Exploratory Future Narratives Primer

A STAP Advisory Document

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STAP SCIENTIFIC AND TECHNICAL ADVISORY PANEL

An independent group of scientists that advises the Global Environment Facility

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Foreword

This document provides a synthesis of guidance specifically aimed at using simple narratives of the future in project and program design in a Global Environment Facility (GEF) context; it contributes to a growing suite of Scientific and Technical Advisory Panel (STAP) documents that support the design of interventions in meeting the GEF's goal to apply leading practices to deliver transformational change. The use of scenarios, and simple narratives in particular, interacts with many other elements of project and program design, as outlined in STAP's *Enabling Elements of Good Project Design*.[1]

A key challenge for the GEF is to ensure that the global environmental benefits achieved from its interventions endure in the face of a continually changing world. As a consequence, **the GEF-8 Strategic Positioning Framework[2] urges: "Design for resilience in the face of multiple, plausible future scenarios".** STAP's experience of screening Project Identification Forms (PIFs) and Program Framework Documents for GEF investments is that these often describe future trends quite well, but less often articulate the uncertainty in the drivers (e.g. local demographics or economics, or climate change), and rarely address the resulting future changes in the intervention design. Because projects rarely change design radically once their PIF has been approved, **better approaches to being resilient in the face of unfolding uncertainty are needed, even at the early design stage**, in turn requiring an efficient and effective approach that is not too resource intensive. In the GEF-8 cycle, a redesigned PIF format asks for more attention to be paid to these issues. STAP recommends the use of simple future narratives to meet this requirement and offers this primer as guidance.

In drawing up this primer, STAP spoke with diverse practitioners in the GEF family and with outside experts, whose inputs were greatly appreciated, in particular through a consultative webinar in early 2022. Many sources, online and in the peer-reviewed literature, were also reviewed; more details can be found in the companion supplement to this primer, to be released on the STAP website subsequently (comprising a short literature review and an annotated bibliography).

The problem being addressed is that future trends (and particularly the uncertainty in those trends) may undermine the outcomes of GEF investments. Efficient ways to handle this issue are needed in project design, particularly at the early PIF stage. This primer aims to structure the development and use of simple future narratives so that significant improvement in outcomes can be achieved with as little disruption as possible. **The main purpose of the approach is to enable project designers to think more broadly about the challenge they are tackling, rather than more precisely, so the use of narratives is intended to be simple but by no means simplistic.**

[1] Stafford Smith et al. (2021a).
[2] GEF Secretariat (2022), clause 58(f), p.32

Glossary

Italicized terms are defined elsewhere in the glossary. Some definitions are expanded in the text.

baseline scenario: term used in the GEF for how the future of the *system* will unfold in the absence of an intervention, including the problems that lead to the need for the intervention (hence covering *drivers* that can be affected by the intervention and *drivers* that cannot – the latter being the focus of *simple future narratives*).

driver: any important factor that determines how the social–ecological *system* of interest is likely to unfold, with particular focus on the identified problem (e.g. population growth, future climate change, distant market forces). An intervention may be able to address some drivers, but *simple future narratives* focus on those drivers that cannot be significantly changed.

projection: a modelled forecast of future trends, such as of future climate and its impacts. These projections may help bound *simple future narratives* but are too complex to include in detail.

resilient: strictly, a description applied to a *system* that recovers from disruptions in adaptive ways to maintain essential function. Within the GEF, *resilient* is often used more loosely to describe a *system*'s ability to cope with any future, including unexpected changes; thus, it is a similar but less formal criterion than *robustness* for assessing *response options*.[3]

response option: one of a number of possible interventions to tackle a particular problem. One of these options will be chosen as the 'alternative scenario' in GEF parlance.

robust: a description applied to *response options* that work reasonably well in any envisaged future (i.e. across all *simple future narratives*) rather than working well in one but failing in others.

scenario: a storyline that explores plausible future states of the world or alternate states of a system, which should usually be internally consistent. These are often classified as **predictive** (technical projections of what is **likely** to be), **plausible** (stakeholder-engaged assessment of what **could** be), and **normative** (stakeholder-driven visions of what **ought** to be). They may also be classified as **exploratory** (driven by external forces that cannot be significantly influenced by the project) or **intervention** scenarios (incorporating internally controllable *response options*). See also Table 1.

simple future narrative: easily assimilated short stories about alternative futures that illuminate interactions among key *system drivers*; these narratives are developed using *scenario* approaches, with a focus on being *simple*, although not *simplistic*. The narratives are intended to be plausible and exploratory, perhaps using some predictive data, and related to *system drivers* that a GEF investment cannot significantly change.

simple* versus *simplistic: *simple* describes narratives that aim to capture key features of complex *systems*' futures in a sophisticated yet readily understood way; *simplistic* describes approaches that fail to be methodical about simplifying *system* complexity, often ignoring critical features.

system: (in this primer) a social–ecological system within which a problem and potential solutions are situated; this system may be a biome, a region, a country, or a value chain and includes both biophysical and socioeconomic dimensions. It is always important to put bounds in space and time on the system of interest at some focal level of scale (e.g. community, province, or nation; local, national, or global markets), though it may be important to consider effects arising from lower and higher levels of the scale.

uncertainty: the unpredictability in how trends in *drivers* will evolve over time (though it is usually possible to put bounds on the range of possible trends).

[3] See STAP's information brief *Making GEF Investments Resilient* (Stafford Smith et al., 2021) for more explanation.

1. A brief overview of the concept and use of narratives

This section outlines how scenarios have been used for a long time to tackle uncertainties in complex systems, and how qualitative narratives of the future are an easier tool to achieve the same ends in the context of Global Environment Facility (GEF) project development.

1.1 What are scenarios and narratives?

Scenarios are usually defined as "storylines that explore plausible future states of the world or alternate states of a system".[4] Ramirez and Lang (2020) note that scenarios must be plausible as well as challenging and useful, so that a set of **scenarios must be developed with their intended use, users, and purpose in mind**; as they say, scenario planning is as much a social as a cognitive process. To be plausible, a scenario should be internally coherent (e.g. it is not usually plausible to have a major population increase with a major decrease in resource use).

The suggestion to "use scenarios" can engender confusion. A vast literature attests to their many forms and the many ways of using them.[5] In particular, scenarios can be **predictive**, **plausible,** or **normative**, used to explore (i) what is *likely* to be (e.g. technical projections of climate or population), (ii) what *could* be (e.g. engaging diverse views to explore unexpected systemic risks), and (iii) what *ought* to be (normative approaches, often used to gain stakeholder agreement on preferred futures) (Table 1). Methodologies vary from simple to complex.[6] The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services also **usefully distinguishes *exploratory* scenarios from *intervention* scenarios:**[7] the former are driven by external forces that cannot be significantly influenced by the project, while the latter incorporate internally controllable response options. The latter are commonly used by agencies such as the United Nations Environment Programme and the World Bank, as well as industry, to describe or evaluate possible outcomes as a result of different policies or practices.

Table 1: Key classifications of scenarios from the literature, showing (yellow highlights) the focus of simple future narratives. (Source: compiled from the literature in footnotes 4-6)

IPBES (2016) categories:	**Exploratory** Futures driven by factors that are external to a GEF investment	**Intervention** Futures including response options due to an intervention
Typical scenario categories:		
Predictive (what is likely) (technical, statistical or modelled projections of current trends)	Projections in the absence of planned policy or management changes	Projections with different policy and management options included
Plausible (what is possible) (diverse perspectives, exploring uncertain or complex outcomes)	Imagining interactions among drivers and uncertainties with diverse stakeholders	'Wargaming' alternative interventions with diverse stakeholders
Normative (what is preferred) (engaging stakeholders in identifying preferred futures)	Engaging stakeholders on reaching some consensus on preferred visions of the future	Backcasting and other approaches to identifying how to reach a preferred future

While all these forms of scenario could be useful in different phases of GEF activities, this primer focuses on ***exploratory scenarios of plausible futures***, although these may be constrained by

[4] IPCC (1994).

