerned stakeholders respond?

Q21. What are actual solutions being tested?

Q22. What are potential solutions?

- ➔ For example: Desirable win/wins, boundary conditions to accept certain functions/GI elements.

The final results are shortly presented in the plenary by the facilitators.

5. Intended outputs

A Social friction and analysis report could look like this:

1. The completed “Stakeholder frictions analysis tool” + the two social valuation Excel tools (valuation of GI elements and functions).
2. A descriptive report summarizing the main results:
 - The used participatory process
 - The validated GI challenge, GI functions and GI elements
 - Stakeholder list and their stakes
 - Social valuation of GI functions and GI elements: Figures of scores of desirability (individual + group) + reasons
 - Social friction analysis of GI
3. Annex: Minutes of the workshops for future reference.

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Appendices

These are the following MS Excel tools referred to in the text (as separate files):

Appendix 1. Stakeholder frictions analysis tool.

Appendix 2. Social valuation Excel tool for GI elements.

Appendix 3. Social valuation Excel tool for GI societal functions.

IMAGINE project summary

The IMAGINE project ran between 2017–2020, between five countries and 6 partner institutions:

- INRAE (FR);
- Institute for Social-Ecological Research (ISOE, DE);
- Kiel University (UniKiel, DE);
- Norwegian Institute for Nature Research (NINA, NO);
- Estonian University of Life Sciences (EMU, EE), and
- Research Institute for Nature & Forest (INBO, BE).

The project aimed at quantifying the multiple functions, ecosystem services, and benefits provided by Green Infrastructures (GI) in different contexts from rural to urban. It used a multidisciplinary approach across six case study territories spanning a European north-south gradient from the Boreal zone to the Mediterranean.

IMAGINE aimed to demonstrate an integrative assessment of GI multi-functionality and bio-capacity to deliver ES and to propose options to manage and design GI from patch to landscape. The project contributed to developing an innovative approach to support ecosystem resilience, sustainable essential ecosystem services flow, and contributing to human wellbeing to meet EU policy targets.



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This project was selected
and supported by



BiodivERSa COFUND Call (2015-2016)

« Understanding and managing biodiversity dynamics to improve ecosystem functioning and delivery of ecosystem services in a global change context: the cases of soils and sediments, and land- river and sea-scapes »

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