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Discussion Note

Systemic Thinking for Monitoring: Attending to Interrelationships, Perspectives, and Boundaries

Monitoring & Evaluation Series

Attending to interrelationships, multiple perspectives, and boundaries is one of three key principles underlying complexity-aware monitoring.[1] This principle emphasizes the importance of using systems concepts when monitoring, regardless of whether the monitoring method is drawn from the systems field, or is a more traditional monitoring method.

Complexity-aware monitoring is intended to complement and enhance performance monitoring, USAID's standard monitoring approach. Performance monitoring systems are designed to measure the results included in country strategy results frameworks, project LogFrames, and other project planning models. Performance monitoring uses indicators and targets to determine whether results are being achieved and whether implementation is on track (ADS 203.3.2). A performance monitoring system is usually based on predictability – the system is designed to measure results intended by us, achieved through pathways of change projected by us, delivered according to implementation strategies planned by us and our implementing partners, and collecting data from indicators we predict will provide useful information over the life of the project, according to a pre-determined monitoring schedule and measured against pre-set targets. Consequently, performance monitoring, as currently practiced in the Agency, is well-suited to simple and complicated aspects of projects where certainty and agreement are relatively high.[2]

In contrast, complexity-aware monitoring informs decision making for aspects of projects where agreement on the development problem is low, and certainty about how to solve the problem is also low. We need to supplement the information provided by performance monitoring to support adaptive management.

This paper expands on USAID's *Discussion Note on Complexity-Aware Monitoring*, with a focus on one of the three underlying principles underlying complexity-aware monitoring – attend to interrelationships, perspectives, and boundaries. Although this paper is available to all of our partners, it is written from (and for) the USAID perspective. This paper is meant for USAID staff wishing to dig deeper into complexity-aware monitoring, in order to complement traditional performance monitoring as described in ADS 203. If you have questions on about complexity-aware monitoring, please contact USAID's Office of Learning, Evaluation, and Research (PPL/LER).

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[1] U. S. Agency for International Development (2013). *Complexity-Aware Monitoring Discussion Note.* Washington, DC: Heather Britt.

[2] For a discussion of the distinction between simple, complicated, and complex problems, and more information on identifying aspects of your program that are complex, see ibid, pp. 2-4.

When you have identified a complex aspect of a project, and are assessing how to incorporate complexity-aware monitoring, ask: *What monitoring needs are not currently met by performance monitoring? What information is required for adaptive management?* In very broad terms, matters of uncertainty are dealt with by an increasingly sophisticated approach to understanding the *inter-relationships* in a project and in relation to its context. Matters of disagreement are clarified if not always resolved by exploring *perspectives*. Actually managing the consequences of both uncertainty and disagreement has a lot to do with clever use of *boundaries*. **To aid adaptive management, complexity-aware monitoring helps us to *understand* inter-relationships, *engage* with multiple perspectives, and *reflect* on boundary judgments.** A short history lesson sheds light on the importance of these three key concepts from the systems field.

A SHORT HISTORY OF THE SYSTEMS FIELD

Systems ideas can be traced back many thousands of years, but the modern systems movement traces its lineage to the middle of the twentieth century, starting in the 1930s and accelerated during the Second World War. You can recognize three main phases since then.

From the early days until the late 1960s, the focus of the systems field was focused on *interrelationships*. This period represented the 'wiring diagram' phase of systems approaches and is still influential today. The systems approach was considered a way of describing how reality was ordered and behaved. Systems were understood as real, observable phenomena, such as the health system, or the local economic system. As such, a system could be obvious to anyone and its components if not its behavior universally agreed upon. This concept of systems as 'real' things is powerful today. In fact, it is what most people mean when they talk of 'a system".

By the early 1970s, some people in the systems field realized that the relative importance of particular inter-relationships often depended on the different perspectives through which people observed a situation. Thus, the systems field began to embrace the implications of applying different *perspectives*, worldviews or framings to the same situation. It also led to a significant change in the *idea* of systems. Systems became understood as concepts — mental models that allowed us to understand and make sense of the messiness and disorder of reality. This approach tends to talk more about observing *situations* in systemic ways, rather than observing specifically identified *systems*. Pause to consider this – how do you *think* about systems; as real things that behave in particular ways or as a tool for understanding reality?

