



3 Monitoring



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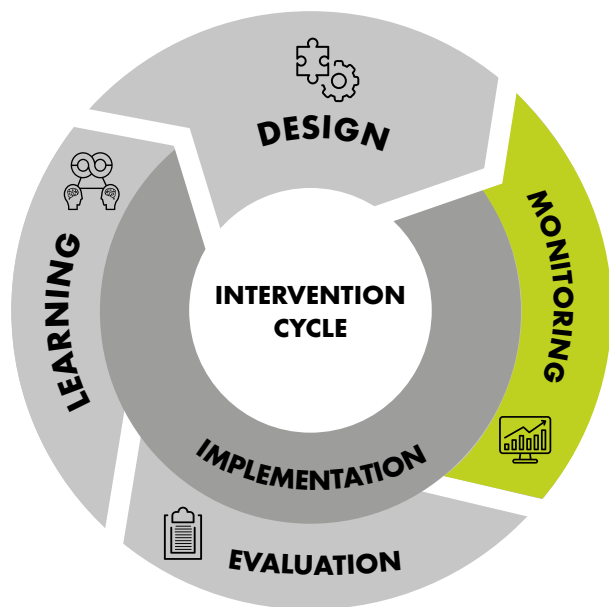
Monitoring is the ongoing and organized process of collecting, analyzing, and using information about an intervention's activities and effects, including unintended effects. It is used in the day-to-day management of an intervention to track progress against initial plans, for accountability, to guide activities and to make informed decisions, adjustments, and improvements.

This chapter will help you:

- Understand what monitoring is and the general processes that are involved.
- Be familiar with the various approaches to monitoring, including those that are particularly well suited to environmental peacebuilding interventions.
- Navigate monitoring challenges in environmental peacebuilding contexts.
- Think through what should be included in your own monitoring plan, including ways of ensuring the quality of monitoring information and how that information should be managed.

3.1. Introduction

Monitoring is the ongoing and organized process of collecting, analyzing, and using information about an intervention’s activities and effects, including unintended effects.¹ This information is then used in the day-to-day management of an intervention to track progress against initial plans, share the information for accountability purposes, and use what is learned to guide activities and make informed decisions, adjustments, and improvements. Monitoring information can also function as an early warning system by providing the first indications that something might be wrong, either with the intervention or within the broader context. While there is often some overlap with evaluation, monitoring is continuous and often descriptive.²



1. See, for example, Nanthikesan & Uitto (2012).

2. For more information on the basics of monitoring, including contrasts with evaluation, see the Primer on Monitoring and Evaluation of Environmental Peacebuilding.

Monitoring is generally composed of:

- Indicators and the methods for collecting information on them;
- Other types of data collection, such as documenting outcomes or changes in the context;³ and
- Regular review of and reflection on the information collected.

There are a few **important concerns and risks** related to monitoring in the environmental peacebuilding context. These include:

- **Interventions may rely too heavily on quantitative indicators based on a predetermined and inflexible theory of change.** This can result in impractical, inadequate, or untimely monitoring information, thus limiting the effectiveness of the intervention and potentially risking harm to the environment, peace, and the organization’s reputation.
- **Monitoring information may be difficult or impossible to collect** in insecure contexts. Some indicators or methods for collecting the related information may not be feasible for environmental peacebuilding interventions, and it may be necessary to develop proxy indicators or other ways of collecting monitoring information that limit the potential for harm.

3. In discussing the relationships between climate change and conflict, researchers have pointed out that the connections are often weak and/or heavily mediated by political, economic, and social factors. It is therefore important to ensure that you are monitoring the context beyond the environment and the conflict manifestations (Hendrix et al. 2023).

- **Prioritizing certain kinds of information over others may provide a limited picture of the context and an intervention’s effects.** For example, it is important to be mindful of marginalized or excluded groups which require more effort to reach. Additionally, certain sub-groups or populations may have very different perspectives on environmental or conflict issues. Finally, there are often disparate ways of thinking about environmental and conflict-related issues, and the connections between them are not always obvious.



3.2. Approaches to Monitoring Environmental Peacebuilding

The core approaches to monitoring environmental peacebuilding interventions are participatory and inclusive, structured to support early warnings and interventions, supportive of adaptive management, conflict-sensitive, and addressing gender. These are considered in turn. In addition, there are certain monitoring considerations that are especially relevant for the field of environmental peacebuilding, including leading indicators⁴ and monitoring for unintended effects or outcomes.⁵

A. Participatory and Inclusive Monitoring

Participatory monitoring builds on the integrated assessment approach, which was popularized in the 1990s (Whitfield, Geist, & Ioris 2011). **This approach brings together as many stakeholders as possible, rather than relying exclusively on one type of expert (e.g., technical) in data collection, analysis, reflection, and decision making.** Participatory monitoring is crucial as it allows interventions to incorporate a multitude of perspectives, expertise, understanding, values, and disciplines. This, in turn, allows for a more complete picture of the intervention and the context in which it operates.

Undertaking monitoring in a participatory way is especially important—and complicated—in environmental peacebuilding contexts. If done well and in a conflict- and context-sensitive way, participatory monitoring can improve trust and relationships with and between stakeholders, ultimately contributing to environmental peacebuilding objectives (this is an example of **monitoring and evaluation (M&E) as intervention**). Broad stakeholder involvement also allows practitioners to understand the complexity of environmental peacebuilding contexts better while staying informed of what can be a dynamic situation (see Box 3.1).



4. See Primer.

5. See Section 3.3(E).

Participatory monitoring can be difficult, though, when the stakeholders do not trust one another, the government, or outside interventions. Moreover, a legacy of conflict often translates to a readiness to resort to violence quickly. As important as participatory and inclusive monitoring is, it can also be challenging.

To engage in participatory monitoring, the practitioner must determine who the key stakeholders are.⁶ Common stakeholders include people who live in the area where an intervention will be implemented, local government authorities for the area where the intervention will be applied, those who will be impacted by the intervention but live outside the intervention area (for example, an intervention in Region A that targets grain production may impact cattle farmers in Region B who rely on grain from Region A for their cattle), community leaders, partner organizations, and funders. When considering the stakeholders, it is also important to keep in mind gender, ethnicity, religion, and age, as well as other factors that are often associated with marginalization.

When developing a participatory monitoring process, you should consider the following:

- What stakeholder groups are relevant to your intervention? Who might you be missing due to marginalization?
- What are their interests, needs, and values?
- What are their incentives to engage with the intervention?

- What incentives do they have to turn against the intervention?
- What are their relationships with other stakeholder groups?
- What strengths might they bring to the monitoring process?
- What monitoring information do they care about? How might they like to participate in data collection, analysis, and decision-making?

This is a good time to refer to and further develop your personas. Once you have thought through your stakeholder groups, you will need to develop a plan for involving them in information collection, analysis, and use. This might include involving stakeholders in the data collection process, validating or reviewing the collected data, or analyzing the monitoring information and identifying key themes or decisions to be taken based on that information.



6. See Design for the Persona Tool.

Box 3.1: Participatory Monitoring for Desertification

Desertification is a “classic example of a complex socio-ecological issue” (Whitfield, Geist, & Ioris 2011, p. 465). Addressing desertification through a participatory monitoring approach can promote an exchange of knowledge and build shared values.

In this context, one of the greatest challenges is “the amount and diversity of information that is required in order to identify thresholds and understand the interaction between the multiple drivers that push and pull the system” (468). Participatory monitoring can help identify and understand conflicting values and interests by ensuring that less powerful stakeholders are engaged. Participatory monitoring includes stakeholders during the identification of crucial socio-ecological processes and critically when determining thresholds and describing the dynamics of the system. This approach enables a practitioner to integrate multiple scales—both temporally and geographically—of monitoring and analysis.

In a non-participatory approach, a practitioner might do an assessment of the situation, generate a description of the problem, formulate policy recommendations to solve the previously identified issues, and use technical monitoring to assess the program according to the framework the practitioner built. However, in this scenario in which a single perspective is used, it is likely that the practitioner may miss key aspects of the situation or important opportunities to solve the problem. In contrast, participatory monitoring includes key stakeholders at every step of the process, meaning that *what is monitored*, *what should be monitored*, and *how to best monitor it* will all be determined with stakeholder input.



B. Monitoring for Early Warning

In volatile contexts such as those within which environmental peacebuilding often takes place, conflicts can escalate quickly and have serious effects for interventions and their stakeholders. **Monitoring information is essential as part of an early warning system.** Using monitoring information to better understand the context and how it is changing helps those implementing the intervention and its stakeholders to (1) ensure the intervention is doing no harm, (2) anticipate changes to the context that can affect the intervention’s ability to achieve its objectives, and (3) limit the harm to intervention staff and stakeholders in the case that the conflict context deteriorates.