[5] For some much deeper review and an illustration of the long history of using scenarios, see Peterson et al. (2003); Bishop et al. (2007); Wilkinson and Eidinow (2008); Rounsevell and Metzger (2010); Wilkinson et al. (2013); Fancourt (2016); Avis (2017); Australian Government (2019); Avin and Goodspeed (2020); Thorn et al. (2020); and sources in footnotes 6-10. (NB: this literature usually calls the second type of scenarios "exploratory", but we use the term "plausible" to distinguish this from the exploratory/intervention categorization that follows.)

[6] For example, see Börjeson et al. (2006); Stapleton (2020); Abou Jaoude et al. (2022); Nalau and Cobb (2022).

[7] IPBES (2016)). See also https://ipbes.net/scenarios and Chakraborty et al. (2011).

projections of drivers (e.g. climate, demographics, market demand, technology change), of vulnerabilities (e.g. poverty levels) and of impacts (e.g. levels of economic damage). The focus here is on drivers that will not be significantly influenced by the potential intervention. **Hence, the intervention must plan to work *with* those futures rather than substantially altering them.** Much of the value of exploratory future scenarios lies in helping project planners to explore a wider set of response options and to account for future uncertainty. Therefore, while such scenarios can be mind-bogglingly complex[8] – for example, drawing from hundreds of climate projections or using complex integrated assessment modelling[9] – the purpose can be achieved more simply through qualitative narratives and participation rather than through technical expertise and modelling.[10] This primer refers to **these simpler (but not simplistic!) storyline techniques as "*simple future narratives*".**

1.2 What is the benefit of using future narratives in designing GEF investments?

The crises the world faces are complex and uncertain, making planning challenging; scenarios of some form have long been seen as the fundamental tool to assist in such planning.[11] GEF projects must handle this complexity and uncertainty also; hence, the GEF-8 Strategic Positioning Framework[12] urges: "Design for resilience in the face of multiple, plausible future scenarios. This includes explicit consideration of climate risk along with other dimensions of environmental change." The experience of the Scientific and Technical Advisory Panel (STAP) has been that past projects have tended to focus on a baseline and a single preferred future state. However, the GEF-8 Project Identification Form (PIF) now encourages project designers to consider that the future may unfold along multiple paths, defined by different drivers interacting in complex ways.[13] **The main focus for designers in these considerations should be to think broadly, rather than precisely.**

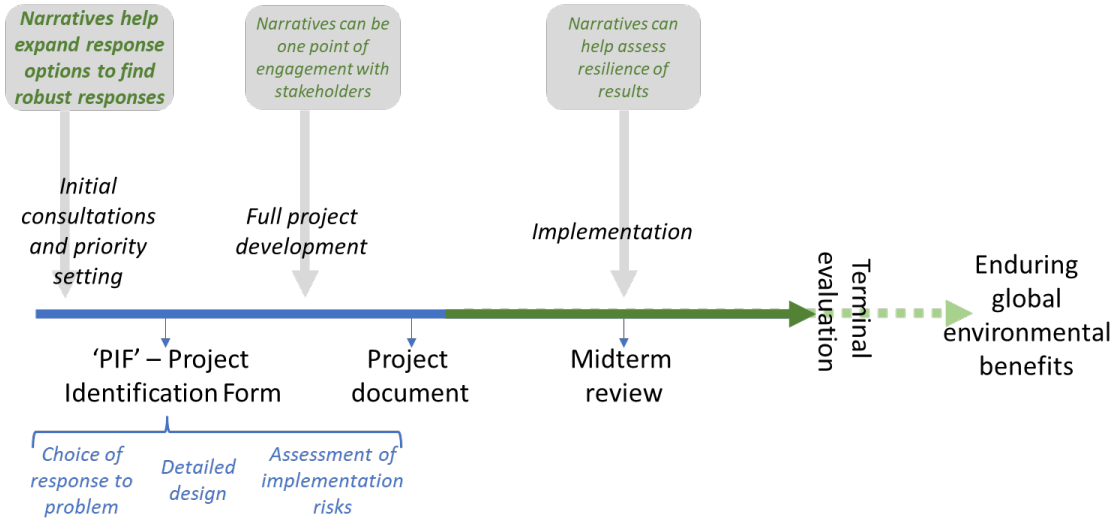
A key issue is to consider response options that are ***robust*** across futures – that is, they work reasonably well whatever future eventuates, rather than working well in one future but failing badly in others. For example, in the face of uncertain trends, farmers might be encouraged to adopt a crop that would work well in a wetter future but fail badly in a drier climate, which would set the farmers up for maladaptation should the climate shift to become drier. A more robust option would be a mixed cropping system that maintains moderate production in both wetter and drier climates.

A second issue for the GEF is that, once the PIF stage of project design is approved (Figure 1), most interventions do not greatly change their focus, so the choice of response option is essentially already complete. In prior PIFs, issues such as climate change tended to be addressed as *post hoc* implementation risks to the already planned project; the GEF-8 PIF now regards these issues as primary inputs to project design, and a key tool for their effective inclusion is an early use of narratives.

In STAP's experience of screening GEF projects and programs, designers are generally good at articulating the key drivers of a system in context, which can include local population dynamics and demography, dependence on the strength of the national economy or international markets, trends in inequality and corruption, or – of course – climate change. However, STAP finds that these drivers are then rarely explicitly acknowledged in justifying the project approach taken, at least at the early but formative stage of approvals. Also, the interactions among drivers are rarely considered.

[8] For example, see sources reviewed in appendix 2 of Fancourt (2016).
[9] For example, Riahi et al. (2017); IPBES (2019). Although note that these quantified scenarios can be important to constrain feasible trends.
[10] For example, Rounsevell and Metzger (2010); Amer et al. (2013); Butler et al. (2016); Fancourt (2016); Karrasch et al. (2017); McBride et al. (2017); Moglia et al. (2018); Funtowicz (2020). Wright et al. (2019) provide a good review of the theoretical basis for the "Intuitive Logics" approach to scenarios, which is aligns with the approach taken in this primer.
[11] Peterson et al. (2003); Fancourt (2016); IPBES (2016); IA and INSW (2021); Nalau and Cobb (2022).
[12] GEF Secretariat (2022), clause 58(f), p.32
[13] Chakraborty et al. (2011); Lacroix et al. (2019).

Figure 1: Simplified GEF project cycle showing where to use simple narratives



Applying simple versions of future narratives at the early PIF stage helps ensure designers consider response options that will develop resilience *through* the project (see Box 1), particularly exploring options that may be robust to future uncertainty. It also allows multiple drivers and uncertainties to be considered in a single efficient and effective process, rather than trying to address multiple drivers like climate change in a repetitive and time-consuming that also does not pay attention to interactions among the drivers. Thus, a streamlined use of narratives can produce much better design results from much less duplicative effort.

In summary, the use of narratives should **broaden the diversity of response options efficiently, enable exploration of interactions among key drivers, and help identify robust interventions that are more likely to lead to enduring outcomes.** Narrative development can also be an important opportunity to engage stakeholders, obtaining their buy-in at the same time as enriching the range of perspectives about the future (see Box 1).

Box 1: Resilience *of* as opposed to *through* a project in GEF intervention design

Resilience is understood as the capacity to address the implications and impacts of change while maintaining the system functions that are deemed essential, whether for ecological or socioeconomic well-being.[14] The World Bank makes the useful distinction between **resilience *of* and *through* a planned intervention,**[15] such as a GEF project. Resilience *of* the project is important, but it can be assessed by standard risk assessment processes, for example considering the risk of a war or of a drought or of the loss of key staff during the process of planning and implementing a project. For the GEF, such risks to project implementation should be addressed in the Risk Table, for example in the PIF. By contrast, resilience *through* the project aims to ensure that project outcomes endure in the face of future change. These outcomes must be addressed in designing the intervention, to ensure, for example, that local farmer livelihoods or tree species will be likely to endure in the face of possible changes in key system drivers (e.g. population, economy, climate), even when their future states and interactions are uncertain.[16] These **longer term drivers must be addressed in the system description and in the design of the project logic** (e.g. Project Rationale and Project Description fields of the PIF); this is where future narratives can help.

