Appendix F
Case Study: How-To

How to Develop a Decision Process Diagram: A Case Study Approach

What is a Decision Process Diagram?

A Decision Process Diagram is a **flow chart that illustrates the process, actors, and information involved in a specified and well-defined decision**. In the case of this paper, the decision is to approve financing and implementation of an infrastructure process. The Diagram allows multiple parties to work together to come to (i) a holistic understanding of how that decision is made and (ii) a visual depiction to communicate that process to others, highlighting the important features.

A Decision Process Diagram is characterized by the following key elements:

- It includes all decision-making actors
- It is framed around the investment/finance decision
- It illustrates some information about
    - comparable influence of decision-makers
    - timing of decisions and actor engagement

Where does the Decision Process Diagram approach come from?

The methodology comes from organizational management theory and collective action frameworks in political economy.

A **decision process** includes the steps involved in reaching a decision, defined as "a set of actions and dynamic factors that begins with the identification of a stimulus for action and ends with the specific commitment to action" (Mintzberg, Raisinghani & Theoret 1976). It is the flow of information and interactions into a determined process for an individual, a firm, or a larger set of actors to make a determination about something.

A given decision is framed in an **action situation** (Ostrom et al. 1994; Ostrom 2009), which includes the participants in a decision, their positions on decision-related issues, and the actions that they take. In an action situation, "actors … have preferences, information-processing capabilities, selection criteria for making decisions, and individual resources that shape their range of feasible options" (Tucker and Ostrom 2005), and these are represented and explicitly considered in a Decision Process Diagram.

Why undertake a Decision Process Diagram?

A Decision Process Diagram can be used to bring together information—that may be dispersed, inaccessible, or contested—about how a decision is made. The Diagram can help clarify poorly

understood processes, particularly ones that have complex action situations with many actors engaging in diverse ways and introducing different kinds of information over long periods.

In this paper, Decision Process Diagrams were used to understand better the few cases of infrastructure development in the Amazon basin involving Chinese institutions, and to draw out preliminary findings and recommendations for better environmental and social outcomes. The Diagrams helped the authors to identify windows of opportunity and potential levers for arriving at these better outcomes. In particular, the Diagrams helped to answer several key questions (Figure F.1)

Figure F.1. Questions Answered by Decision Process Diagramming

- Who (in host country, China, other) is involved in these infrastructure development decisions? Who has the most power?
- What are the regulations, policies, and relationships that influence the process?
- What are the expected environmental impacts of this infrastructure? What impacts could be avoided or minimized?
- How is civil society is involved in these decisions? When in the process do these actors get involved? When could they get involved for maximum efficacy?
- How are Chinese institutions involved in these decisions? At what stages of the decision process do they get involved, and with whom do they liaise?
- Which intervention points are most crucial for improving environmental outcomes? Which levers are most effective at these moments? Who can pull the levers most conclusively?

Who should participate in Decision Process Diagramming?