Early warning comprises “the systematic collection and analysis of information coming from areas of crises for the purpose of: a) anticipating the escalation of violent conflict; b) the development of strategic responses to these crises; and c) the presentation of options to critical actors for the purposes of decision-making” (FEWER 1997, p. 1). When considering what information to collect for early warning, think broadly and beyond the intervention itself. Potential options include:

- Changes related to societal processes, particularly those related to power relations and inequalities.
- Information on the management or distribution of key resources, including land, and associated policies such as land reform and rural development (Löhr et al. 2022).
- The movement of people, including refugees, internally displaced persons (IDPs), and militia or military groups.
- Changes or predicted changes in the environment or weather, such as changes in forest cover, drought, intense heat or cold, or other extreme weather events.
- Changes in rhetoric and narrative, for example, a sudden increase in posts on social media relating directly or indirectly to the intervention or conflict.

When determining where to get this information, you can consider official sources such as government or UN reports as well as social media, local knowledge, and informal connections. Remember: in environmental peacebuilding, it is just as important to monitor the context as your intervention.

Box 3.2: Foundation for Co-Existence Citizen-Based Conflict Early Monitoring System

Following the 2002 ceasefire agreement ending a thirty-year civil war in Sri Lanka, the Foundation for Co-Existence (FCE) created a citizen-based conflict early warning system (Rupesinghe 2009).

This early warning and early response system is an example of a third-generation early warning system. First-generation systems (including monitoring) are entirely located outside the conflict region. Second-generation systems have monitoring in the conflict region, but analysis and decision-making outside the region. Third-generation systems are located entirely within the conflict region. As such, they include more local staff and localized decision-making; they are also better at integrating early response (Rupesinghe 2009).

As a third-generation early warning system, the FCE system engaged local people to monitor, analyze, identify early warning signs, and respond. Using local expertise enabled FCE to quickly navigate a rapidly changing conflict—in contrast to first- and second-generation systems, where written reports generated at a distance rapidly become outdated.



In theory, early warning informs response measures to prevent escalation to violence; this proves to be more difficult in practice (Rohwerder 2015; Arnado 2012). In large part, this is due to the difficulties in convincing decisionmakers to act upon early warning information (Haider 2014). It is recommended that response plans be integrated into the early warning system, and that preventive interventions focus on addressing the underlying grievances. Surveying the literature—especially the gray literature—Rohwerder (2015, p. 2) observed that:

Effective conflict early warning and early response programmes have had: i) accurate, consistent and timely information, from a wide range of sources; ii) the ability to effectively monitor the changing conflict dynamics on multiple different levels; iii) a good understanding of the local context and long-term trends; iv) participation and ownership by a range of actors across the country; v) involvement of local actors with good local knowledge leading to timely, sensitive and adequate responses to incidents, which built trust and confidence among actors involved at different levels; vi) social cohesion at the community level and a will for peace on the part of the people involved; vii) early warning linked to networks and mechanisms ready to design tailor-made response actions; and viii) flexible systems to fulfil ongoing activities and respond to emergency issues.

In short, **effective conflict early warning and early response programs are participatory and inclusive, adaptive, integrated, and supported by good monitoring.**

Early warning relies on both a rapid flow of information and a willingness to act (see Box 3.2). In East Africa, the Inter-Government Authority on Development (IGAD) created a Conflict Early Warning and Response Mechanism to cover two areas that experience frequent conflict: the Karamoja Cluster (Ethiopia, Kenya, Sudan, and Uganda) and the Somali Cluster (Ethiopia, Kenya, and Somalia) (Rohwerder 2015, p. 9). The mechanism engaged both official and non-state representatives at the local and national levels in responding to early warnings. In 2007, IGAD's mechanism learned that Pokot warriors from Kenya planned to attack the Bukwo Barracks where the Ugandan forces held their cattle. The Kenyan monitor then contacted the relevant counterpart in Uganda, who in turn alerted the and local authorities in its side. Further communications were able to warn the Pokot not to cross the border, preventing conflict.



C. Monitoring for Adaptive Management

Even if an intervention is fortunate enough to avoid flare-ups that trigger early warning mechanisms, **there is a good chance that interventions in fragile or conflict-affected settings—indeed in most contexts where environmental peacebuilding projects are undertaken—will need to adapt during implementation.** Various aspects of the context evolve, knowledge of the context changes and grows, and interventions experiment with new activities and approaches. In these cases, it is essential that those implementing environmental peacebuilding interventions know whether and when it is necessary to adapt that intervention, and how. Monitoring plays an important role in this adaptive management process.⁷

When designing and implementing a monitoring system to support adaptive management, keep in mind the following:

- Are you regularly undertaking a process for reviewing, analyzing, and learning from the monitoring information you collect?** Ensure that the strategies you included in your monitoring plan to use monitoring information and modify activities remain feasible and relevant, and adjust those strategies as necessary.
- Is this process happening as frequently and quickly as is necessary for the context?** Environmental peacebuilding requires timely information and decisions for effective adaptive management. If your process is overly burdensome or takes a long time, you may consider other strategies, such as delegating more power to on the ground stakeholders (Desai et al. 2018).

7. See Chapter 2 (Design).



- Are you involving the right stakeholders in these processes?** Remember, the inclusion or exclusion of certain stakeholder groups can affect both your decisions and how they are received; it can also, thereby, affect the trajectory of your intervention as different stakeholders will have different perspectives on what the information means. Who you involve and how should reflect a consideration of power and conflict dynamics, and thus be conflict-sensitive (see below).
- Do you have sufficient monitoring information to make informed decisions and adjust course?** Have you been able to gather the information you need, including on unintended consequences, or do you need to alter your monitoring plan?
- Are you documenting decisions made and actions to take based on your monitoring information?** It is important to keep track of what was decided and what actions were needed based on your review and analysis, including the person(s) responsible and the timeline for action. This helps to ensure that monitoring information is actually used.

D. Conflict-Sensitive Monitoring



Related to adaptive management, conflict sensitivity relies on “a sound understanding of the two-way interaction between activities and context and acting to minimize negative impacts and maximize positive impacts of [an] intervention on conflict, within an organization’s given priorities/objectives” (Conflict Sensitivity Community Hub n.d.). As such, conflict sensitivity starts with understanding the context in which you operate, understanding how the context affects your intervention, and understanding how your intervention affects the context. With this information and a broad understanding of what conflict means and looks like, you can avoid doing harm or exacerbating existing conflicts and maximize the positive impacts of your work.

Conflict-sensitive monitoring undertakes information collection, analysis, reflection, and use in ways that align with the processes outlined above and that seek to reduce the risk of doing harm while maximizing positive impacts. Two specific strategies for conflict-sensitive monitoring include:

- **Understanding Different Types of Conflict and Violence:** Johan Galtung provides a useful typology of violence, distinguishing between latent and manifest violence, intended and accidental violence, physical and psychological violence, and personal and structural violence (Galtung 1969). To design a successful conflict-sensitive monitoring plan, you should consider the various conflicts in the area (including latent conflicts) as well as circumstances that might contribute

to escalating or worsening the conflict, such as undertaking a data collection process that relies on a certain group of stakeholders that is viewed with suspicion by others or by bringing parties in conflict together to analyze information without proper facilitation.

- **Relying on Local Expertise:** Those living in the places where environmental peacebuilding takes place are experts on that area, and likely the conflict. By partnering with local people and relying on their expertise about the intervention and the context, you will develop a more nuanced understanding of the situation. This will allow you to discern more effectively what needs to be monitored and how to do it. As a result, you may avoid doing harm and increase the positive effects of your work.

These two strategies are often linked. Consider, for example, agriculture-pastoral conflicts that are common across the Sahel, as well as in other countries (Lind 2014; Alden Wiley 2014). Analysis of these conflicts highlights that a common conflict trigger is when pastoralists who are having trouble accessing water and pasturage cross tribal boundaries into a region where water and pasture is relatively abundant (Ayana et al. 2016). To be cognizant of these boundaries, a practitioner would need to work with locals to understand where traditional agricultural boundaries lie; this data may not be readily available from any other source.

E. Gender in Monitoring



There are various ways to take gender into account when monitoring environmental peacebuilding interventions. These include collecting **monitoring data on gender dynamics** and outcomes, disaggregating monitoring data by gender, ensuring gender-sensitivity in the methods used to collect monitoring data, and incorporating a gender lens in data analysis and reflection.

The first approach is to monitor how an intervention influences gender dynamics by tracking certain gender-related indicators or by asking intervention participants or stakeholders about issues relating to gender, gender equality, and gender equity during surveys, focus groups, or interviews. Examples of monitoring data to collect include (Miletto, Pangare, & Thuy 2019):

- The number of or degree to which environmental governance frameworks are gender sensitive, responsive, or transformative.
- Changes in the gender balance in leadership and staff.
- Gender balance in beneficiaries, participants, and those engaged/consulted.
- Changes in perceptions of safety or the prevalence of violence among different genders.
- Increase in the proportion of women participating in dialogue, peace processes, or changes to the quality of participation.

- How the intervention affects women's access to land, forests, water, fisheries, and other resources (e.g., through resource title, practical access, revenues gained, and food security).