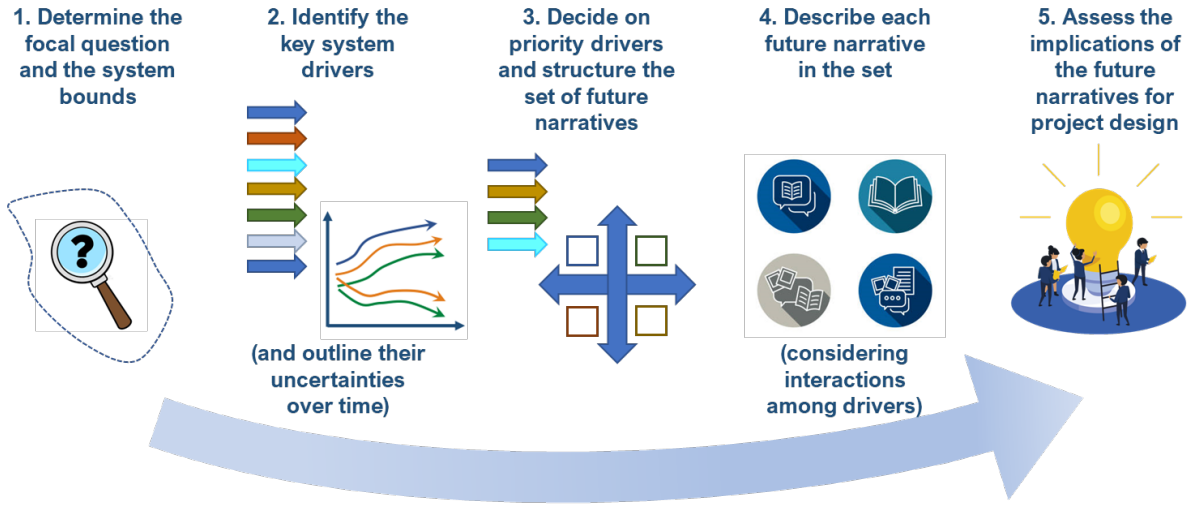
[14] See STAP's brief *Making GEF Investments Resilient* (Stafford Smith et al., 2021).
[15] World Bank Group (2021).
[16] For example, Enfors et al. (2008); Galatowitsch et al. (2009).

1.3 How to develop future narratives – process and content

There are many guides to developing scenarios that can be applied to simple future narratives; these guides recommend between four and nine similar elements,[17] which can be summarized as five key steps (Figure 2):

1. **Define the focal question and the system bounds:** Be clear about the problem the project seeks to address and the project's objective. Set bounds in space or sectors, and set the time-horizon for enduring impact.
2. **Identify the key system drivers:** In describing the system, identify major drivers (with stakeholders if possible), noting which are most important and which have the most uncertainty about their future states (see Box 2).
3. **Decide on priority drivers and structure the set of future narratives:** There are various approaches to this discussed below, with the key purpose to identify a useful diversity of future conditions in which the problem the project seeks to address may occur, and from these to define a set of about four futures to be elaborated.
4. **Describe each future narrative in the set:** Write a short narrative description of each of the futures – that is, how the world will develop (regardless of a GEF intervention) under each narrative – considering the key features of importance to the system (and their interactions), which will differ in each narrative. This should not be more than four future narratives. Initially, this description will be just a paragraph, expressed qualitatively, but it can be made more quantitative and detailed at later stages of design if the resulting insights warrant this.
5. **Assess the implications of the future narratives for project design:** In considering what project investments are likely to achieve the objective stated in step 1, ask whether and to what extent these investments will work in all possible futures. For those that will only work effectively in some futures, informally or formally explore whether there are alternative investments that will work in all futures and still provide the intended benefits (i.e. be *robust* to uncertainty). In making a choice about which option should be preferred, formally include this criterion of *robustness*.

Figure 2: Key steps in developing and applying simple future narratives



In the GEF context, step 1 and most of step 2 are part of the system description in the Project Rationale and are also the background to later developing a theory of change, so all these processes can be tightly linked to avoid duplication, as can the engagement of stakeholders. Step 4 can be

[17] For example, Rounsevell and Metzger (2010); Ambani et al. (2017); Avin and Goodspeed (2020); Stapleton (2020). Bishop et al. (2007) note how the convergence on this (perfectly good) approach has squeezed out some alternative methods; see also Fancourt (2016).

linked with describing the 'baseline scenario', showing some alternative ways in which this might play out. (All narratives will presumably exhibit the problem that the intervention seeks to address; if not, that may itself trigger some insights.) Articulating multiple response options in step 5 is different to what is normally reported in PIFs but should have occurred informally in most cases; the key here is to ensure that this development and evaluation of options explicitly considers how to be robust across the uncertainty represented in the set of narratives.

Box 2: Drivers versus barriers

When developing the system description, both for these narratives and for the resulting theory of change, **distinguishing *drivers* and *barriers* can get confusing**. By system *drivers*, we mean any important factor that determines how the social–ecological system of interest is likely to unfold. This may include, for example, population growth that puts pressure on resources, future climate change that alters cropping productivity or puts biodiversity at risk, or distant market forces that alter the value of a key product from the project locality. Some drivers are fairly certain – population growth and urban spread may be examples – while others have uncertainty associated with them, such as 1.5°C or 2°C of global warming with its related local consequences by mid-century, national economic growth at 3% per annum or stalled, or global coffee prices rising rapidly or declining due to production elsewhere.

Barriers are specific issues that stand in the way of achieving the improvements targeted by an intervention. The barriers of interest are the ones that the project can influence; barriers that the project cannot influence are simply part of the system structure, to be worked around – if they are critical impediments then there is no point investing in the project. Some of these may be system drivers, such as an ongoing war, but others may be specific to the project context while still outside its influence, such as declining government funding for enforcement.

If expressed too loosely, an issue can fall confusingly in both categories, so it is important to be specific. A degree of corruption may be a *barrier* locally that can be addressed in a project, whereas a breakdown in law and order nationally that may produce widespread corruption may be beyond the scope of a project to address – it could be an important *driver*, with some uncertainty as to how it will unfold in the future. Similarly, climate change is a *driver* of change in natural systems and of impacts from increasing flood frequencies, with some uncertainty as to trend; projects cannot individually alter this global trend. At the same time, current (and future increasing) drought frequency may be a *barrier* to successful forest rehabilitation, which a project might address with suitable water management.

Thus, there will be grey areas, but **the focus for narratives is on key *drivers* that will determine (with some uncertainty) how the system will evolve, regardless of the project; projects need to be planned to be robust to uncertainty in these drivers**.

Exactly how the "priority" drivers are chosen in step 3, and how these drivers are then used to position different futures, is a source of discussion in the literature, and probably the hardest step intellectually. The key point is that the drivers used as structuring factors to define the set of future narratives should **reflect key uncertainties about the future but, of course, also be relevant to the purpose of the intervention**. It is fine to iterate a little on this point, trying some alternatives to see how useful they are in providing insight. Such iteration may be particularly needed if stakeholders are brought in who raise new insights.

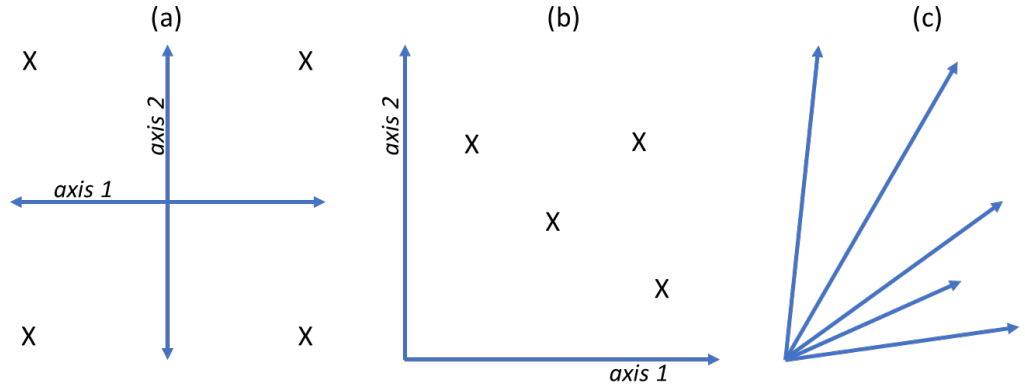
Most commonly, drivers are ranked based on level of uncertainty and of impact to form a 2 × 2 matrix based on what are regarded as the two most important structuring factors that vary reasonably independently of each other (that is, that are orthogonal) (Figure 3a). In doing this, it is important to focus on deep uncertainty rather than risk.[18] The axes should be as independent as

[18] See Ramirez and Lang (2020).

possible to provide most insight and allow interactions between the structuring factors to be explored. For example, future global population and degree of climate change are likely to be partially correlated, since consumption by the former partly drives the latter; whereas level of global climate change impacts and quality of national-level governance may be essentially independent (but interact significantly in terms of a country's ability to adapt successfully). Once the axes are defined, other major drivers that are relevant should still be discussed in the narratives. Example 1 in Appendix 2 illustrates this approach; in this case, one chosen axis is based on climate change and its range of uncertainty, and the other on low or high levels of economic growth and of tourism, which are argued to be somewhat correlated (and history shows that there is more growth in tourism when economies are strong in a region).