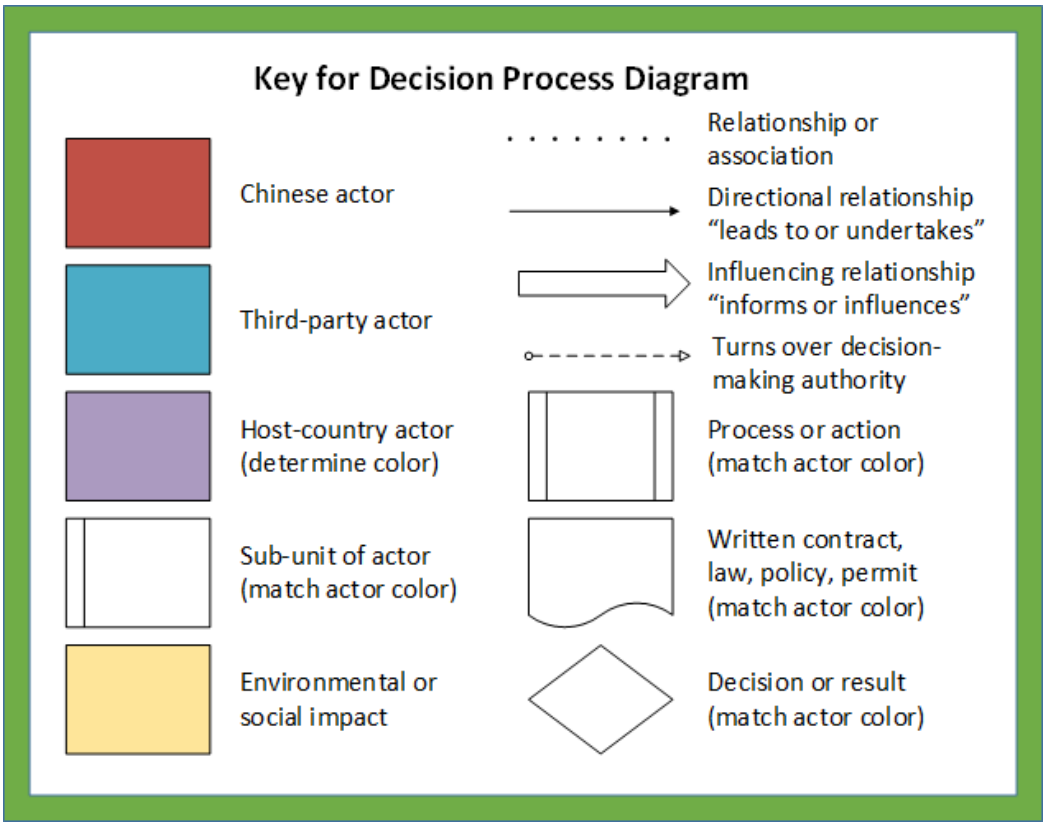
Decision Process Diagramming is an activity best suited to in-person collaboration, to draw on a range of information and perspectives. The process is shaped by learning and dialogue within the group, leading to an agreed-upon final diagram that can inform a set of recommendations for action or for influencing similar decision processes. Participants should be informed about different aspects of the decision. In looking at Chinese infrastructure finance decisions in the Amazon, we found it helpful to have lawyers, policy analysts, China experts, community advocates, ecologists, funders, academics, and sector specialists in the room together. For our four diagrams, we had the group size vary from seven to 17. When we had seven people together in the room, we found it valuable to connect virtually with other experts on the case; with 17 in the room, we relied on group experience and online research to fill gaps in the diagram and identify a list of recommendations for effective interventions to improve outcomes.

What materials do you need for a Decision Process Diagram?

Decision Process Diagrams can be drawn in either hi-tech or low-tech ways. A white board or large-format paper (with pencils) and multi-colored markers can suffice for a single decision process. Two white boards is especially useful, where it is possible to maintain a list of actors, documents, and outcomes as reference on one and an evolving diagram on the other. In addition—or after the initial drafting—software can help make a clear, standardized diagram. We initially used PowerPoint and then completed the diagrams with Microsoft Visio. It is useful to have an open Google Doc or Word document to note down questions that need to be answered later. Sticky notes can also serve this purpose.

In particular, it is important to define the shapes and colors you will use to denote different actors, relationships, processes, influences, and results. We developed a standard legend or key for this that differentiated among these elements in every Decision Process Diagram (Figure F.2).

Figure F.2. Standard Key for Decision Process Diagram



What are the steps for Decision Process Diagramming?