Regardless of the specific monitoring data that is collected, **it is important to avoid relying too heavily on counting women; it is also essential to include questions about gendered perceptions and experiences** (Merkel 2021). For example, data on increased participation by different genders should be complemented with qualitative information on the nature and impacts of that participation. Another relevant and often overlooked strategy is to ask people of those genders what success or positive change would look like for them and then monitor for those aspects.⁸

A second approach to gender-sensitive monitoring is to **collect gender-disaggregated data**. This means collecting data on respondents' or participants' gender to better understand the different experiences or perceptions of a situation or intervention as well as how your intervention affects people of various genders differently. For example, women and men may have different relationships with natural resources, and transgender people often experience conflict in different ways than others. Keep in mind that conceptions of gender extend beyond the male-female binary. Allowing participants to self-identify their genders in surveys is one way to extend inclusion in the monitoring process (Spiel, Hamison, & Lottridge 2019).

8. For more information, see Chapter 2 (Design).



When collecting gender-disaggregated data, you may also **consider intersectionality**. While women and men have different experiences, opportunities, and impacts, women who are also ethnic minorities have different experiences than women of the predominant ethnic group. Similarly, women and girls may have different experiences. To understand intersectionality, it is also important to **collect data on ethnicity, age, and religion, among other demographic information**.

Gender should also be considered when developing the process for collecting monitoring data. Gender roles can influence what kinds of data collection are appropriate or safe. Reflect on the following:

- Are there some topics that are taboo or uncomfortable for people of certain genders to discuss? If so, can you gather data about those topics in unobtrusive ways, such as anonymous SMS surveys or through observation?

- Would men or women be more open to sharing information in same gender groups or individually? For example, women may be more open to sharing when among their peers, while men may feel more comfortable talking one-on-one.
- Are there any potential safety issues with the envisioned monitoring methods? For example, is it safe for women to travel to a certain location for a focus group discussion? Is it taboo for women to speak with men outside of their family? If so, it may be necessary to adjust who collects monitoring data and how it is done.

Finally, **a gender lens is important in the analysis of monitoring data** (House et al. 2023; Young, Lee-Smith, & Carey 2020). People of different genders may interpret monitoring data in different ways; what is successful or positive to one group may not be so to another. It is therefore important to allow space for gendered interpretations of monitoring data.

3.3. Data Collection



Monitoring is built on the collection of data in three primary categories:

- 1. Based on a theory of change and its associated indicators:** As with other interventions, environmental peacebuilding monitoring should be grounded in the intervention's theory of change. This means collecting data about what the intervention does and how, as well as the effects of those actions. Starting with the theory of change also allows you to draw boundaries in your monitoring around a specific geographic area or stakeholder groups. **Monitoring is particularly important for key conversion or leverage points;** in many instances, these are the parts of a theory of change that are new, innovative, uncertain, or otherwise lacking in supporting evidence. This kind of monitoring is often done through qualitative and quantitative indicators aligned with the theory of change.
- 2. The intervention context:** Environmental peacebuilding work takes place in complex and dynamic contexts. It is therefore also important to collect information on the broader context to understand what factors may be influencing the intervention. Keep in mind that this information may also be linked to the theory of change in the form of assumptions or risks.
- 3. Unintended effects or consequences.** Again, because environmental peacebuilding work takes place in complex contexts, the possibility of an intervention contributing to unintended effects or consequences is high. This means that it is essential to build in a monitoring process that allows practitioners to capture those unintended effects as they arise.

This section explores the use of secondary (i.e., preexisting) data and primary data in monitoring. While secondary data may have the benefit of being free or reduced-cost, it often addresses only specific aspects (e.g., changes in the intervention context and broad changes in the environment).



A. Secondary or Preexisting Data

Before collecting primary data, or data that is collected by the intervention directly, **it is important to explore whether and to what extent relevant secondary (or preexisting) data is available.**

Environmental peacebuilding interventions are often multifaceted and, as such, require the collection and analysis of a multitude of indicators. Using previously collected, publicly available, or otherwise accessible data can save practitioners time and resources, helping them to **focus their primary data collection on gaps or information related to specific theories of change.** Possible sources of preexisting data include: ministries, other organizations operating in the area, universities, and researchers. In addition, there are many databases that track environment, conflict, peace, and other dimensions that may be relevant to an environmental peacebuilding project; a table of potentially relevant resources can be found in Annex 3-I.

All data have limitations. Be sure to **understand the sampling strategy used or any possible biases of secondary data that may impact its validity and reliability** prior to incorporating it into your monitoring framework. For example, remote sensing data often requires ground-truthing, which may be difficult in conflict-affected contexts (see Box 3.3).

Did you know?

Free mapping software like QGIS and Google Earth can provide low-cost and simple tools for generating maps of your area of interest.

When collating preexisting data from different sources, make sure to consider the following:

- At what scale was the data collected? Some data is collected at the individual or household level, while other information is for a country or region as a whole. Thus, for example, if you are working only in one community, then country-level data will likely be unhelpful.
- When was the data collected? There are often lags between when data is collected and when it is available; this can influence its utility in contexts that are dynamic and volatile, including fragile and conflict-affected contexts for many environmental peacebuilding interventions.
- What is the timeframe of the data? Is it annual, monthly, or weekly? Is this sufficiently granular to be useful for your monitoring?
- How is the indicator defined? For example, the World Bank has a dataset on social cohesion that combines “life satisfaction” and “media corruption” at the country level.⁹ Your specific intervention may seek to increase social cohesion, but this particular definition may not be optimal (or even relevant) to your context.
- Are there different sources that may provide similar data but at different scales or timeframes? Local authorities, for example, may have data on a smaller scale or more quickly than national governments.

9. See the World Bank’s GovData360, <https://govdata360.worldbank.org>.

Box 3.3: Something to Consider—Remote Sensing Data

Remote sensing data can allow practitioners to achieve a better understanding of the spatial and temporal variability of an ecosystem's structure and functions, as well as of biodiversity under climate change. Satellites can provide specific information on land use, land cover changes, aboveground biomass, drought conditions, and temperature variability (Nagai et al. 2020). Remote sensing data can be particularly useful in places where it is unsafe to collect data on the ground (Weir, McQuillan, & Francis 2019). However, it is important to remember that there is much that cannot be seen from satellites; collecting abundant ground-truth data from multiple sites and sources to validate satellite and remote sensing data can help to alleviate uncertainties (Nagai et al. 2020).

Ultimately, **those working in the field of environmental peacebuilding should manage expectations.** Conflict contexts in particular often require making tradeoffs between the availability, relevance, and objectivity of monitoring data. Preexisting data can be of greater utility for providing context for an intervention, while primary data collection can provide more detail.

When monitoring an environmental peacebuilding intervention—as well as other interventions—many information- and data-related challenges can arise. Figure 3.1 enumerates many of these challenges and groups them into four categories:

- (1) Data does not exist (literally or practically);
- (2) Accessing data;
- (3) Data from multiple sources; and
- (4) Complexity of data, software, and analyses.

In addition to laying out these challenges, the figure highlights the wide range of possible solutions for addressing them. Many solutions address more than one challenge, at least in part. For example, developing protocols can help address six different challenges,

including collecting sensitive data, accessing existing data, and using data from different geographic scales. Simply because solutions address a large number of challenges does not mean that these solutions are more important. The numerous linkages between challenges and solutions, as illustrated in the figure below, emphasize that practitioners can often choose from many possible actions to address a given challenge or wield a particular solution to address more than one obstacle.



DATA-RELATED CHALLENGES

DATA DOES NOT EXIST (LITERALLY OR PRACTICALLY)

- 1. Lack of data at appropriate scale
- 2. Quality assurance for data (including challenges with verifying data)
- 3. Sensitivity of information makes it difficult to collect
- 4. Physical insecurity makes it difficult to collect data
- 5. Historic data insufficient

ACCESSING DATA

- 6. High costs
- 7. No clear procedures for sharing data between organizations
- 8. Accessing existing sensitive data
- 9. Institutional culture to not share
- 10. Time delays

DATA FROM MULTIPLE SOURCES

- 11. Different timeframes
- 12. Different geographic scales
- 13. Multiple sectors
- 14. Driven using different methodologies

COMPLEXITY OF DATA, SOFTWARE, AND ANALYSES

- 15. Lack of staff capacity to manage and process complex data-sets

ADDRESSING THESE CHALLENGES

- A. Make indicators realistic and adaptable
- B. Utilize citizen science
- C. Partner with institutions
- D. Narrow and choose different indicators
- E. Generate new data
- F. Ground truthing
- G. Use of cellphones and other technologies for collecting information remotely
- H. Develop protocols
- I. Recognize limitations and do the best you can