Instead of forming a matrix formally, the resulting axes can also be used to define a future uncertainties space within which three to five scenarios may be identified, which may be more suited to the context than a strict matrix (Figure 3b). For example, in the climate change–governance case above, it might still be important to highlight a future in which another factor, such as conflict or a new technology, comes in because such factors are relevant to the context. In either approach, the state of the key drivers in each future can be defined either qualitatively (e.g. increasing or decreasing demand for a product) or somewhat quantitatively (e.g. 60% or 100% increase in population; 1.5°C or 3°C global warming by mid-century). Example 2 in Appendix 2 illustrates this approach, identifying two dimensions that define a space, but then populating it with three futures that provide insights across the space, and an additional future that deals with a key issue (conflict) that local stakeholders wish to highlight.

Figure 3: Three approaches to defining a set of differentiated futures: (a) form a 2 × 2 matrix of four futures, based on two important, uncertain and orthogonal structuring factors; (b) create a futures space based on two factors (as for (a)), but then position three to five relevant futures in ways that are most useful to the context; or (c) identify multiple drivers and write more qualitatively about how these drivers and their interactions may affect the future. STAP recommends (a) for a consistent approach, but the others are also viable.



A third and simpler (but less rigorous) option (Figure 3c) can be to identify three to five key drivers and articulate key "what if" questions around each of them: What if there is global agreement (or not) to implement universal natural capital accounting and all trade rules and product prices take account of natural capital? What if use of plastic is banned globally within 15 years (or not)? In this case, these few questions should be used to systematically challenge all proposed responses to ensure they do not fail under some scenarios. A limitation of this simplified approach is that it does not so easily consider the interactions among the drivers, which may lead designers to overlook critical aspects of these plausible futures that will have to be weathered by projects or their outcomes. Example 3 in Appendix 2 illustrates this approach in the context of a chemicals and waste project, identifying various drivers, then asking key questions about the ability of the proposed

intervention to still succeed in the face of uncertainty in those drivers that the intervention is not deliberately addressing.

In the early PIF stage, when there is the most need to introduce this thinking to avoid locking in a maladaptive response to a problem, simple narratives can be developed through a short brainstorming session among a few team members, perhaps challenged through discussions with a few stakeholders. However, if a larger process is used, there is plenty of guidance on approaches, and steps 2/3 and 4/5 are amenable to workshops;[19] such workshops may be appropriately combined with stakeholder engagement activities during the full project preparation.

1.4 When in the GEF cycle should future narratives be used?

The primary purpose for recommending the use of future narratives is to help broaden the set of response options considered for responding to a problem or challenge in ways that help ensure the response will endure in the face of inevitable but uncertain changes in system drivers. For this purpose, **it is vital to construct some simple narratives around the main important uncertainties *before* the choice of response option is made** (Figure 1) – that is, for the GEF, early in developing the PIF for an project (or at a comparably early stage in setting the directions of a program or focal area). STAP argues that all projects should consider this approach, even if the simple narratives are initially no more than a sentence or two each, since there is almost always uncertainty in how some key drivers will unfold, and, even if there is not, there is often uncertainty in how interactions among drivers will play out.

Discussing possible futures and how to respond to them can also be an effective way of engaging stakeholders in the problem and potential responses, and there is good evidence that **scenarios are better when developed with enriched perspectives from strong stakeholder engagement**.[20] In GEF processes, it is usually impractical to engage with more than a small number of key actors before submitting the PIF, although exposing simple narrative drafts to even a few stakeholders can often enrich system descriptions and the set of response options being considered. However, it can be valuable to engage with a wider group of stakeholders after the PIF stage, while the full documentation is being developed, and this can be combined with the stakeholder engagement essential to further developing the project's theory of change.[21]

Even if the main thrust of the response to the problem has been committed to in the PIF, there is usually an opportunity to nuance this to make it more robust to future uncertainty. **Project designers can determine whether more elaboration of narratives, including through broader stakeholder engagement, would be valuable by asking whether the simple consideration of narratives provided novel insights, changed priorities, or raised issues about understanding longer term futures at the concept stage.** If so, then further elaboration up to the CEO endorsement stage, particularly with stakeholders, is likely to be helpful; if not, then continuing to use the initial narratives to assess the robustness of proposed actions may suffice. (At this stage, consideration might be given to other forms of scenario, including normative scenarios of preferred futures.[22] It is also an option to consider more quantification, although the main purpose should continue to be to think broadly, rather than precisely.[23])

It may also be useful to revisit the future narratives while reviewing project progress, mainly to ask whether initial results are still plausibly robust to uncertainties, which may resolve themselves (or may become worse) as more information emerges over time.

[19] For example, Ramirez and Lang (2020) and Stapleton (2020) describe online approaches.
[20] Oteros-Rozas et al. (2015); Totin et al. (2018); Wright et al. (2019). McBride et al. (2017) provide a one-day co-design protocol for this.
[21] See STAP's *Theory of Change Primer* (Stafford Smith, 2020); also Moglia et al. (2018).
[22] The development of these scenarios is not covered in this primer, but see see reviews by Abou Jaoude et al. (2022); Soria-Lara and Banister (2018).
[23] If subsequent efforts are put into quantification, this should focus on uncertainties that initial design work suggests the response options are particularly sensitive to.

1.5 How to assess the usefulness of a future narratives process

A variety of sources provide lists of dos and don'ts or success factor checklists for future narratives.[24] STAP has synthesized the following recommendations from these:

- Make *sufficient* sense of complexity – don't get lost in it, but use some structured analysis (like the 2 × 2 table of futures) to really engage with it, as appropriate to the context of the target problem.
- As much as possible (and even if only in a small way to start with), involve *stakeholders* in a participative way, and ensure the narratives resonate with them.
- Acknowledge and respond appropriately to *uncertainty*, in particular in assessing the design of potential response options for their *robustness* and to avoid maladaptation and global environmental benefits that do not endure.
- Create *plausible, integrated* narratives, not fragmented ones: but emphasize usefulness, not absolute precision!
- *Challenge current mindsets* in a non-threatening way that gives new insights to the design team.

More technically, the integrated narratives should be fit for the purpose of the proposal: sensitivity analyses or model runs, or even generalized narratives, should not be used without tailoring them to the specific context, problem, and stakeholders. The goal is to develop a sufficient variety of futures to gain insights, rather than comprehensive but (for most readers) incomprehensible completeness that could become a form of false precision, encouraging designers to focus on designing for these exact scenarios, rather than for an uncertain future that could contain these *and other* futures. The task should be approached as learners, not as experts or decision makers. Creating narratives should be seen as a social process as much as a cognitive one.

Some illustrative examples that demonstrate some of these points may be found in Appendix 2.

1.6 Getting help with future narratives

There are many sources of reasonable approaches to developing simple scenarios, which can be sampled by searching for "how to build simple exploratory scenarios" online. Some of these are aimed at community use and are "simple" in the sense that we use here, and may offer assistance. If these are used, beware approaches where the level of complexity is not matched to the purpose or the design benefits (see section 1.5). Past experience shows that complex scenario processes may be interesting and very quantitative, but they are often too much for decision makers to fully comprehend and so may not actually help to inform design. In general, scenario processes are most useful to those who carry them out, so they should be at a level of complexity that can be readily incorporated by the project team itself, with insights from others. Here, "readily" means in terms of time and effort as well as expertise and passion. In general, for these reasons, STAP recommends that consultants are not hired to develop these narratives (unless the consultant is already delivering the whole PIF); it is essential that the whole project team owns the result and contributes to identifying responses to the problem that have the potential to be robust in the face of future uncertainty. The approach presented in section 2 of this Primer is intended to be accessible to any GEF project development team.