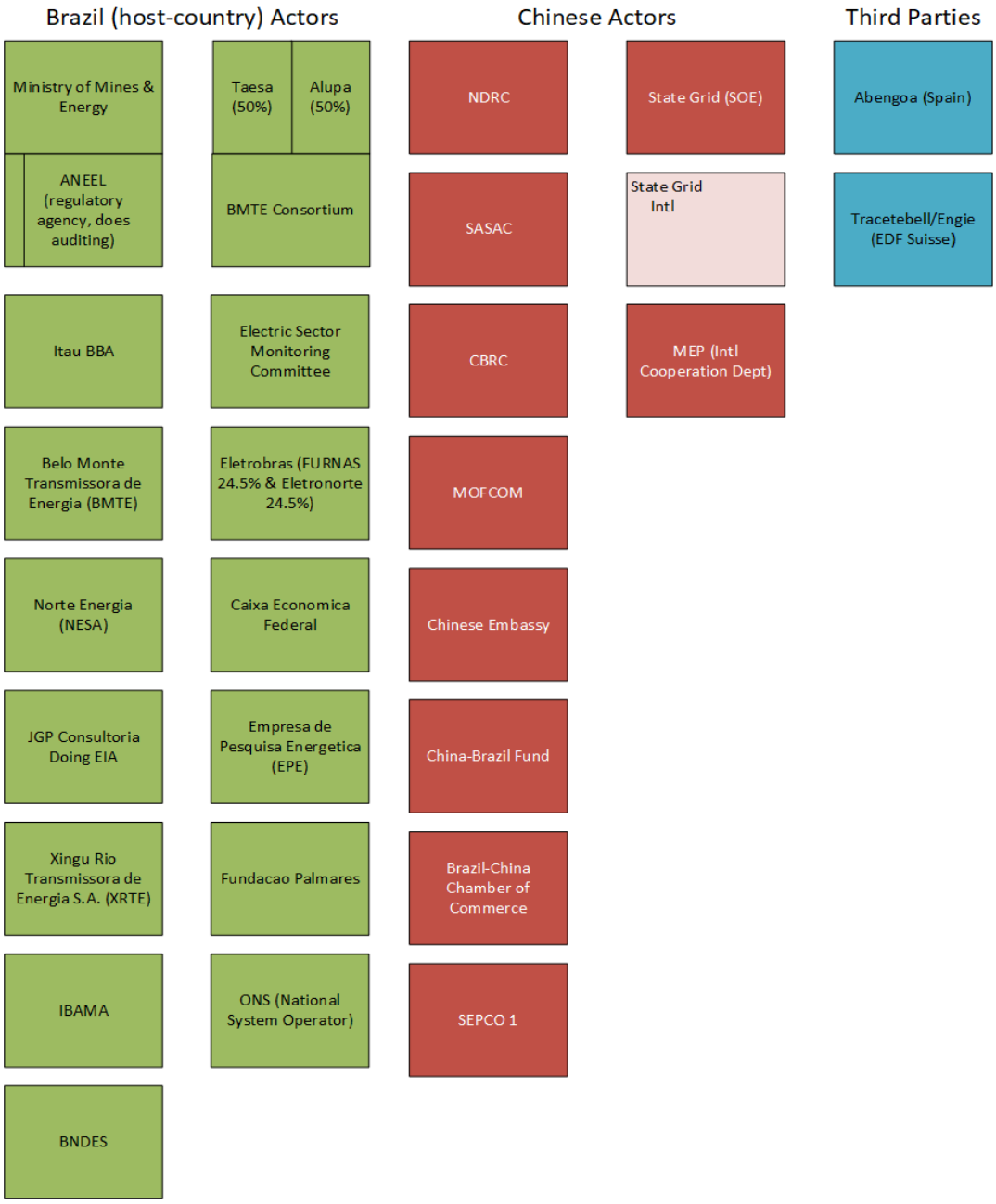
The basic steps for making a Decision Process Diagram can be organized into four main phases: preparation, group diagramming, review & revision, and recommendations.

<u>Preparation</u>

Good preparation is important to ensure that an accurate, well organized, and insightful Decision Process Diagram can be developed. First, select a decision process of interest, for which there is information or key informants available to answer the key questions about who, what, why, and how (see Figure F.1). Next, invite participation by diverse experts who have knowledge of the decision process and/or know how to obtain such information, including key documents and policies. Make sure that you will have sufficient time for a complex decision to be diagrammed. For us, it took between three and six hours for a given case study; less time was needed with more familiarity and practice with the methodology.