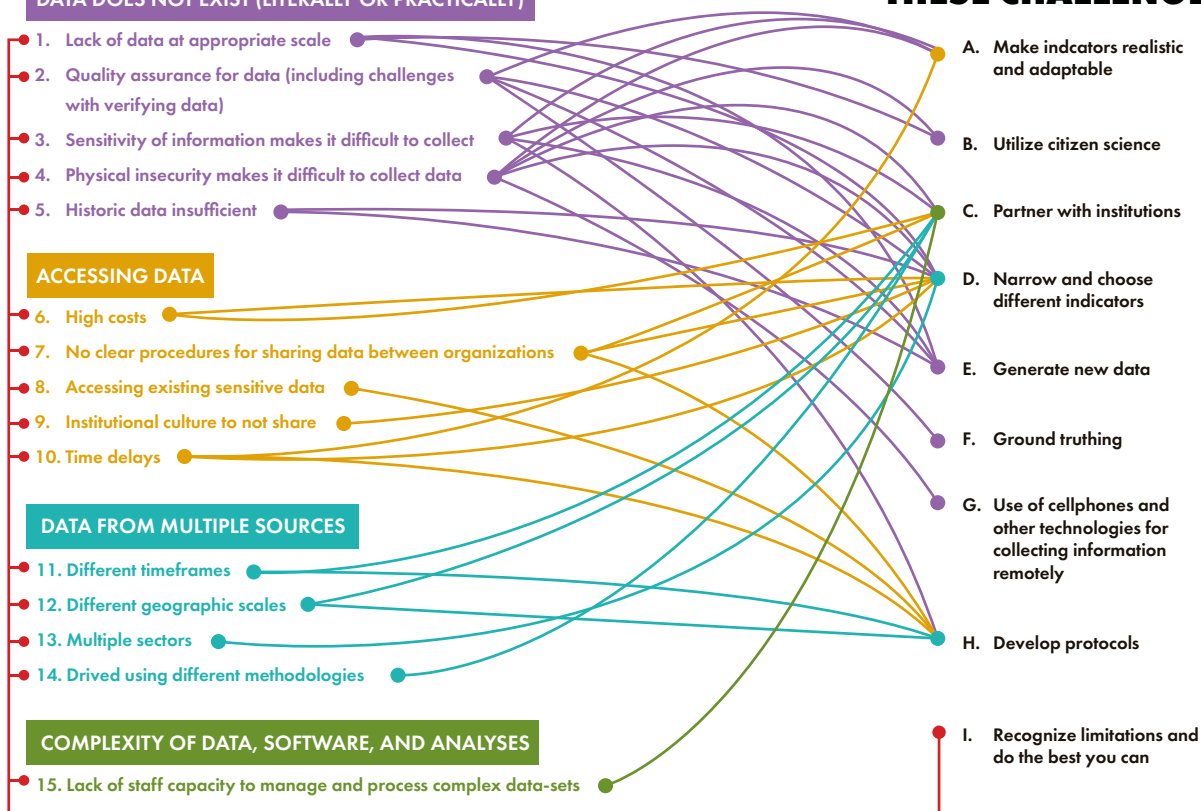


Figure 3.1: Heat Map Illustrating Numerous Linkages Between Data-Related Challenges and Solutions
Source: ELL.

B. Primary Data

For those cases in which preexisting monitoring data is unavailable or unsuitable, interventions will need to collect their own data. This is called primary data. When determining the kind of primary data to collect, remember that **data collection should be right-sized for the intervention and its resources, the information needed (including for the indicators), and the context.** This is an imperfect process: usually, there is a need (and certainly a desire) for more primary data than there is budget and other resources for collecting information. For this and other considerations, see Box 3.4.

Box 3.4: Considerations in Selecting Data Collection Methods and Tools

When determining the data collection methods and tools, consider the following:

Relevance and Utility:

- Does the data provide an adequate and appropriate picture of what you are trying to measure?
- Does the collected data provide a sufficient level of detail and confidence in the data to inform learning and decision-making?
- Does the data collection process ensure that you receive the information you need by the time you need it?
- Are you monitoring the wider/broader social, political, and economic contexts?

Reliability:

- Is there a potential for bias, including in how the sample is determined or related the biases of the people collecting the information?
- Does the data collection process ensure the integrity of the data? Or are there risks that the data could be manipulated?
- Can the same data collection method be used over time? This is particularly important in dynamic conflict contexts. Make sure to select an approach that you think can reasonably be carried out as things change.

Conflict Sensitivity and Ethical Considerations:

- Is the data collected in such a way as to protect the privacy, confidentiality, and/or anonymity of stakeholders?
- Do you have a sufficient informed consent process whereby those providing information are aware of the reason for collecting and uses of the data, their rights (including not to participate), and who they can contact regarding questions or concerns?
- Are the data collection tools and processes culturally and contextually sensitive and appropriate? Are they set up in a way that makes sense for the context and avoids putting anyone in harm's way?

Impact:

- How can the data collection process empower stakeholders, build trust and relationships, and otherwise support the objectives of your intervention?

Feasibility:

- Do you have the necessary funding, staff, and other resources to collect and process the data?



Typical monitoring methods for collecting primary data include **observations, individual and group interviews, focus groups, and surveys**. In addition to these more traditional methods, there are a number of innovative monitoring methods that are well suited for environmental peacebuilding contexts, including, for example:



- **Civilian or citizen science** may prove useful for collecting environmental data during and after conflict, both in “addressing gaps in data collection” and potentially serving to “empower communities affected by environmental degradation, enhance their environmental human rights, supplement the often limited monitoring capacity of government agencies, and facilitate cooperation and peacebuilding” (Weir, McQuillan, & Francis 2019, p. 1). Citizen science can encompass multiple activities and be used as a complementary, on the ground approach to remote monitoring. Examples of potential monitoring applications for conflict-related environmental impacts include monitoring of land degradation; mapping of damage to infrastructure, including buildings and industrial facilities; and monitoring of oil pollution.
- Similarly, **crowdsourcing** is a useful monitoring method for areas where it is difficult to collect data on the ground in a timely manner, such as those affected by active conflict. Advantages of this approach include its rapidity, which can support early warning systems, “generating ‘state of the moment’ information,” which can lead to “rapid and timely action” and “make alternative sources of information available for verification, action planning and response” (Kahl, McConnell, & Tsuma 2012, p. 30). Types of crowdsourcing include collecting photos and videos to create a map of violence; relying on volunteers or participants to tag incidents or important locations on satellite images; data mining social media information on key topics; and even crowdsourcing analysis of information through community platforms (Shiel 2013).
- For interventions that include an element of information communication or awareness raising in their theory of change, one approach to monitoring for increased knowledge or awareness as well as for unintended effects is **rumor tracking** (Guidrey, Bango, & Ayoob 2022). Partnering with local community members to monitor the content of rumors or information being spread throughout a community “is a deeply localized method that allows programs to respond quickly to changing environments and gather feedback from communities on the effectiveness of program activities ...” (91). It is also actionable in insecure contexts where it may be difficult for an intervention or M&E team to reach a specific area. Additionally, this monitoring method “enables adaptive management by providing regular updates and actionable data points for the program team” (91). Analyzing rumors and responding to them can also be a collaborative activity that increases stakeholder participation, increasing the relevance of the response, and further developing trust through transparency.

- **Participatory mapping with communities** can be used to integrate local knowledge into spatial planning processes, informing the development of climate-security risk maps (Kron et al. 2022). Such maps provide insights into “potential climate-security hotspots, which regions and population groups are affected and what sectors need to be targeted, and where to carry out measures” (32). They can also be useful at multiple levels and across different stakeholder groups, providing “an opportunity to initiate dialogue processes, either among the affected population and conflicting groups when collecting data and developing the map in a participatory process at the local level, or among policymakers and stakeholders when presenting the results of the mapping at the national level.”
- **Community conversations** are an informal community engagement method with broad application (Kotze et al. 2013). These conversations “enable community-led discussions to identify, reflect upon, and find local solutions to shared issues of justice, security, and land use” (UNDP 2022, p. 6). They have been found to help identify “practical, community-led solutions” (6) to issues, to “contribute to the healing process of community” (7) by providing a space for community members to share, to have “strengthened social cohesion and gave participants a sense of the changes they can bring when they work together” (7), and to have “highlighted the need for communities to address their past and the need to establish community-based transition justice mechanisms” (7), among others.
- **Storytelling** is a participatory method which has been applied in the context of peacebuilding (Higgins 2011; Linabary, Krishna, & Connaughton 2017). Cultural storytelling has been suggested as a method for addressing issues of cultural relevance and local ownership in community-based participatory research and “as a method for co-constructing meaning and encouraging dialogue that could lead to productive action toward social change” (Linabary, Krishna & Connaughton 2017, p. 432). Storytelling can also be digital (e.g., Higgins 2011), which may be suitable for conflict-affected contexts where it may be difficult to reach communities on the ground; however, the degree of inclusion afforded by using digital tools should be considered as well as how the use of these tools can increase access for some while limiting access for others.
- **Visual (photography or video) or arts-based** monitoring methods allow for a different way for people to express themselves, as opposed to more traditional monitoring methods such as surveys or interviews. These methods can also allow stakeholders to express complex ideas or lay the groundwork for more-depth responses later (Charlton n.d.). As a result, these methods can be more accessible in situations where the topics explored are complex, taboo, or otherwise uncomfortable or challenging for stakeholders to discuss. In the case of environmental changes, visual methods of monitoring also provide a concrete way of getting a quick snapshot in time of the situation.