[24] For example, see Oteros-Rozas et al. (2015); Wright et al. (2019); Ramirez and Lang (2020); Cradock-Henry and Frame (2021); Lang and Ramirez (2021). Many of these sources talk about scenario processes in general, but their insights are highly relevant here also.

2. A short guide to developing exploratory narratives

Ensure team members are all clear on the purpose of using narratives. The intent is to provide the best insights possible about how to consider (uncertain) future change in project design, as efficiently as possible, and from those insights to identify an intervention option that is likely to produce global environmental benefits that endure in the face of that change. It is important to use the following ideas flexibly to achieve this end, without being fixated on details and without getting over-complicated!

The following steps can and should be treated iteratively. While this should not hold up project development, some reflection on whether the earlier steps have covered everything of importance is almost inevitable, as the later steps clarify initial thoughts about the scope and objectives of an intervention. Consequently, it is more important to move through these steps quite quickly (and then revisit if necessary) than to get stuck trying to make each one sequentially perfect.

2.1 Before developing future narratives

A necessary step in developing future narratives is to have a system description that identifies the drivers of the system relevant to the problem the intervention is seeking to address. For the GEF, this step essentially overlaps with the existing requirement for a description of the problem being tackled in the context of the social–ecological system in which it occurs, which is the basis for providing a baseline scenario of how the problem will evolve in the absence of a GEF-funded intervention. This process does not need to be duplicated! For exploratory future narratives, however, a critical nuance in the description of the system is to highlight the important system drivers, especially those that give rise to irreducible uncertainties about the future. This modification to the system description will fulfil steps 1 and 2 in developing future narratives, but using the system description for this purpose may require an iterative approach to identifying and clarifying the drivers (see section 2.2).

2.2 Steps in developing future narratives

Figure 4 shows the five steps STAP recommends for the development of future narratives. **These steps are essentially the same whether two or 20 people are involved**, but here it is assumed there is a small team that can brainstorm the steps together when needed:

- In general, one or two people can draft the description of the system and its drivers, but it is important to then get multiple viewpoints on whether the right drivers have been captured.
- The same wider group should work on step 3 (prioritize the drivers and structure the set of narratives), as this discussion often exposes different understandings of how the world functions.
- The future narratives themselves may be drafted by one or two people, but it is important to get others' opinions about them.
- Step 5, assessing project response options (and whether the team has thought widely enough about these options), should again be a team activity.
- Some iteration back from later steps may be needed to clarify the drivers and how they may play out.

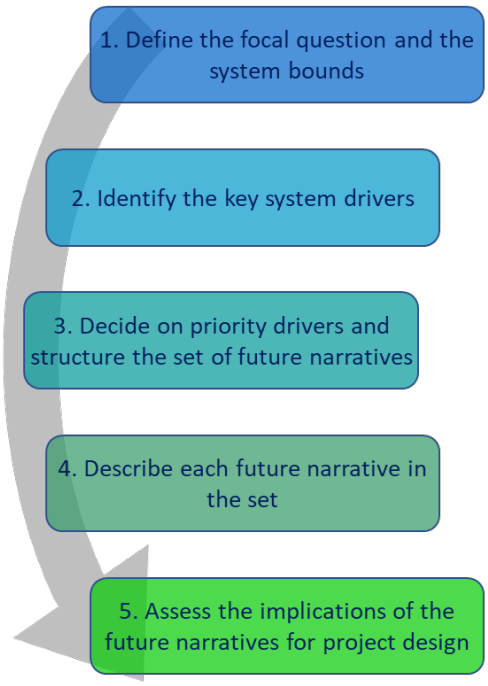


Figure 4: Key steps in developing and applying simple future narratives

Other guides and processes can be used satisfactorily. [25] When a different guide is used, remember to:

- Keep it simple
- Focus on important uncertain drivers
- Seek insight from divergent futures
- Apply a robustness criterion when considering project response options in the light of these futures

(See section 1.5 for other key features of a successful narratives' process.)

2.3 Using future narratives in a PIF

STAP is advancing the use of simple future narratives in PIFs to ensure that the choice of project response option has taken account of future uncertainty in drivers at this early stage, as such decisions tend to be locked in thereafter. Ideally, in designing for an uncertain future, these decisions can be framed in a manner that allows them to be revisited and elaborated as the full project documentation is completed, particularly as more stakeholders are engaged, and even during implementation.

There is no need to have duplicative, stand-alone text about simple narratives in the PIF. At the PIF stage, steps 1 and 2 of narrative development should simply be part of the system description in the Project Rationale, with some extra emphasis on picking out the most important system drivers for future narratives (step 2) and outlining their uncertainty on a time frame relevant to enduring global environmental benefits (e.g. 2050).

Step 3 requires some thinking but can be reported very briefly in the PIF, underpinning step 4. The narratives developed in step 4 are an effective way of presenting the baseline scenario in the Project Rationale, while explaining its uncertainties (e.g. example 2 in Appendix 2). However, a separate brief description is also fine (e.g. example 1 in Appendix 2).

The narratives should then contribute to ensuring that the design of response options to the problem identified includes approaches that will work in any future. This can be mentioned briefly in the assessment of the *implications* of the narratives (step 5), which should also be a key part of describing why the particular response has been selected (usually near the end of the Project Rationale section. The narratives may also be drawn on briefly during the Project Description to show how the response chosen is robust across possible futures.

The people who have been involved in devising the narratives should be noted very briefly, especially any stakeholders.

Any of these steps can be further elaborated in the full project documentation if the narratives have provided useful insights. If the drivers and the narratives' logic have not been challenged by the involvement of additional people, including other stakeholders, then this elaboration may simply involve steps 4 and 5.

The following section provides a condensed guide to the steps for developing simple future narratives.

[25] Examples of many are Rounsevell and Metzger (2010); Lacroix et al. (2015); Stapleton (2020) or Thorn et al. (2020) emphasising participation; and USAID at https://usaidlearninglab.org/resources/strategy-development-scenario-testing-and-visioning). Some of these are more complex and better suited to later stages in project development or implementation. Searching online for "how to build simple exploratory scenarios" also returns some useful approaches, as long as simple approaches are chosen.

2.4 Summary guide to using future narratives, particularly in relation to PIFs

Step	Elements	Practical tips
1. Define the focal question and the system bounds	• Be clear about the problem and objective. • Set bounds in space or sectors, and set the time-horizon for enduring impact. • Engage the team; and partners and stakeholders as much as possible.	• This step is similar to the standard problem definition and system description for a GEF proposal; however, the time-horizon should be relevant to enduring outcomes, probably at least 25 years beyond the investment period (e.g. to at least 2050). • Setting time, space, and sectoral scales and boundaries is important in bringing focus to relevant drivers in step 2. *(Appendix 2 provides some examples.)*
2. Identify the key system drivers	• Identify major drivers, testing them with your team and, if possible, some stakeholders. • Distinguish drivers that you are seeking to change (which may be barriers to be overcome) from those that will affect how the social–ecological context will change but that are essentially out of your control. • Describe the likely trajectories of key drivers, at least qualitatively, out to the time frame over which you mean your outcomes to endure (e.g. to 2050). • Note which drivers are uncertain in ways that matter to the sort of outcomes you are seeking.	• This step should also be part of the system description. Describe the drivers that will determine how the problem to be tackled will evolve as well as those that will determine how the system, more widely, will evolve. This list could be long, so prioritize and focus on the drivers that are likely to affect whether your intervention is successful and whether its outcomes will endure. • Drivers with trajectories that are fairly certain should be distinguished from those that have uncertainties that matter for the problem the project seeks to address. • It may help to look at quantitative data on trajectories, where available, to ensure your perceptions are reasonable, but beware of getting lost in detail – your insights will come from quite simple descriptions that allow you to **focus on trends, uncertainty, and interactions, rather than on decimal places**. STAP strongly recommends *against* presenting many complex graphs! • Consulting some "megatrend" works may usefully trigger thoughts about changes that might not automatically be considered *(e.g. Naughtin et al. (2022), as well as synthesis papers in more specific domains).*
3. Decide on priority drivers and structure the set of future narratives	• Identify the three or four most uncertain drivers that are also crucial to how the system will evolve. • Identify drivers that are correlated; pick one key driver (perhaps with others correlated to it). • Look for another driver with uncertainty that is least related to the first one (i.e. that is most "orthogonal" to it). • Use these two drivers to establish a 2 × 2 table of combinations of high in both, low in both, and opposing low–high combinations.	• Identifying two important and uncertain drivers where their uncertainties are unrelated will give you the most insight in combination. • Uncertainty only matters in context. For example, if you are not using water, then climate-driven uncertainty in water supply, however large, is irrelevant. • A 2 × 2 table based on these drivers defines a set of four futures to be elaborated. • The state of the key drivers in each future can be defined either qualitatively (e.g. increasing or decreasing demand for a product) or somewhat quantitatively (e.g. 60% or 100% increase in population; 1.5°C or 2.5°C global warming by mid-century). Describe the drivers out to the timeframe over which you want global environmental benefits to endure.