Before bringing together these participants, define a legend or key of shapes and colors to use (e.g., Figure F.2). It is also very useful to conduct some initial desktop research and identify relevant actors for the case (see, for example, Figure F.3). In our case, we used Google Sheets to have participants identify different categories of relevant actors, including Chinese, Host Country, and Third Parties. We also asked participants to note important policies, agreements, and other documents influencing the decision process. When we arrived at the diagramming workshop, we had this information on hand, in addition to the necessary materials: markers, two white boards, big paper, pencils, and laptops with PowerPoint and Visio connected to a projector.

Figure F.3. Actors in the Belo Monte Transmission Line I Case Study

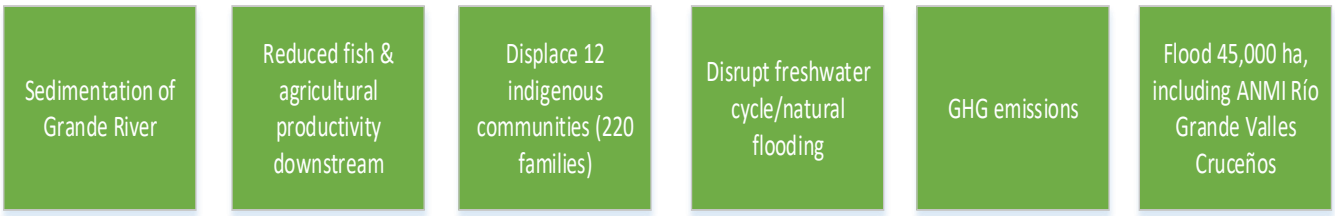


Group Diagramming

A Decision Process Diagram can look confusing and be difficult to construct the first time. Starting with a presentation of the methodology and using example diagrams can help new participants hit the ground running. In our case, we went through a PowerPoint presentation describing the methodology, its sources, and a key. We then reviewed three different Decision Process Diagrams before beginning to diagram ourselves on a white board.

When diagramming, it is helpful to start with the impacts of the decision (see Figure F.4) and then move to the actors (Figure F.3) and influences. Beginning with a central actor or the decision in question can anchor participants and ensure that the resulting diagram has a meaningful and readable shape. In our sessions we first brainstormed the negative environmental and social impacts of the infrastructure in question. We then reviewed the actors involved in the decision and added any that were missing. We further filled out the list of known influences, including policies, studies, agreements, bids, and contracts. Only then did we dive in, starting with the ministry or agency putting out the bid for constructing the infrastructure.