- **Drones:** In areas not accessible on foot, drones may be used as a remote monitoring method. They have been used in United Nations Peacekeeping with applications including information gathering on potentially unnoticed events in conflict zones (Yekple 2017). Important to consider are political and privacy concerns associated with this type of monitoring.
- **Lot Quality Assurance Sampling (LQAS):** LQAS is a monitoring approach initially used as a method for quality control in manufacturing (MEASURE 2022), which has been applied in various health-related development program settings and may have applicability in conflict-affected settings. It samples a pre-defined area to determine if an indicator is performing acceptably. Pham et al. (2016) discuss the use



of LQAS in primary health interventions in West Darfur, Sudan. Despite challenges, the method was considered beneficial in the context it was applied in; the authors note that "the ability of LQAS to be easily taught to local managers and the decentralized nature of data collection and analysis in LQAS enhance its prospects for sustainability, which is vital in low-resource settings."

C. Participation and Inclusion

Increasing participation and inclusion in monitoring in culturally and contextually appropriate and conflict sensitive ways is important for environmental peacebuilding interventions, as participation and inclusion can support the objectives of those interventions and help ensure their relevance, effectiveness, and sustainability. Key strategies for enhancing participation and inclusion in monitoring processes include:



- **Co-developing monitoring methods with stakeholders** to ensure their relevance and applicability to the context. This may include exploring more localized or Indigenous ways of knowing (Hendrix et al. 2023);
- **Communicating the purpose and methods** of monitoring and data collection to stakeholders early and **gathering feedback** on the process and potential challenges;
- Ensuring and understanding local or otherwise applicable conceptualizations of **data ownership, transparency, and data sensitivity**; and
- **Enlarging the areas of focus for participation**, as the effects (intended or unintended) of environmental peacebuilding interventions can be far-reaching (Hendrix et al. 2023).

Like in design, evaluation, and learning, increasing participation and inclusion in monitoring can take time and additional resources. One way to involve more stakeholders in monitoring, decrease the chance of cultural bias, and scale data collection efforts is to gather data by **working with community members who can become self-ethnographers and collect data within their own community**. As people may not respond accurately to surveys and interviews, especially in conflict contexts, it is sometimes better for stakeholders to self-report their narratives and gather data. Tools such as the Cynefin Centre’s SenseMaker can be used to support communities in telling their own stories in their own language and in creating their own solutions (Cynefin Centre 2017).

Youth can often be effective ethnographers as they are already familiar with recording technologies such as smartphones and have access to community members. Girl Hub—an organization that aims to empower and improve adolescent girls’ lives in Rwanda, Ethiopia, and Nigeria—successfully used a similar data collection method, giving girls and their caregivers open-ended prompts on the girls’ experiences and supporting them in analyzing their own narratives. Using this approach, Girl Hub was able to identify common issues for adolescent girls as well as the best responses to them, societal attitudes towards adolescent girls, and the effects of Girl Hub activities (Narrate 2014).

Note that increased participation and inclusion can generate tensions between transparency and the sensitivity of information. For example, sharing monitoring information that indicates one group may be benefiting more than another from the intervention could provoke tensions. Sharing sensitive information concerning vulnerable community members could increase their vulnerability.

While there is no single way to navigate or balance these tensions, understanding stakeholder concerns around the environment, conflict, and relevant value systems is crucial.

Box 3.5: Something to Consider — How Participatory Monitoring Can Support Intervention Objectives

Participatory monitoring processes that appropriately and safely involve stakeholders in the collection and analysis of information can play a key role in ensuring transparency, building trust and relationships with stakeholders, and increasing buy-in for an intervention.



In conflict-affected contexts where access is difficult or even dangerous—or in cases like the COVID-19 pandemic (see Box 3.6)—it may be helpful and perhaps necessary to rely on local stakeholders to collect monitoring data. This means **adapting M&E frameworks to use simple, often digital tools with clear directions and in local languages.** While this approach requires more careful consideration of the monitoring process, it also contributes to greater participation of those stakeholders and other participants in the data collection and analysis of the intervention’s successes and challenges. This can provide better monitoring information and reinforce learning processes.

Although technology is an important tool for monitoring in volatile, dynamic, or unsafe contexts, it is important to **consider the tradeoffs of using it for monitoring.** While the use of technology can produce monitoring information not otherwise available, some stakeholders may be left behind due to a lack of technical literacy or access. Relying on technology and virtual means of data collection can also negatively affect communication and relationships. It is important that practitioners identify ways to mitigate these challenges, especially given the importance of trust and transparency in environmental peacebuilding contexts.



Box 3.6: Monitoring During the COVID-19 Pandemic

With the COVID-19 pandemic, practitioners suddenly faced the challenge of how to undertake intervention activities and gather monitoring information as travel and access to local sites were limited, and often ceased.^a This experience drove innovations and learning.

With pandemic restrictions limiting in-person data collection, **practitioners turned to alternative sources of data and remote tools.** The Independent Evaluation Office (IEO) of the Global Environment Facility (GEF), for instance, combined geospatial and socioeconomic data from existing datasets collected by other organizations such as the World Bank, as well as communication with local counterparts who took over responsibility for monitoring when staff could not access the intervention site (GEF IEO 2020). By looking at both kinds of data, the IEO could draw conclusions on interventions' co-benefits. For example, in Uganda they were able to demonstrate a positive correlation between household assets and proximity to GEF interventions; households closer to intervention areas had \$310 more in assets than those farther away. In another case (occurring before the pandemic), the GEF used geospatial data to analyze deforestation over time around Sapo National Park in Liberia. Despite being unable to visit the site in person, the IEO was able to determine that while areas around the park had experienced significant deforestation, the park and areas close to it had experienced less deforestation.

Geospatial data can also be used in conjunction with information collected by local consultants to create hybrid datasets. During the pandemic, the World Bank conducted virtual visits to Uzbekistan's intervention sites as part of its Resilient Landscape Restoration Program. This hybrid approach combined data collected remotely from geospatial analysis of the sites, drone imagery, and aerial satellite imagery with photos and videos of the sites taken by local consultants. For example, the consultant filmed the drive leading to the intervention site to provide a sense of place and context for stakeholders who were unable to visit during the COVID-19 pandemic. The consultant also collected interview data. This approach highlights the importance of both having a broad network of local consultants who can be mobilized to support remote work and ensuring those consultants have the capacity to collect monitoring data.

These innovative approaches to monitoring during a global pandemic are good examples of why **it is important to have the skills, resources, systems, and knowledge already in place to effectively respond to shocks like pandemics or conflicts.** It is far more difficult to create innovative systems in the middle of a crisis than it is to prepare them preemptively. The GEF, for instance, had already examined links between health and environmental interventions and invested in technology and human resources prior to the pandemic. This allowed the IEO to quickly leverage those resources.

a. The observations in this box draw upon both the literature and a peer learning workshop organized by EII and EnPAx in May 2022.

D. Timing and Baselines

The timing of data collection is important and challenging for environmental peacebuilding work. For example, the timing of data collection may reflect different aspects of the conflict or the environment differently; short time-horizons relevant to a post-conflict context should not be measured after the point of relevance as the conflict context can change quickly, and long time horizons for some outcomes may mean that data collected at an early stage seemingly indicates no change. Depending on the intervention's theory of change, environmental changes may lag behind changes to the conflict context or vice versa. Practitioners should thus carefully consider at which points in time data should be collected to capture indicators and other evidence of change most effectively, while also considering how the timing could itself affect the conflict context. **In many cases, longitudinal data collected over time and at regular intervals is more helpful, as it allows for a more complete picture of changes in the environment and conflict dynamics and, thus, a better assessment of how well an intervention is working.**

Related to this point is the issue of baseline data. Developing baseline data for environmental peacebuilding interventions is challenging because of the difficulties in working in a conflict environment, the political nature of conflict, and because conflict contexts tend to be "more convoluted and nonlinear" (Abu-Nimer 2020, p. 64). Environmental contexts are also constantly changing, which makes it challenging to determine what the baseline environmental

context is and when to use it. The obvious option is to consider the environmental situation at the start of the intervention as the baseline. That can help track change over the life of the intervention and, thereby, the environmental impacts of the intervention. The problem is that conflicts often have diverse impacts that can be significant, widespread, and long-lasting. Interventions often seek to restore environmental conditions to their historic baseline. The historic environmental baseline may be substantially different from the environmental baseline taken at the beginning of an intervention; the situation may be similar for the conflict baseline. **It is therefore important to be clear on at what point a baseline is taken—either of the conflict or the environmental context—and why, and to document those decisions.** Moreover, it may be that progress is tracked with respect to more than one baseline (i.e., the historic baseline and the baseline at the start of the intervention).