	• Note the state of each key driver in each quadrant, as well as other drivers correlated with them; also note the state of any other important but invariant drivers.	• *STAP recommends this approach, but see section 1.3 for alternative approaches in this step (see also Appendix 2).*
4. Describe each future narrative in the set	• Write a short narrative description of each of the futures – that is, how the world will develop (regardless of the GEF intervention) under each future. • Emphasize the key features of importance to the social–ecological system that differ in each future and that are relevant to the problem you are tackling. • Focus mainly on the implications of the drivers that are different in each case (as well as their interactions), but also incorporate what is happening with the drivers that are more universal and certain.	• The narrative can be just a paragraph for each future, expressed qualitatively. (If the resulting insights warrant, it can be made more quantitative and detailed at later stages of design.) • Issues that are affected by interactions should be emphasized; for example, the upper end of climate change will have greater impact in systems under poor governance than in those with good proactive, adaptive governance. • *Some examples are provided in Appendix 2.*
5. Assess the implications of the future narratives for project design	• When identifying options for project investments to address the objective stated in step 1, ask whether these investments will work in all possible futures or only in some. • Informally or formally explore whether there are alternative investments that will work in all futures and still provide the intended benefits. • In choosing which option should be preferred (and when reporting this in the Project Rationale), explicitly include the criterion of *robustness*.	• At the PIF stage, it is most important that a decision on the approach to the identified problem is not made without asking whether there may be different approaches that are more likely to work in any future. This discussion often identifies new response options for consideration, especially with stakeholders. • Ideally, each of a suite of response options should be formally evaluated for its potential success in each future to develop an understanding of which options are robust to future uncertainty. This assessment can be done quickly and qualitatively. • Although quick and qualitative, the explanation in the PIF of why a particular response option was chosen should show that this step has been considered. • If deemed necessary, a more formal assessment of *intervention* scenarios (i.e. how different interventions should play out) can be elaborated in the full proposal, which would appraise these interventions more formally against the narrative futures (which are simple *exploratory* scenarios).
After this process…	• Use the simple narratives to engage stakeholders, accepting updates to the narratives from the fresh insights gained. • Consider reviewing to keep the narratives dynamic and up to date with the best available knowledge throughout the life of the project.	• Stories of the future often help less technical brains to engage with a project! Hence, these narratives may be a useful part of continuing to engage support, especially as individuals turn over. • It is useful to revisit these futures during the project as part of reviewing your theory of change. If the future trends change, or your monitoring suggests some of the assumptions in the theory of change are not being borne out, then adaptive adjustments to the project may be needed – and these still need to be robust to different futures.

Appendix 1: Some frequently asked questions

What's the difference between using future narratives and just doing the baseline and alternative scenario?

Classically, the baseline scenario has been a description of a perceived most likely future, without much discussion of how different trends may interact, and usually without any acknowledgement that some trends are uncertain, and the alternative scenario has been a description of how the intervention is intended to change the baseline. Applying future simple narratives (i) allows a more realistic appraisal of the uncertainties in how the baseline may unfold, (ii) provides an efficient framework for considering how drivers may interact, and (iii) encourages wider thinking about what the best response to the problem may be, particularly as regards working in any possible future. (See section 1.2.)

How can you plan against the future if there are multiple possibilities?

The whole point of using the simple future narratives is to develop responses that will work in all plausible futures, rather than being optimized to one future but failing in others – in other words, making sure that the solution is robust to future uncertainty.

Isn't the PIF stage too early to be getting into multiple narratives?

By the time the PIF is approved, the direction of most projects is set. Therefore, it is vital to introduce thinking about robust project design at this stage. This has to be done relatively simply, hence the emphasis on simple future narratives. But even a little thinking like this can greatly reduce the risk of projects promoting responses that turn out to be maladaptive in some futures. (See section 1.2.)

Can child projects just use narratives from a program or focal area?

Narratives from a program or focal area may provide some key trends that narratives for more specific investments can draw on, but in general a project will need to tailor these narratives to the particular location, sector, and context to be useful. Lang and Ramirez (2021) provide additional caveats about using generic scenarios.

Isn't developing multiple narratives just too resource intensive?

As shown here, a set of narratives that provide great insight can be developed mostly in conjunction with actions that a PIF (and any good project design) is obliged to include anyway (e.g. developing a system description). Creating some simple integrated narratives actually reduces the effort that *ought* to be put in for each driver with key uncertainties (although this step was often skipped in past PIFs) by dealing with all such drivers in one go. This has the added benefit of allowing interactions among drivers to be considered. The narratives themselves can be quite brief and qualitative, and yet still provide great insights. Undue quantification and precision are the main reasons that the use of scenarios can become resource intensive and often rather opaque; this kind of approach should be actively resisted. (See sections 2.2–2.4.)

Can't I just use a set of existing future scenarios?

An existing set of narratives might provide some inspiration for your own development, but they will rarely have been developed for exactly the same purpose or context you need them for, and a major part of the value of developing narratives comes from the insights you and your team gain from the process. So, in general, follow the process suggested here to develop your own. Lang and Ramirez (2021) elaborate on the drawbacks of using generic scenarios.

How long should it take to develop a set of future narratives?

At the stage of a PIF, it should take a matter of hours (probably spread over several short brainstorming sessions) to develop brief narratives along the lines of those in Appendix 2. Section 2.2 highlights the steps that gain from a group discussion as opposed to those that can be drafted by one or two people. (Some of this time would have been used to write parts of the PIF system description and baseline description anyway.) If the narratives are developed further subsequently, or if they are used extensively with stakeholders, then more time will be needed. (For Program Framework Documents, one would expect to spend some more time on robust narratives.)

Do I need to involve stakeholders in developing future narratives?

There is good evidence from the scenarios literature that involving a wider diversity of perspectives from stakeholders creates a richer and more insightful picture of possible futures. Of course, this has to be traded off against the time and editing required. STAP recommends that you try to expose even simple narratives at the PIF stage to some key stakeholders to test your understanding of important system drivers and future trends. The narratives can become a more formal and valuable tool for stakeholder engagement after the PIF stage, perhaps in conjunction with involving stakeholders in theory of change. (See section 1.4.)

Appendix 2: Some example simple narratives

This appendix provides some example simple narratives from some semi-hypothetical GEF project settings, presented in different ways to illustrate the alternatives outlined in section 1.3. In each example, *sentences in italics* help explain the logic but would not necessarily be included explicitly in an actual project description. Example 1 takes the "classic" approach of defining a 2 × 2 space and writing a short narrative for each quadrant. Example 2 also identifies a two-axis space but spans this with three narratives, while adding a fourth to explore an issue of particular concern for the region. Example 3 illustrates the approach of identifying some key dimensions then deriving questions from these dimensions. In addition, example 1 illustrates writing the narratives as short stand-alone items; example 2 presents the narratives as an elaboration of the baseline, thus linking these parts of a PIF efficiently. (These presentation options are not dependent on the way the set of narratives is chosen: examples 1 and 2 could have been written up either way.)