Figure F.4. Environmental and Social Outcomes of Rositas Dam Case

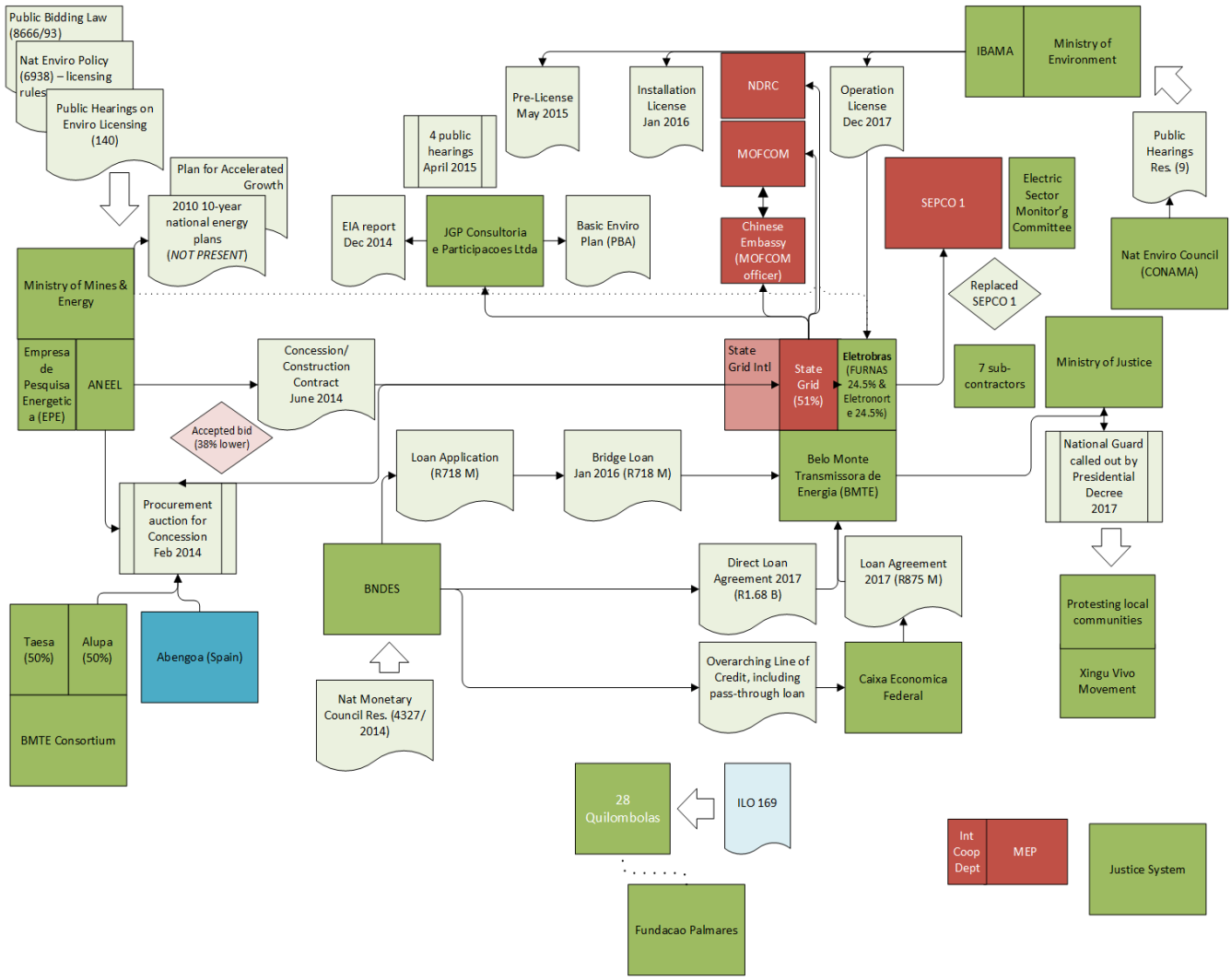


It is important to have a single lead diagrammer who can listen to the conversation among participants and draw connections live, erasing and redrawing as new understanding emerges. One way to do this is to start building out the decision process as far to the top and left of the diagram as possible; that is, begin with the first influences, actors, and decisions in time and move toward more recent elements of the process. For us this meant starting with the original authorizing legislation, plan or reference to the infrastructure project, and linking that to the actors first affected by it or taking it up. Alternatively, you can start with the middle (i.e., for us that is the finance contract or construction agreement) and work backwards in time and influence and then forward to the ultimate decision to finance or construct the infrastructure.

As questions emerge, do not be afraid to erase and redraw. Consider saving multiple iterations in case you need to go back to an earlier understanding. Participants can answer questions via live research online, contacts with colleagues and experts. Note questions—especially those that cannot immediately be answered—on a “parking lot” to return to later. Do not let those gaps in knowledge hold up progress in roughing out the rest of the decision process. Diagram alternatives using clear nomenclature, such as Decision Process 1A versus Decision Process 1B, or taking photographs of the white board. (In the first case we undertook, we drew first on white boards and later transferred to Visio. As our team became more familiar with the process, we switched to diagramming directly in Visio.) The resulting diagram should connect most actors

identified at the outset and link them to influences in chronological order, leading to the key decision (see Figure F.5).