By the mid-1980s, some systems thinkers concluded that focusing on perspectives had its problems. Perspectives influence what we consider relevant or irrelevant; they determine what is 'in' our framing of a situation (the way we understand a situation) and what lies 'outside' that framing. Whoever defines the dominant perspective controls the boundary of a systemic inquiry or intervention. Thus the importance of studying *boundaries* and critiquing boundary decisions (including those who made them) is the third core concept underpinning a systems approach.

In summary, in the most complete sense, "systems" refers to both 1) observable phenomena, and 2) mental models that allowed us to understand and make sense of the world. The second sense of the term involves observing situations in systemic ways, rather than observing specifically identified systems. Using both senses of systems means understanding the variety of ways to define and bound "the educational system," and what framings and stakes are linked to these definitions.

USING SYSTEMS APPROACHES FOR MONITORING IN COMPLEXITY

Let us look in more detail at the implications of each of these concepts for monitoring complex aspects of projects and their contexts. For each concept, we will consider four practical questions that must be resolved when enhancing an existing performance monitoring system with complexity-aware monitoring:

1. What do we monitor?
2. When do we monitor?
3. What monitoring approaches and methods do we use?
4. How do we make sense of the data and apply it to decision-making to help steer the project effectively in complexity?

In the sections below, we will address the what, when and how in relation to each of the core concepts. The five recommended approaches referenced in the Complexity-Aware Monitoring Discussion Note will be referenced throughout. The final section of the paper will address the selection of monitoring approaches and methods.

INTERRELATIONSHIPS

Many newcomers to the systems field are familiar with the idea of inter-relationships. How things are connected and with what consequence stems from the earliest thinking about systems. It is also the concept most strongly embedded in the popular imagination. When we talk about the education system or the health system, we imagine a set of objects and processes that are interconnected in some way. However, systemic thinking doesn't concern itself with just any inter-relationships. When monitoring an intervention in a system, we need to include the intervention itself in the inter-relationships under consideration. Similarly, when considering a USAID-supported intervention, the picture is not complete if USAID is not included in relationship to the intervention and its context beyond funding and receipt of monitoring reports. USAID is part of the intervention and is thus entangled within the web of relationships that make up the intervention.

Systemic thinking focuses on four particular aspects of inter-relationships:

1. **Dynamics:** How inter-relationships affect the behavior of a situation over a period of time
2. **Non-linearity:** How the size of the effect of inter-relationships appears unrelated to the size of the input to the inter-relationship. This is often but not always caused by feedback. The simplest example of non-linear relationships is exponential growth patterns such as compound interest in a savings account.
3. **Context sensitivity:** How the same inter-relationships in different contexts have different results. Malaria control methods that work well in Thailand may not work in the Philippines.
4. **Complexity:** How to understand inter-relationships that are so complicated or complex that you cannot assess them in terms of simple cause and effect.

IMPLICATIONS FOR MONITORING

Tracking inter-relationships, especially the structure of those relationships (eg simple, complicated complex) and the dynamics of those relationship (eg linear, non-linear) helps you understand the important components of a situation and the patterns that emerge from their interactions. That improves your ability to select the most appropriate data to collect and the timescales within which to collect it. It helps to identify in advance

consequences that may be knowable, but are currently unknown without this kind of analysis, thus reducing the possibility of unanticipated consequences. Finally, if you understand the relationship between USAID and the intervention you are in a better position to develop management systems that enable good use of monitoring data.

WHAT DO WE MONITOR?

To attend to interrelationships in complexity-aware monitoring, consider: What important interrelationships are not currently captured by the project's performance monitoring system? Do we have a means of tracking important interrelationships that emerge over the life of the project?