Example 1: Multinational waters fisheries in the Caribbean

This project addresses improving the sustainable management of a set of fisheries that run across the waters of several small island States in an area like the Caribbean, where overharvesting and poor by-catch management is currently damaging biodiversity outcomes as well as local livelihoods, but where increasing tourism also offers alternative livelihoods. In describing the system, it is clear that key drivers include (i) demand for fish, partly driven by increasing population; (ii) habitat damage, driven by fishing itself but also by coastal development, both for the growing population and for tourism, and exacerbated by the impact of climate change in warming waters and increasing extreme events such as hurricanes; (iii) policy incoherence, encouraging improved practices but also subsidizing more boats; and (iv) economic conditions, which affect population growth and development, as well as demand for tourism and for fish. Underlying these drivers are:

- Population growth, projected at around 0.45% per year, fairly consistently
- Demand for fish, which could rise by between 5% and 50% by 2035
- Tourism, projected to grow at 5.5% per year, but with considerable uncertainty driven by world economic conditions
- Projections of climate change between 1.5°C and 3°C by approximately 2050, with 0.3–1 m of sea level rise, a two to six times increase in extreme hurricanes, as well as regional drying and an increase in marine heat waves.[26]

Because interventions are broadly seeking to address the problems of better fishing practices, policy incoherence, and the need for alternative livelihoods, two key axes of uncertainty can be drawn from these drivers that no intervention will greatly affect, one related to the level of climate change, and the other related to somewhat correlated economic conditions and level of tourism, all likely to be accompanied by modest domestic population growth. A set of future narratives will therefore be framed around lower or higher levels of climate change and lower or higher growth in the economy and tourism, leading to four short narratives:

Narrative 1. Slower climate change, slower economic growth: Slow economic growth both regionally and globally results in no increase in demand for fish, although demand already exceeds the capacity of local fisheries. It also causes a pause in coastal development, which reduces the rate at which environmental pressures are increasing, allowing a window of opportunity to establish better planning controls (for environmental impacts in general and for sea level rise) and to defuse conflicts between local fishers and developers. However, the limited growth of jobs in tourism offers few alternative livelihoods for locals, and the market for premium restaurant fish disappears for a while. The modest rate of climate change allows marine ecosystems to recover or retain their resilience, providing fishing does not increase. The risk is that, in the absence of alternative livelihoods, more locals add to the fishing effort, and that the

[26] *The description of the drivers and their explicit ranges should briefly cite the data source.*

general lack of economic growth means that governments do not have the resources to invest in better planning and management.

Narrative 2. Faster climate change, slower economic growth: The relatively rapid evolution of climate change impacts results in a series of local and regional disasters that destroy the resilience of the local economy and damage marine ecosystems. Fishers attempt to maintain their livelihoods but contribute further to overfishing, and fisheries collapse. Tourism is in decline, reducing its contribution to local employment. There is less coastal development, but the capacity to plan for climate change is diminished, so the impact of development on marine resources is poorly managed, as is the conflict with fishers. Interventions that do not build social capital are unlikely to have enduring impact.

Narrative 3. Slower climate change, faster economic growth: In this most optimistic future, climate change impacts advance slowly enough that planning and adaptation have the potential to occur, and economic growth means that there is capacity to implement better planning and management. Increased tourism and population demands put further pressure on the marine system, but there is the opportunity to improve fishery practices and limit catch pressures, partly by facilitating higher value markets in tourist restaurants and by creating new jobs for those displaced from the fishing industry. There is thus a window for improving the resilience of the marine systems to climate change, with significant multiplier effects for fisheries, providing the fisheries avoid damaging practices and pressures. The result is a need for strong engagement between policy, fisheries, and tourism.

Narrative 4. Faster climate change, faster economic growth: While economic growth boosts the tourist industry, opening job opportunities, this comes with increased development pressures and conflict with fishers. The evolving impacts of climate change, with an increased frequency of disasters, absorb much of the public economy and policymakers' attention, as well as reducing the resilience of marine ecosystems to climate change impacts. This is likely to be added to by failures of governance capacity to drive and monitor better coastal development planning. Given the weak capacity of government investment, a strong engagement between the tourism sector and fishers is vital for any positive outcomes.

Clearly, in narratives 1, 2, and probably 4, project investments in changed policy must account for reduced government resources, whereas this may be less of a problem in narrative 3. Similarly, investing in alternative (sustainable) livelihoods in tourism may work in narratives 3 and 4 but require alternative thinking in the others. The futures with faster climate change are likely to be much more affected by disasters than where climate change is slower, undermining government planning capacity compared with the other futures. In short, testing project approaches against these scenarios will help design interventions that have a better chance of being robust – that is, workable in any future that unfolds. As a result, intervention options that build alliances among sectors (fishing, tourism, land development) and that emphasize livelihood diversification, even where one sector is strong, may be found to be robust across futures and most likely to deliver enduring global environmental benefits.

Example 2: Enduring forest restoration in a coastal lowlands area of Asia

This example addresses illegal forest harvest in the coastal plains of an Asian country, where the coastal land uses are focused on farming between the sea and a forested hinterland that is mostly in conservation protected areas, which are also a tourism draw for visitors from a major city 150 km away. In addition to local population growth, a growing number of now internally displaced people from other parts of the country have been affected by disasters and conflict. Existing interventions focused on securing land tenure for the original population, which had reduced illegal harvesting in the forests, but the increased population pressure from the combination of natural increase and immigration is overwhelming the protected areas and causing land degradation that affects the coastal lands with flooding and less reliable water supplies downstream.

The major drivers of this system are:

- **Population growth** (1.81% annually), which is putting pressure on land resources and livelihoods and hence driving illegal activity. This population growth will continue, but the net increase of residents and the level of influx of migrants are uncertain (due to policy, disaster, and economic factors beyond the control of any GEF intervention).
- **Markets for products** (including agricultural produce, timber, and charcoal) in the nearby city, which affect the demand for both legal and illegal products, and consequent returns to local activities. This demand is likely to continue to increase reasonably steadily, at 2.2% annually.
- **Under-resourcing of natural resource management services** (mostly governmental), which leads to non-enforcement of regulations on the ground. This is likely to continue but can be affected partially by the GEF investment (and could be bolstered by investing locals with benefits from protecting forests).
- **Social tensions** between the older residents and immigrants, which could flare into actual violence and undermine environmental security-building activities.
- **Climate change**, which particularly affects flood disaster frequency (which interacts with forest land degradation) as well as sea level rise on the coast (which is squeezing the availability of lowlands suited to agriculture). These effects are certain to continue to increase but could do so more or less quickly: average temperatures are projected to increase by 2.9°C by the 2090s; global mean sea level rise is estimated in the range of 0.44–0.74 m by the end of the twenty-first century.

Key axes of uncertainty in important drivers are identified as level of population increase (likely to correlate with level of social tensions) and levels of extreme events causing damage to farming lands and flood risk to coastal populations, especially if poor. These drivers are essentially beyond the influence of the intervention except in small ways, but the intervention can aim to be more or less resilient to both and to do so in ways that are robust to uncertainty.

The 2 × 2 space defined by higher and lower levels of change in these two axes could define a set of four narratives, one in each quadrant. But in this case, project developers chose to identify three narratives spanning the space and a fourth addressing the possibility of an outbreak of violence, on the basis that the combination of low levels of disasters with high population increase is unlikely, whereas stakeholder engagement urged them to be ready for a future where tensions overflow. The resulting narratives are presented here as part of the baseline, thus outlining the uncertainties in it.[27]

The baseline scenario in the absence of a GEF intervention is that continued population growth in the region coupled with weak administration means that there will be increased pressure on the forested conservation areas for illegal clearing for timber harvesting, resulting in increased run-off and soil loss from these areas, which affects the lowlands. Informal settlements along the margins of the protected areas, mostly inhabited by displaced immigrants, will become increasingly subject to floods with loss of life, while farms closer to the coast will suffer from reduced water supplies in dry years and from coastal inundation and inland flooding in wet years. The reduction in agricultural productivity will reduce residents' livelihoods, exacerbated by a loss of natural values in the forests that affects a developing tourism industry. These general trends are significantly nuanced in the different narrative futures:

Narrative 1. Lower population increase, lower level of extreme events: With a lower level of population increase, there is relatively less pressure on the forests, which opens the opportunity for significant forest- and tourism-based livelihoods that help restore and protect the forests, with community policing of illegal activities in conservation areas not creating great conflict. The

[27] A*n outbreak of violence might normally be regarded as a risk to project implementation, but here community consultations suggest it is a serious enough prospect to be embedded in project planning from the start*.

slower increase in extreme events places only a slowly rising pressure on farmers to move away from the coast, which allows farmers time to develop new products for the urban market and allows the community to implement land restoration activities to reduce flood damage. There is a slow increase in community tensions, but this can be offset by community-building activities and access to resources.