Figure F.5. Decision Process Diagram for Brazil's Belo Monte Transmission Line I



<u>Review & Revision</u>

Revision is important to achieve a robust and shared understanding of the Decision Process Diagram. Periodic review can occur informally throughout the diagram-building process by "walking through" the partially constructed diagram and questioning what's missing and what is currently understood. Revision can happen by answering the outstanding questions through live "look-ups," desktop and online research, and communicating with experts and colleagues. We called out to case experts via Skype and WhatsApp during our diagramming sessions, verifying the dates and interactions we understood to have occurred. Each participant had a WiFi-enabled laptop and searched for press, policy documents and agreements, and other materials in multiple languages as we plotted the flow chart. We found that having two days to diagram little known or complex infrastructure decision processes helped, as we could assimilate knowledge over that

time and revisit preliminary understandings and open questions. In a few cases, we refined Decision Process Diagrams when new information became available through publication weeks or months later.

Recommendations

After you have a well-developed Decision Process Diagram that allows you to tell the story of the decision process, to tease out the roles of particular actors and information, and to assign each a relative level of influence on the decision, you can begin to ascertain recommendations for affecting the outcome of the decision. We sought to identify recommendations for interventions and levers that could improve the environmental and social outcomes of infrastructure development in the Amazon. Once we visualized the decision process in a diagram, we were able quickly to enumerate recommendations for many actors to influence the outcomes. These recommendations were more varied and more surprising than the hypotheses we had developed earlier in the course of our study (e.g., Figure F.6).

Recommendations are best undertaken as a brainstorm, where all ideas are written down and then prioritized and refined later. The most instructive recommendations clarify the proposed actor, the window of opportunity or intervention point, and the lever for change. It is helpful to have at hand the list of outcomes as reference. We looked at the damaging environmental and social consequences of the infrastructure as we laid out recommendations that could feasibly reduce, avoid, or mitigate them during the process.

Figure F.6. Recommendations Identified by Decision Process Diagram Participants

Recommendations:
1. Better risk assessment & planning tools to select projects & design them.
2. Advocate to Chinese regulators and Chinese SOEs to propose decentralized energy systems to host countries.
3. Conduct civil society campaigns to inform joint 5-year plans between Brazil and China.
4. Academic or research institution could perform independent assessment of alternative project designs to determine best options – or if there is an optimal option for better environmental and social outcomes. (Brazilian requirement to assess alternatives). Cost-benefit analysis for alternative infrastructure projects or project designs.
5. Civil society monitoring of finance and project development, making public documents and information (as done with COSIPLAN).
6. Do early environmental and social reviews of sector-based projects and plans. EPE could do this?
7. Demonstrate reputational risk for technology and firm of approach.
8. BNDES should develop sector-based E&S safeguard policies with participation of civil society.
9. Advocate that EIAs be required by Brazilian government *before* pre-licensing and project contract.
10. Communicate to Chinese companies and regulatory agencies (e.g., MOFCOM official at Chinese Embassy) about project risk associated with absence of an EIA at time of contracting.
11. Propose a dialogue mechanism/forum with China Development Bank (or possibly Chinese SOEs) to open discussions around these issues…
12. Develop civil society advocacy and campaigns to address poor behavior and environmental outcomes – in the international arena and link to political reputation, drawing attention through