Complexity-aware monitoring can complement performance monitoring by tracking processes outside of results frameworks and Logframes, as well as important actors and factors in the project context that influence the project or strategy. Monitoring processes is an important means of building up an understanding of patterns. For example, **Process Monitoring of Impacts (PMI)** monitors the transformation of one result to another, that is, how results at a lower level are used to produce the result at the next higher level. These processes of transformation (predicted and emergent) represent relationships between results. Monitoring these relationships makes it possible to assess which processes of transformation are most dominant in particular contexts, and attend to new relationships.

One of the problems with understanding *inter-relationships* is that there are so many that it may not be possible to explore them all. Inter-relationships operate with different strengths, at different times and at different scales. They switch on and off depending on context and the nature of other relationships. Like a map of the territory, **sentinel indicators** seek to help you make sense of the dynamics of a situation without getting bogged down in the details. They help you focus in on a specific set of inter-relationships that is likely to influence your project, its effectiveness, relevance or legitimacy.

Performance monitoring often relies on "best practice" or fixed menus of pre-set indicators. These may be useful in one context but not another. What context-specific information does the project need to catalyze and respond to changes in its environment?

WHEN DO WE MONITOR?

Non-linear behaviors produce patterns that may not be revealed through routine, fixed data collection periods. Therefore, you are well-advised to collect data when events occur that might have disrupted the dynamic in the situation, or established new relationships in the project and its context. The forthcoming Discussion Note on synchronizing monitoring with the pace of change provides more guidance on this topic.

HOW DO WE MAKE SENSE OF THE DATA AND APPLY IT TO DECISION-MAKING?

Analyze and interpret monitoring data in relationship to other data on the project and its context. Ask: Which relationships support intended results and which ones hinder the achievement of intended results? For example, PMI monitors results-producing processes. Similarly, **Outcome Harvesting** or **Most Significant Change** may reveal ways that the project is contributing to results, both predicted and emergent. This information may make it possible to amplify desirable cause and effect relationships and mitigate undesirable ones.

PERSPECTIVES

Just looking at interconnections does not make an inquiry or intervention systemic. People will see and interpret those inter-relationships in different ways depending on their perspectives. A local cafe owner

might view issues to do with preventing the spread of norovirus (business reputation) quite differently than someone from the health service (disease control), even though they may 'see' the same thing (customers getting sick). But there is more to it. What a health inspector does when he or she 'sees' a cafe premises will be different from what the cafe owner does when he or she 'sees' the same thing. The café owner may try to prevent publicity whereas the health inspector might try to promote it. It's not a question of right or wrong; both behaviors make sense from each actor's perspective. Indeed, what we see as unintended or unexpected patterns within a situation often results from our unwillingness to deeply understand or explore other people's perceptions and subsequent behaviors. We use words like 'unintended effects' without considering that somebody somewhere may indeed have intended them. *For us to fully comprehend and monitor the dynamics of a situation we must also identify and understand the range of relevant perspectives that people bring to it.* To do so, it is helpful to distinguish between three aspects of perspective: stakeholders, stakes and framings.

Stakeholders are groups of people or things that have a common role in a situation or intervention (e.g., teacher, consumer, parent, farmer, and chief). In contrast, **stakes** relate to individual values and motivations; their 'skin in the game' (e.g., wealth, honor, fairness, past history, purpose, ideas of professionalism). People belonging to different stakeholder groups may share the same stakes, and any one stakeholder grouping will contain within it several different (perhaps conflicting) stakes. Note the use of the term 'stakeholder role'; a single person can occupy different stakeholder roles (e.g., teacher, consumer, parent, farmer, and chief) at the same or different times. Indeed how people juggle the contradictions in their roles contributes to 'unanticipated' results. Deliberating on the impact of different stakeholders and stakes gives us an opportunity to frame issues.

Framing is a bit more than just listing stakeholder views, although that is often a good place to start. Framing is really trying to work out what the situation is — or could be — *about* in the light of different stakeholders' views of it. Framing helps you identify how people understand a situation and thus how or why they behave as they did or do. Framing is the lens through which you (or others) view the situation or an intervention. Think about a rock music concert by a group like the Rolling Stones. You can frame this as a fun evening out, income generation, cultural expression, marketing product, nostalgia. Thinking about these different framings allows the Stones to construct their musical program so that it potentially will satisfy most attendees. The population of ageing 70s and 80s rock stars is very skilled at working within multiple framings of their performances, tipping a nod at each of them.