Narrative 2. Lower population increase, high level of extreme events: The lower level of population increase again places relatively less pressure on the forests, allowing some opportunity for forest- and tourism-based livelihoods that help restore and protect the forests. However, the rapid increase in disasters resulting from extreme events forces the migrant communities to seek livelihoods in the lowlands at the same time as there is a great pressure on farmers to move away from the coast and considerable flood damage to other lands, which undermines the ability of the local economy to support the population. Community tensions rise quite rapidly, as even resident farmers are forced off their lands and there are no spare resources for new arrivals. Illegal harvesting intensifies, which, with erosion from extreme events, reduces the attractiveness of the region for tourism at the same time as there is less farming produce to sell to the city.

Narrative 3. Higher population increase, high level of extreme events: The higher rate of population growth coupled with damage to lowlands productivity greatly damages the ability of the region to deliver livelihoods under the current land ownership and management arrangements. Major informal settlements are created along the forest–farmland boundary, dominated by poverty and suffering significant deaths in extreme events; desperation drives high levels of illegal forest harvest and major tensions with the neighbouring farming community, which is also struggling with impacts of land degradation and flooding. The region descends into cycles of damage and recovery in which the community never manages to regain its footing, and social interventions such as farmer cooperatives and community-based employment in the forests struggle to persist.

Narrative 4. Higher population increase, high level of extreme events and community violence outbreak: In a version of narrative 3, community tensions boil over, perhaps driven by sectarian catalysts, and active violence results, with the farmers pitted openly against the immigrants. Although resource and livelihood limits underlie these tensions, violence takes on a life of its own and is no longer easily assuaged by improving livelihoods. There is a spiral of destruction that destroys previously gained global environmental benefits in the region, as well as causing much social suffering; it may also drive outmigration from the region.

In all these futures, there are underlying trends towards pressure on the forests and on the lowland agricultural areas, coupled with a need to develop new livelihoods that should at least partially involve engaging the community in conservation management, tourism, and new, perhaps more intensive, farm products. As a consequence, there is a general opportunity for the delivery of global environmental benefits in the form of reduced land degradation and improved conservation protection, coupled with adaptation to climate change and some carbon storage in forests, which could also deliver better environmental security and reduced tensions between residents and immigrants, if designed well. *However, the relatively straightforward approach to this that might be considered under narrative 1 will fail in the other futures because of the higher pressures arising from population growth, climate change, and potential conflict. As a result, the project planning expands its perspective to include active measures to build environmental security and community cohesion in ways that will work across all futures (hopefully also helping to avoid narrative 4) as prerequisite co-benefits of delivering the GEF's core global environmental benefits. A strong emphasis on developing diversified livelihoods (which might not be a priority under narrative 2) that support the global environmental benefits would also be essential, whether within the GEF intervention or by others in alliance with the GEF; these livelihoods could include intensified horticulture that uses less land and more labour, or livelihoods not based on natural resources at all. These options are more likely to deliver robust responses to the future uncertainty.*

Example 3: Improving environmental outcomes in a textiles and garment value chain in Africa

This example addresses pollution and waste in the textiles and garment industry in a developing country, for example in Africa. The country's textile and garment sector links the production of cotton fibres through processing, knitting, and dyeing into textiles to product manufacture, as well as distribution, retailing, and investment, some steps of which can be dominated by women and youth labour. This chain produces significant economic benefits, but it has several negative environmental impacts, including the overuse of pesticides, affecting non-target species and human health, and the use of various chemicals including persistent organic pollutants in processing, which also affect environments, water supplies, foods, and human health. In addition, there is extensive factory waste, often open-burned or disposed to landfill, releasing more chemicals as well as wasting resources, including unnecessary greenhouse gas emissions.

The major drivers of current trends in this textile and garment sector (and their uncertainties) include:

- **Coherence of government policies:** Recent government policies aim to grow the sector, with many new industrial parks dedicated to textile and garment production. However, current governance frameworks are inadequate to ensure environmental sustainability, and there is limited capacity and will to enforce regulations. *(This is partially addressable by the intervention.)*
- **Ongoing domestic conflict:** In some regions, conflict is reducing production and driving sanctions that may prevent textile exports. This conflict could escalate or diminish unpredictably depending on diverse political, social, and international actions that are outside the scope of a GEF intervention. *(Although this is mostly out of intervention scope, the project could consider supporting peacebuilding through environmental security.)*
- **Economy:** Prevailing economic drivers (e.g. low energy costs, cheap labour costs, low investment risk, supportive trade agreements) have attracted foreign investors but focus on the economic benefits with minimal consideration of the social and environmental dimensions. As the latter are addressed, the economic drivers may change at a rate that is hard to predict.
- **Technology and knowledge:** A key reason for current practices and impacts in the sector is the use of outdated technologies, formulations, and procedures for chemicals partly due to a lack of access or expertise. This includes lack of knowledge and training among workers. *(This is clearly within scope for the intervention.)*
- **Climate change and sociocultural factors:** Global warming is expected to exacerbate the country's droughts, floods, and soil erosion, with an uncertain level of reduced cotton yield – on average by 13%, but ranging from 0% to >20% by mid-century (a few regions may see increased yields, but these regions are subject to potential conflict). One flow-on effect is rural outmigration in search of alternative livelihoods. For the sector, climate change is thus driving conflicting trends of reduced cotton production but increased potential workforce.
- **Market environmental, social, and governance (ESG) signals:** There is a definite trend in markets to require increasingly good social and environmental standards in garment production and evidence of these practices. In this country's main markets, it is uncertain how fast these practices will develop: import bans on current standards could occur within five years or, with some concessions, they could take 15 years.

Some of these drivers are clearly within scope for a GEF intervention on the circular economy and the delivery of global environmental benefits. Others are not, so that proposed interventions must be able to work in any future resulting from them. The choice of approach will therefore be

challenged with the following questions related to the (mostly) out-of-scope drivers and some key interactions among them:

Question 1. Governance: Although the project may partly address governance issues, will the proposed intervention be robust whether government has the capacity and willingness to enforce regulatory standards or not? (For example, can other sources of influence such as markets be brought to bear?)

Question 2. Conflict: While the project may not address conflict directly, are its approaches robust to significant areas of ongoing domestic conflict, especially if this occurs in the main areas where cotton production could otherwise be maintained? (For example, can the approach stay viable with reduced fibre supply, perhaps by focusing on a premium market or diversification of fibre?)

Question 3. Climate change: Are the industry developments made with a view to being robust to a decline in cotton productivity in the medium term and to a shift in the parts of the country from which cotton may come? (For example, through diversification or transition to other industries?)

Question 4. Market ESG signals: The project will address improving responsiveness to ESG demands, but is it adaptive enough to be able to cope with a slow or a rapid appearance of these demands?

Question 5. Economy and ESG: As environmental and social improvements are made, is the project responding to the uncertain impacts this may have on economic drivers such as energy and labour costs, and investment risk?

Question 6. Workforce: While the intervention can address the training level of workers, is its approach robust to rapid changes in the level of rural to urban migration, potentially triggered by climate or conflict?

Developing an approach that accounts for these questions, which can be addressed in the project's theory of change, will result in a design that is more robust to future uncertainty. This method may not give as rich and exploratory a perspective as creating several more integrated narratives, as in the previous examples, but it may suit some issues where the uncertainties are less dependent on one another.

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