multilingual media. Latin America-style protest has garnered attention from Chinese actors.
13. Promote transparency in the infrastructure sector via roundtables.
14. Opening dialogue between those directly affected by infrastructure projects to Chinese policy banks (and maybe SOEs). (Experience of Mott Foundation.)
15. Demonstrating potential for reputational risk and technical tools that can improve project outcomes/reduce risk.
16. Make visible impacts at the project level; but also send a positive message about good work and new policies (both tracks). Use of Chinese environmental standards is a good method.
17. Advance dialogue and information with 4 actors: Exim, CDB, Embassy, MOFCOM, especially MOFCOM. Make clear risks, focus on the "pain."
18. Support local communities to make their communications and demands to Chinese regulators. (Civil society is perceived differently from local communities)
19. Capacity building for local communities is essential for effective, timely protest and to amplify voices.
20. Strengthen participatory mechanisms for regional planning, project planning (e.g., with BNDES). For example, can develop stronger monitoring through FPIC process.
21. Create indicators and shared definitions for "sustainable infrastructure," so can clearly call out when not sustainable.
22. Support MOUs between host-country environmental and culture authorities and Chinese counterparts. Develop goal-oriented dialogue.
23. Consider local financing as CSR or component of lending that "builds a brand" and reputation for Chinese actors. Think about a pilot project in the Amazon? Connect to regional planning or Life Plans?
24. Make argument to Chinese actors about China's leadership role in the SDGs, Green Credit Guidelines, etc. and show how connects to projects on the ground, including better due diligence. Use specific case studies to propose tangible solutions.
25. More people to people engagements: Chinese & host-country NGO exchanges around Green Credit Guidelines and green infrastructure.
26. Advance narrative in China about the Amazon in its importance as a global carbon sink to fight climate change. Well-evidenced.
27. Present alternatives for development goals (national plans) that are less environmentally impactful (e.g., solar instead of hydropower).

How do you know you're done with a Decision Process Diagram?

A well-developed Decision Process Diagram will give the viewer and the authors a sense of the players, the time, and the influences on a decision. It will illustrate how and when critical elements lead to results that affect the decision in question (see Figure F.5). A Decision Process Diagram does not need to be perfect or include every possible detail or actor with any relationship to the action situation. The Diagrams are tools for identifying windows of opportunity, key actors, and potential levers to affect decisions and their outcomes. As a result, it is important to acknowledge when enough is enough for the purposes of the study. It is not necessary to get every detail on the page or to answer every question; instead, acknowledging that questions remain can be helpful for continuing work and identifying gaps in understanding across diagrams or cases. Recommendations that result from these diagrams can include further

information gathering (see Figure F.6). Should critical information be missing, or where a greater level of precision or robustness is necessary, diagrams can be improved continually through key informant interviews, peer review, or live "look-ups" of online or databased information. We found in our cases that revisiting a diagram after a period provided opportunity for improvement through reflection, corroboration, and additional information gathering.

What are the results of a Decision Process Diagram?

The results of going through this analysis are twofold. First is the visual information the Decision Process Diagram conveys to participants and viewers (see Figure F.5). The Diagram illustrates what things are happening at different times during the process and how many actors are active at any given time or stage of the process. It also gives an indication of which actors are most influential in a decision and which are least. An analysis of the Diagram reveals potential and activated points of intervention and is suggestive of levers for successful intervention. In our diagramming, the process underscored the value of establishing relationships with multiple actors in an infrastructure development decision and the importance of timing interventions for success in influencing the outcome.

Of utmost importance is the learning by participants in the diagramming. Participants gain a deeper, more multifaceted understanding of a decision process, and sometimes identify new drivers of decisions or windows of opportunity to affect their outcomes. Often participants gain a newfound appreciation for the complexity (and non-linearity) of a decision process. Recommendations that come out of the diagram process are richer and more surprising than the recommendations that come out of a more typical case study.

In our experience with Decision Process Diagrams, participants built a deeper knowledge of the relationship between policies and decisions, including the role of informal influence on a system—such as corruption. We saw potential for new kinds of interventions and partnerships at different moments in the process. We also recognized how little of the available information about infrastructure development decisions were assimilated by civil society or used in campaigns that seek to inform such decisions, putting those efforts at a significant disadvantage. We identified a number of opportunities for multiple actors to inform the decision, using a variety of methods—more than have been brought to bear thus far in the Amazon (see Figure F.6).

References for Appendix F

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