Additionally, environmental peacebuilding interventions may benefit from **subjective or perception-based baselines**. These baselines are identified based on what stakeholders feel about a current situation and what they see as a future end state or goal to achieve (see, for example, Jones 2020). For example, stakeholders may start by describing the current (i.e., baseline) environmental and conflict context and then articulate what improvement would look like. Later on in the intervention, stakeholders can return to their original description of where they started and provide feedback regarding how the situation has changed.

E. Monitoring for Unintended Effects

In the context of intervention monitoring, “unintended effects” can be generally understood to mean the positive, negative, or neutral effects of an intervention beyond what was anticipated (see Box 3.7). In their analysis of Search for Common Ground evaluations, Lemon and Pinet (2018, p. 257) identified robust monitoring as “a key to capturing unintended effects” and noted that continuous monitoring “allows projects to recognise problem areas and positive opportunities for improvement early on and respond to them quickly.” While the literature and commentary often highlight the importance of focusing on unintended effects, practice lags: a review of USAID evaluations shows that they took into account unintended effects in only 15 percent of the evaluations (Hageboeck, Frumkin, & Monschein 2013).

In environmental peacebuilding, unintended effects are challenging for three primary reasons. First, the field is still new, and theories of change are still being tested and refined. As such, there remain substantial questions regarding under what circumstances a particular theory of change works. Second, environmental peacebuilding is inherently interdisciplinary, so the designers and implementers of interventions often have expertise in *either* environmental programming or peacebuilding. This means that they often lack expertise in a key dimension. Third, monitoring often tracks environmental or peace/conflict/security dimensions; tracking the intersection of environment and peacebuilding can be particularly challenging.

Box 3.7. Defining “Unintended Effects”

There are a range of definitions:

- Unintended effects are considered in the OECD-DAC impact criteria, defined as “The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects” (OECD-DAC 2019, p. 11).
- Jabeen (2016, p. 144): “In programme evaluation, unintended outcomes refer to the effects of an intervention other than those it aimed to achieve. Such effects could be positive – producing additional benefits, negative – causing harm to those involved directly or indirectly, or neutral.”
- Lemon and Pinet (2018, p. 254): “Unintended effect” is defined as “unintended based on its relation to the relevant project’s Theory of Change (ToC), logical framework, goal, specific objectives, and results measured by their respective indicators. In other words, unintended effects were defined under the umbrella of any effect outside of the logical framework or going against the direction of the original ToC.”



Monitoring methods that can support the identification of unintended effects include:

- **Open-ended questions** in key informant interviews, community conversations, etc. You might ask, “What else has happened as a result of these activities?”
- **Outcome journals** or otherwise reporting or documenting unusual events (Better Evaluation 2022). Keeping a systematic log of events or effects that come up during an intervention’s implementation is a good way to qualitatively track unintended effects that can be explored and reflected upon.
- **Outcome Harvesting** is used to capture a wide range of behavioral changes. Because outcome harvesting is not tied to any predetermined outcomes like those in a theory of change, you are able to “harvest” a wide variety of intervention effects.
- **Participatory and inclusive approaches** that allow you to consult multiple stakeholders and stakeholder groups to gather diverse perceptions of an intervention and its outcomes (Lemon and Pinet 2018, p. 257).



3.4. Data Management and Quality

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DATA

In addition to collecting monitoring data, **it is important to have an effective data management process in place to ensure the data is both useful and secure.** Effective data management can make information easily accessible for use and reuse, simplify data sharing, and streamline future data collection, thus supporting practitioners in delivering efficient results relative to the resources expended on the recollection or reorganization of data. Additionally, data management helps minimize the risks to both people and organizations by ensuring that sensitive information is properly protected, thus minimizing the potential for harm to those implicated in the data if it should be lost or leaked—which is especially important in conflict contexts—and maintaining reasonable stakeholder expectations of privacy.¹⁰ This, in turn, supports trust between an intervention and its stakeholders and confidence in the data. Good data management also minimizes an organization’s reputational and legal risks.

A. Developing a Data Management Strategy

A data management strategy sets out the ways in which information will be collected, processed, stored, analyzed, and shared. Key considerations in developing a data management strategy include:

- Which types of data will be collected;
- How the data will be used;
- How certain data interact with or relate to other data;
- How much data is being produced;
- How and where the data will be stored;
- Who controls or has access to the data;
- The sensitivity of the data; and
- How the data needs to be shared and with whom.



Some of these key considerations are explored in Table 3.1.

10. Note that in certain jurisdictions, there are rules and regulations for data protection and the use of personal data. This includes the European Union’s (EU) General Data Protection Regulation (GDPR). Failure to comply with such rules can negatively affect an organization’s reputation and result in penalties and fines.

KEY QUESTIONS	CONSIDERATIONS
<p>How will the data be used?</p>	<p>Monitoring information will likely need to be used in multiple ways by a variety of stakeholders. When managing the data, ensure that the type or format of your information is supportive of the various uses of the data, including for monitoring, evaluation, and learning. This may mean converting qualitative data into categories or quantitative data for analysis, converting hard copy data into a digital format, or converting numerical data into a format that is appropriate for statistical analysis. Keep in mind that in environmental peacebuilding work, it will also be important to show the links between environmental and conflict-related information.</p>
<p>How much data is being produced?</p>	<p>While big data technologies, artificial intelligence, machine learning, image recognition, and social media mining have become more common in large environmental and peacebuilding interventions (Anand and Batra 2021), many interventions still rely on more limited data. Ultimately, the best system is a manageable one. If a data management system is too unwieldy, upkeep may be difficult, and it may not be used. Practitioners should use a data management system that they are confident can be maintained over an intervention’s duration, acknowledging the resources available to them.</p>
<p>How will the data be stored?</p>	<p>How and where information is stored depends on its format, level of sensitivity, and the resources available. Consider:</p> <ul style="list-style-type: none"> ● What kind of access to technology is available for data storage? ● Who should have access to the place(s) where information is stored? Do you need to set certain permissions or passwords (for digital data) or utilize a safe or otherwise locked space (for hard copy data)? ● If the data is digital, is there a way to back it up? Are you using a secure cloud storage system? ● What aspects of the conflict context could disrupt data storage?
<p>Who controls or has access to the data?</p>	<p>Practitioners should be clear on who controls, owns, and has access to monitoring data. This is a matter of the data management system (e.g., who has access to the database) as well as organizational and funding policies and practices. Questions of data ownership are highly relevant to the future accessibility and shareability of the data as well as to stakeholder relationships and trust. Remember, to the extent possible, stakeholders should have ownership and control over their own data. This is related to issues of trust and can therefore reinforce—or impede—the objectives of environmental peacebuilding work.</p>

KEY QUESTIONS

CONSIDERATIONS

How sensitive is the data?

Data sensitivity and protection are especially important in environmental peacebuilding contexts. Once practitioners are operating in a conflict context, they become part of those dynamics, and they need to ensure that they do not create additional harm or conflict through their actions. They should also make sure they maintain the trust and confidence of stakeholders, organizations, and monitoring bodies. Management of sensitive information is central; **“sensitive information” refers to information that could cause harm if improperly disclosed.** This may include directly identifiable information, such as names or addresses, demographic data, religious beliefs or ethnicities, or a person’s political views (USAID 2022). It can also include information that might inflame tensions or lead peace spoilers to target the intervention.

Greater levels of sensitivity in relation to information necessitate higher levels of security and protection, including restrictions on access. The level of sensitivity can be determined by the content of the data as well as the broader context within which the information has been obtained. Practitioners should consider the risks that collecting and sharing information may have for stakeholders.

Strategies to ensure data is safe include:

- Adopting “lean data” principles that emphasize data for value creation and favor collecting the minimum possible amount of information, limiting its storage, and deleting it once it is no longer needed.
- Anonymizing the data to the extent possible.
- Sharing only aggregated data.
- Restricting access to the data via passwords and two-factor authentication.
- Sunsetting sensitive data and ensuring its complete destruction after its use has passed.
- Providing for feedback and complaint mechanisms, whereby stakeholders can anonymously notify an intervention of issues with data safety.



KEY QUESTIONS	CONSIDERATIONS
<p>How does the data need to be shared and with whom?</p>	<p>With whom monitoring information will be shared and in what format should be considered as early in the intervention as possible, including an assessment of the potential risks, benefits, and unintended consequences. This allows you to express to stakeholders how the data they provide will be used and in what ways. It is also important to note that you will have to balance transparency with conflict sensitivity when considering how and with whom to share information; it will not always be necessary to share exactly where information is coming from, and aggregating information may be best to minimize risks to an individual's security. This is the case, for example, when certain stakeholders may seek to act as "spoilers," perceiving evidence of successful interventions as an obstacle to their own goals. In such situations, confidentiality is crucial to protect the physical security and safety of stakeholders. It may, therefore, be appropriate to share monitoring data in a more limited way.</p> <p>Once you are clear on what information to share with whom, make sure that it is shared in an accessible format and that the data is clear and accurate. This may mean relying on visualizations, translating information into local languages, or sharing verbally.</p>

Table 3.1: Considerations in Developing a Data Management Strategy

Good data management practices are particularly important for environmental peacebuilding work due to the challenging contexts and inherent risks. For example, it may be difficult or impossible to recover data if it is corrupted or lost. Leaked data or a breach in privacy can also have negative and dangerous implications, especially in conflict contexts. This can include the breakdown of trust between practitioners and intervention stakeholders, which in turn impacts the ability of practitioners to collect accurate data and effectively carry out an intervention. More importantly, data leakage can endanger those implicated by the information, particularly if they are identified by those who have an interest in the continuation of the conflict.