IMPLICATIONS FOR MONITORING

Programs often work well because people, who may not share the same goals, see benefits from engaging in the same processes. Thus, collecting information on what people see as the purpose of the intervention is highly important. If you want to understand why a program is working the way it does, then you need to monitor in ways that reflect and record the most relevant range of perspectives. If you don't accommodate these perspectives you may never understand, indeed actually misunderstand, what underpins the impact of the program.

Also if you are relying on people to collect data on your behalf, then they are more likely to give you accurate and timely data if that data also serves their interests as well as yours. A single project will be framed differently by stakeholders within USAID, its implementing partners and others in relationship to the project. Understanding the various perspectives within a project and within USAID helps design management processes that allow monitoring data to be used effectively.

WHAT DO WE MONITOR?

To attend to perspectives in complexity-aware monitoring, consider: Whose perspectives are not currently captured by the project's performance monitoring system? Whose perspectives should be included in order to have a full picture? Do we have a means of tracking perspectives that emerge as important over the life of the project? We tend to focus on beneficiary and stakeholder perspectives; "stakeholders" are often narrowly defined as those participating in the implementation of the project, or supporting it. This definition leaves out those who are excluded by the project but who are influenced by it, or can influence it, and in any case have a stake in it. **Most Significant Change (MSC)** and **stakeholder feedback** approaches can be used to:

- Actively seek diversity and dissent; collect input from a broader range of stakeholders.
- Monitor stakes as well as stakeholders; collect data on the range of relevant perspectives that people bring to a situation.
- Collect monitoring data that informs how the stakes, stakeholders and framings are interacting with each other. For example, in a situation in which girls are withdrawn from school by the family head because education is considered a threat to family roles, collect information on how the stake (status) of the family head (stakeholder role) interacts with her or his framing of an intervention as providing educational opportunities for girls.

WHEN DO WE MONITOR?

To support adaptive management, you will want to engage with perspectives throughout the life of the project. However, you may find it especially productive to collect data to inform key decisions, or when events might have prompted a shift in perspectives or framings of the situation.

HOW DO WE MAKE SENSE OF THE DATA AND APPLY IT TO DECISION-MAKING?

Another way to incorporate perspectives is in the interpretation of data and making decisions based on that data. Ask stakeholders to interpret data from either performance or complexity-aware monitoring (such as data on transforming outputs to results collected through PMI, or on outcomes documented by Outcome Harvesting).

Keep in mind: in order to understand the progress of an intervention according to one framing, you have to collect data that informs how the intervention affects other framings. For instance, the performance of a project that restricts rice production during the wet season to reduce malaria can be best understood from combining a health framing (malarial reduction) with an income security framing (rice production). Monitoring the project from only one framing might leave out vital information about the way the project is performing.

BOUNDARIES

Setting boundaries is not optional. Every endeavor has to set boundaries. You cannot do everything, consider everything, see everything, or monitor everything. A boundary differentiates between what is 'in' and what is 'out', what is deemed relevant and what is irrelevant, what is important and what is unimportant, what is worthwhile and what is not, what suits the one in a position of power and what doesn't, who benefits and who is disadvantaged. Boundaries are the places where values are exposed and disagreements are highlighted.

Key locations of boundary decisions include whose perspectives will be taken into account, what interrelationships matter the most, as well as the purpose of project, intended beneficiaries, measurement approaches, resource allocation, decision-making authority, necessary expertise (skills, knowledge, who's an expert) and who or what is marginalized, harmed or made victim by the project.

Treating boundaries systemically means that you set boundaries consciously in the light of the most salient perspectives and important interrelationships and consider the implications. Broadly speaking there are three core concerns when setting boundaries: ethics, legitimacy and marginalization.

From an ethical point of view, you hold certain values and those values reflect your ethical stance on things. If you believe that women have an essential role in preventing dengue fever, then you will want your intervention to ensure that their voices are heard and acknowledged.