Rigorous monitoring must therefore address tensions between transparency and the sensitivity of information. Transparency encompasses many dynamics, including the idea of openness with the public, a lack of secrecy between actors, and a means to hold people and institutions in power accountable (Stone 2002; Ball 2009; Meijer 2014). Addressing transparency and sensitivity can build and maintain trust, yield more insightful monitoring results, and mitigate privacy risks. Transparency in environmental peacebuilding can increase public awareness and provide accountability, which may have secondary effects such as improving the merit of an intervention and strengthening the data (GEF

2020; Rathinam et al. 2019). Collecting sensitive information can adversely affect disclosure, minimizing transparency. Box 3.8 illustrates these tradeoffs. Failure to effectively address these tradeoffs can skew monitoring results, harm stakeholders, and negatively affect the intervention (Anhalt-Depies et al. 2019). USAID and other organizations use the concept of “**responsible data**” to recognize the tensions between privacy protection, data security, transparency, and openness (Center for Democracy and Technology 2018; USAID 2022). It is crucial that you develop an understanding of and process for contextually relevant practices to manage these tradeoffs.

Box 3.8: Identifying Sensitive Information in the USAID Central Africa Regional Program for the Environment (CARPE)

Started in 1995, the USAID CARPE initiative is a multi-decadal effort to sustainably manage forest landscapes, mitigate biodiversity threats in those landscapes, establish policy and regulatory environments supporting sustainable forest and biodiversity conservation, and strengthen capacities to monitor forest cover change, greenhouse gas emissions, and biodiversity in the Congo Basin. Phase III of the project began in 2013.

In monitoring and evaluating this intervention, it became clear (in the mid-term evaluation) that cultural factors played a significant role in determining what information was sensitive:

Spiritual matters are given a very high priority by the inhabitants of the Congo Basin. This has direct consequences for social change endeavors, including governance and development initiatives, because of fatalistic attitudes and superstitions. People of the Congo Basin are reluctant to disclose their intentions—to marry, buy a plot of land, apply for a job, or take a trip — out of fear that the forces of the occult will interfere before their aims have been met. Secrecy is therefore a powerful cultural reality, and a political strategy as well. Political elites in Congo tend not to believe in transparency; on the contrary, they generally adhere to the belief that to wield power effectively, it must be done in secret (USAID 2017, p. 16).



B. Data Quality Assurance and Control

While there is no such thing as perfect monitoring data, **it is important to establish measures to check and validate the accuracy, reliability, and reproducibility of monitoring data.** Like other aspects of the M&E framework, quality assurance and control mechanisms should be balanced with the time and resources available—i.e., they should be right-sized. Specific considerations include:

- **Validity:** Does the data provide information on what was intended? Does the data reflect any bias, such as the bias of an interviewer, interviewees, or a sampling bias? In environmental peacebuilding contexts, it may be more challenging to directly access certain kinds of data, and proxies may be needed.
- **Reliability:** Is the data collection tool and process consistent over time? This is particularly challenging in conflict contexts, and different scenarios should be considered when designing monitoring processes. If the approach to data collection must change, make sure that the change is clear in the documentation of the intervention.
- **Randomly selecting data** for an in-depth exploration of its validity and reliability, the data sources, and the collection tool(s). In this case,

limited resources are focused on spot checks of data, which may be a more efficient and appropriate approach to data quality.

- **Contextual Issues:** Given the multitude of stakeholders and perspectives often implicated in environmental peacebuilding work, it is important to consider the ways in which cultural, political, and social factors influence perceptions of data quality (Shanks & Corbitt 1999). Not everyone will agree, for example, on what counts as valid and reliable information. This should be explored at the start of an intervention to counter any challenges to monitoring information that may arise.

No matter the situation, it is essential that practitioners acknowledge the limitations and potential biases of their data and that this is transparent in the way information is communicated and shared.





Worksheet: Monitoring

Objectives:

- Effectively and efficiently monitor or measure changes (in the environment, peace/conflict, and the intervention) during an intervention.
- Produce evidence through a conflict-sensitive process that can be used for adaptive management, evaluation, and learning.
- Use monitoring to identify escalating risks (early warning).
- Develop adaptive strategies to respond to early warning.

Selecting Methods for Monitoring

Monitoring is often descriptive and centered on multidimensional qualitative and quantitative indicators, including indicators that measure changes to the intervention context, as well as methods for gathering unintended results outside of the scope of the intervention's theory of change. When selecting methods for monitoring, consider the following:

- What qualitative or quantitative data is already available?** Does the available data capture both the environmental and peacebuilding or conflict-related dimensions of the intervention as well as the interactions between them? What are the limitations of the data?
- What kinds of data do you need to collect** yourself for the indicators you have identified? What will best describe the environmental, peacebuilding, or conflict dimensions of the intervention and its context? Have you explored different ways of knowing or understanding those indicators, particularly as they relate to different stakeholder groups?
- What resources do you have to collect primary data?** This includes skills and expertise, time, technologies, and connections, or networks—and, of course, money.

- What considerations are there for **monitoring in a conflict-sensitive way**? What cultural, political, or other factors might affect how you collect data and from whom? For example, how will you gather data from different ethnic or gender groups? Are there any sensitivity concerns about making that data public?
- How can you create an inclusive, equitable environment for monitoring?** Who can be involved in the monitoring process and how? Brainstorm ways to incorporate stakeholder groups (particularly marginalized groups) in collecting, analyzing, and using the monitoring information in ways that do not exacerbate or feed tensions. Remain aware of uneven power relations and incorporate strategies to build trust and empower different stakeholder groups.
- How can you go beyond specific indicators to also **monitor the context and unintended outcomes**?

Establish a Baseline

A baseline can be helpful for assessing change. However, environmental peacebuilding interventions present unique challenges for establishing baselines due to rapidly changing contexts. As a result, it may not be feasible to establish a robust baseline. Only establish a baseline to the extent that you can. Consider the following:

- At what point in time** in the environmental and conflict context could you take a baseline? What would taking a baseline at this point in time mean as compared to another point in time?
- Does it make sense to capture a longer period of time** in your baseline as opposed to a single “snapshot” in time? Or to have multiple baselines correlated to different points in time?
- A baseline may include a combination of quantitative and qualitative information**, including traditional knowledge.
- Explicitly identify the sources of your baseline.** Are they comparable across environmental, peace, and conflict dimensions?



Using Monitoring for Early Warning

In fragile and conflict-affected situations, early detection of and response to potential problems is necessary to prevent the rapid escalation of conflict and mitigate risks. Consider the following:

- Have you established context or leading indicators** on which to base early warning detection and action? See Chapter 2 (on Design).
- Have you used your monitoring process to build trust and respect among stakeholder groups, including women and other minorities?** Is there a plan in place to establish, maintain, and evolve lines of communication with stakeholders? Is it easy and safe for people to submit complaints? Do they feel heard? This communication is essential to the early identification of issues.
- Can you incorporate regular conflict assessments into the intervention to detect potential risks as they arise?** This can be at regular intervals at which contextual information is gathered and analyzed from a variety of sources and stakeholders. Note that multiple perspectives are important to ensure that you have a full picture of the context.
- Have you fully adopted a conflict-sensitive perspective?** How could the context affect your intervention, and vice versa?

Adjusting Course

Environmental peacebuilding is characterized by complex and fluid situations that necessitate adaptation in the face of, often rapid, change. Monitoring information can help. Consider the following:

- Have you established a process for regularly reviewing and analyzing the monitoring data you collect?** Brainstorm adaptive strategies to strengthen your intervention's ability to use monitoring data and modify activities as relevant.
- Who will be involved in those regular reviews?** How can the inclusion or exclusion of certain stakeholder groups affect your decisions and, thus, the trajectory of your intervention? Note that different stakeholders will have different perspectives on what the information means.
- Do you have sufficient monitoring information to make informed decisions and adjust course?** Does your monitoring plan include a process for gathering information on unintended consequences, and are you reviewing it?
- How will you document decisions made and actions taken based on your monitoring information?** It is important to keep track of what was decided and what actions were needed based on your review and analysis, including the person(s) responsible and the timeline for action. This helps to ensure that monitoring information is actually used.



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Annex 3-I: Data Repositories

The following tables provide example repositories of information relevant to environmental peacebuilding. The first table focuses on repositories related to conflict, fragility, peace, and peacebuilding. The second table focuses on repositories related to the state of the environment and environmental governance. The third table highlights a few other potentially useful repositories, particularly those related to environmental governance.

Table 1: Data Repositories for Conflict, Fragility, Peace, and Peacebuilding

DATABASE	LINK	USE
UN Peacebuilding Projects	https://www.un.org/peacebuilding/documents	Provides access to the documents of the UN Peacebuilding Commission, which can demonstrate criterion applicable in peacebuilding programs.
Uppsala Conflict Data Program	https://ucdp.uu.se/	Provides data on organized violence, with the oldest ongoing data collection project for civil war.
ACLED	https://acleddata.com/#/dashboard	Collects real-time data on the locations, dates, actors, fatalities, and types of all reported political violence and protests globally.
Peacebuilding Data.org	http://www.peacebuildingdata.org/	Contains quantitative and qualitative research undertaken in countries affected by mass violence.
Journal of Peace Research Replication Datasets	https://www.prio.org/journals/jpr/replicationdata	Provides access to the datasets used by authors of articles featured in the Journal of Peace Research (since 1998).



DATABASE	LINK	USE
Eirene Peacebuilding Database	https://www.allianceforpeacebuilding.org/eirene-peacebuilding-database	Puts forward program approaches, indicators, and measures currently being used across 7 program areas: Dispute Resolution; Governance; Perceptions of Safety and Security; Resistance; Trust; Social Cohesion; and Violence Reduction.
Global Peace Index	https://www.visionofhumanity.org/maps/#/	Provides quantitative scores on the peacefulness of individual countries based upon 23 indicators.
Global Terrorism Index	https://www.visionofhumanity.org/maps/global-terrorism-index/#/	Quantitatively measures the impact of terrorism in each nation based upon four indicators, ranking countries from 0 to 10.
Fragile States Index	https://fragilestatesindex.org/	Annual assessment of fragility of nations, providing a quantitative score for each country.
Millennium Challenge Corporation Evidence Platform	https://mcc.icpsr.umich.edu	Contains studies, documentation, and data from the Millennium Challenge Corporation's foreign aid grantmaking work.

Table 2: Data Repositories on the Environment

RESOURCE	DATABASE	ORGANIZATION	SCALE	DESCRIPTION	LINK
Water	AQUASTAT	FAO	Global & Country	AQUASTAT collects, analyses, and provides free access to over 180 variables and indicators by country from 1960 onwards.	http://www.fao.org/aquastat/en/
Agriculture	FAOSTAT	FAO	Global & Country	FAOSTAT provides free access to food and agriculture data for over 245 countries and territories, covering all FAO regional groupings from 1961 to the most recent year available.	http://www.fao.org/faostat/en/#data
Fisheries	FAOSTAT & FishStatJ	FAO	Global & Country	FishStatJ is an application available on Windows and Mac, used to access FAO's Fisheries and Agriculture statistics, including datasets on production, trade, and consumption.	http://www.fao.org/fishery/statistics/en FishStatJ: https://www.fao.org/fishery/en/topic/166235
Biodiversity	GBIF	Global Biodiversity Information Facility	Global & Local	GBIF is funded by the world's governments and aims to provide open access data about all types of life on earth.	https://www.gbif.org/

RESOURCE	DATABASE	ORGANIZATION	SCALE	DESCRIPTION	LINK
Extractives	Minerals Resources Data System (MRDS)	USGS	Global & Local	MRDS describes metallic/non-metallic mineral resources throughout the world. It includes deposit name, location, commodity, and references.	https://mrdata.usgs.gov/
Land	Esri Land Cover 2020	ESRI	Global & Local	An annually updated 10-meter resolution map of the Earth's land surface from 2017-2021. It provides information about change in land cover/usage.	https://livingatlas.arcgis.com/landcover/
Forests	Global Forest Watch (GFW)	World Resources Institute	Global & Local	GFW displays a multitude of forestry-related indicators on an interactive map. It comprises over 100 global and local data sets.	https://globalforestwatch.org/
Environmental Vulnerability	INFORM Risk Index	European Commission's Joint Research Center	National (for 191 countries)	Focuses on humanitarian crises and disasters, looking at hazard and exposure (events that could occur and exposure to them), vulnerability (the susceptibility of communities to those hazards), and lack of coping capacity (lack of resources available that can alleviate the impact).	https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk

RESOURCE	DATABASE	ORGANIZATION	SCALE	DESCRIPTION	LINK
Environmental Vulnerability	Economic and Environmental Vulnerability Index	UN Committee for Development Policy	National (for 145 developing countries)	Includes both the Economic Vulnerability Index and the Environmental Vulnerability Index, each of which contains four indicators	https://www.un.org/development/desa/dpad/least-developed-country-category/ldc-criteria.html
Environmental Vulnerability	Vulnerability Risk Index (VRI)	Villanova University	National (for 173 countries)	Assesses vulnerability to environmentally triggered conflict.	https://link.springer.com/content/pdf/10.1007%2F978-3-319-90975-2.pdf
General	World Development Indicators	World Bank	National (for 217 countries)	More than 100 environmental indicators, including on Agriculture and Food Security, Climate Change, Economic Growth, Environment and Natural Resources, and Gender.	https://datacatalog.worldbank.org/dataset/world-development-indicators
General	Environmental Performance Index (EPI)	Yale University Columbia University	National (180 countries)	Focuses on environmental results.	https://epi.yale.edu/

RESOURCE	DATABASE	ORGANIZATION	SCALE	DESCRIPTION	LINK
Environmental Governance	Environmental Rule of Law	UN Environment Programme	Global & National	Dataset focuses on environmental governance, laws, including institutions, civil engagement, rights, and justice.	https://www.unep.org/explore-topics/environmental-rights-and-governance/what-we-do/promoting-environmental-rule-law-0
Environmental Governance	Environmental Conventions Index (ECI)	University of Massachusetts Boston	National (more than 120 countries)	Evaluates how countries have implemented their commitments under international environmental conventions.	https://www.environmental-governance.org/eci
Environmental Governance	Environmental Governance Indicators for Latin America and the Caribbean	World Justice Project	National for 10 countries in Latin America	The index uses 11 primary indicators: Regulation and Enforcement, Civic Engagement, Fundamental Environmental and Social Rights, Access to and Quality of Justice, Air Quality and Climate, Water Quality and Resources, Biodiversity, Forestry, Oceans, Seas, and Marine Resources, Waste Management, and Extraction and Mining. In addition, there are 42 sub-indicators and 20 sub-sub indicators.	https://worldjusticeproject.org/our-work/research-and-data/environmental-governance-indicators-latin-america-and-caribbean

RESOURCE	DATABASE	ORGANIZATION	SCALE	DESCRIPTION	LINK
Climate Risk	Global Climate Risk Index	Germanwatch e.V.	National (for 180 countries)	Four indicators make up the Index: number of deaths; number of deaths per 100,000 inhabitants; sum of losses in US\$ in purchasing power parity; and losses per unit of GDP.	https://germanwatch.org/en/crri
Climate Risk	Climate and Ocean Risk Vulnerability Index	Stimson Center	City.	Focuses on the risk coastal cities experience as a result of climate change.	https://www.stimson.org/wp-content/uploads/2020/06/Stimson_CORVIRReport_FullReport_051220-1.pdf
Climate Adaptation	Notre Dame Global Adaptation Initiative Country Index (ND-GAIN)	University of Notre Dame	National (for 181 countries)	Includes 45 indicators: 36 measuring vulnerability and nine measuring readiness.	https://gain.nd.edu/our-work/country-index/
Disaster Risk	World Risk Index	United Nations University and Ruhr University Bochum	National (for 181 countries)	The Index is made up of four components and 27 indicators.	https://weltrisikobericht.de/weltrisikobericht-2020e-neu/

Table 3: Other Data Repositories

DATABASE	LINK	HOW IS IT USEFUL AND WHAT IS IT USEFUL FOR?
Human Development Index	http://hdr.undp.org/en/content/human-development-index-hdi	Tracks important selected aspects of human development, including length of life, education, and standard of living.
Worldwide Governance Indicators (WGI)	http://info.worldbank.org/governance/wgi/	Addresses a range of the practical aspects of governance, including control of corruption, rule of law, regulatory quality, voice and accountability, government effectiveness, and political stability and absence of violence. For each of these six aggregate indicators, there are multiple individual indicators, with well over 100 individual indicators overall.
Country Policy and Institutional Assessment (CPIA)	https://datacatalog.worldbank.org/dataset/country-policy-and-institutional-assessment	Using 16 criteria in four clusters, it investigates how effective the frameworks are at reducing poverty, improving sustainable growth, and fostering effective use of development assistance.
Corruption Perceptions Index (CPI)	https://www.transparency.org/en/cpi/2020/index/nzl	It annually ranks 180 countries and territories by their perceived levels of public sector corruption.
Rule of Law Index	https://worldjusticeproject.org/rule-of-law-index/	It looks at policy outcomes to determine adherence to rules and laws instead of focusing on the enabling conditions of governance or how a society can work to achieve policy outcomes.