From a political point of view, you wish your endeavor to be seen as legitimate. Thus how you set the boundary — and who you include and exclude from that process — will affect that legitimacy.

From a pragmatic point of view, those who are marginalized (or those who represent marginalized interests) are not likely to take things lying down. Imagine you are working on a project to address housing foreclosures. Some people may not like if the project uses a strategy that considers the interests of loan sharks, but if their interests aren't included there's a risk they will oppose your intervention and hinder its execution. You need to work out a way of managing that possibility. So there is a practical reason to explore who or what is marginalized and see how those marginalized interests can be accommodated in your intervention.

IMPLICATIONS FOR MONITORING

For projects, critical boundary setting decisions take place during project design and again when designing the project's performance monitoring and evaluation plan. Such decisions include determining the purpose of the intervention, who or what does and does not benefit, what kind of measurement is appropriate to assess whether in real life the intervention is delivering the purpose to the beneficiaries, what resources are allocated and how they are monitored, and finally the basis upon which to judge whether or not the intervention is being supported by stakeholders. Monitoring the implications of those boundary decisions throughout the life of the project is an important means of tracking the project's relationship to the local system in which it is embedded.

WHAT DO WE MONITOR?

Identify the key boundary decisions taken by the project and collect data on the consequences of those decisions, as needed. Are those boundary choices seen as ethical, legitimate or pragmatic by others?

The choice of what to measure and how to measure are important boundary decisions since they privilege certain data, regarding that data as more valid and relevant than other data. The process of monitoring is an important exchange between the project and its stakeholders. To what extent is the monitoring process supported by others or do people feel marginalized by the collection of data and its use in decision making? Are important issues implicitly or explicitly marginalized by the choice and use of data? If so, what are the consequences for the project?

WHEN DO WE MONITOR?

During normal implementation, decisions are often made that shift the boundaries of the project and affect its relationship to the context. Monitor to inform these decisions and to collect information on the results of these decisions. Another important trigger for reflecting on boundary judgments is when addressing the project's legitimacy.

SELECTING A SYSTEMIC MONITORING APPROACH

Which monitoring approaches and methods should we use? Clearly, you try to use methods that address monitoring in a systemic way. There are three basic options. You can use methods that are drawn directly from the systems field, or you can adjust methods you are familiar with so that they follow the concepts that underpin the systems field. Third, you can apply one of the five methods currently being trialed in the Agency.

Methods from the systems field provide the most powerful systemic tools but may not be best-suited for monitoring USAID interventions because by and large they were developed to solve wicked problems at large scale.[3] So you would probably have to modify those methods to be appropriate for a USAID intervention. Also learning systems methods can be expensive in terms of time, intellectual resources, and effort. Furthermore, no single method will equip you with the power of the entire systems field. So if you choose the systems method route be sure to get the technical support both for selecting the right method to meet your monitoring needs and for applying it to answer those monitoring needs.[4]

You may select one of the five approaches recommended in the Complexity-Aware Monitoring Discussion Note. These five approaches have a track record in monitoring and they can be applied systemically – that is, to understand interrelationships, engage multiple perspectives and reflect on boundaries. The recommended approaches are field-friendly and suitable to the USAID programming context. The Agency is currently providing support for trials of the five approaches.

Perhaps your current monitoring methods can be applied more systemically, that is, in a way that attends to interrelationships, perspectives and boundaries. Making your existing monitoring methods more systemic has obvious benefits; for a start it's likely to be an approach you know reasonably well. The difficulty may be that you are not sure how to do it *systemically*. You are encouraged to seek support from someone with an understanding of both monitoring and the three core systems concepts – inter-relationships, perspectives and boundaries.

Whatever method you choose, monitoring systemically will yield better information for steering complex aspects of projects.

[3] Wicked problems are novel or unique problems with no single cause, no single effect, and no "best practice" solution. More challenging, wicked problems are not understood until the formulation of a solution. Wicked problems comprise a whole field of study of its own.

[4] USAID staff are encouraged to contact USAID's Office of Learning, Evaluation and Research for assistance.