1. **Before the first meeting**
   Leaders play critical roles in ensuring their team works well together and the research outcomes meet participants’ expectations. The first and most important role is work done well in advance.
   - [Lay the foundation.](#)
   - [Develop a goals-based agenda.](#)

2. **Identifying priorities, expertise, and desired outcomes**
   The first team goal is to learn to be creative together. Learning to do so requires trust and openness among the team, which comes once they understand and value what each member brings to the project; their differences in epistemologies, language, and beliefs; and the range of perspectives on priorities and desired outcomes.
   - [Launch the meeting and desired outcomes.](#)
   - [Allow participants to define themselves and reveal their expertise.](#)
   - [Open the problem up for refinement and iteration.](#)

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*Teams often feel “tempted” to skip this step and move directly to data and analyses. This can lead to concerns, confusion, and conflict.*

*On timing … groups vary in the amount of time they need to spend on each of the activities outlined in this infographic.*
3. Reaching agreement on paths forward
The team re-engages and begins the process of moving from individual understandings or conceptualizations (“mental models”) of the research problem to a team consensus. Individual members recognize then share their mental models of the problem. Extensive and often facilitated discussion of the diverse models helps reveal tacit and explicit knowledge that each member brings to the table. And it readies the group for moving beyond one model (e.g., the leaders) or just “linking” understandings (e.g., as in multidisciplinary research) to the development of an integrative team model.

- Prepare the team for re-engagement.
- Elicit individual mental models.
- Recognize diversity in mental models.
- Facilitate co-development of a shared mental model.

4. Linking the shared mental model to project tasks
Now that the team has reached some agreement on a shared mental model of the research problem, they are ready to begin asking what information is needed to address this problem and how should it be linked or integrated. This may or may not involve discussion of actual analyses. The team may want to develop multiple paths forward since there are diverse perspectives on every socio-environmental problem (i.e., a “family of solutions”) and each may require different types of information or ways in which it is integrated.

- Prepare the team for re-engagement.
- Identify project tasks and begin work specific to the project.
- Review accomplishments and assign tasks.

Further Resources
1. Before the First Meeting

Leaders play critical roles in ensuring their team works well together and the research outcomes meet participants’ expectations. The first and most important role is work done well in advance.

Leaders lay the foundation

- Share key documents and preliminary plans with the team well before the first meeting
- Create a shared virtual environment for document sharing and communicating
- Reach out individually to each team member to build rapport and understand their perspectives
- Ask team members share something virtually about themselves with the team
- Ask team members to think about what they view as the most important aspects of the project
- Find a venue for the in-person meetings that is away from everyone’s work place
- Plan for at least a 3-day first meeting and consider travel time carefully – meetings that start or end mid-day often have participants arriving or leaving early

Develop a goals-based agenda

- Develop an agenda that builds incrementally session by session, day by day
- Identify specific goals for every session. Remember a goal doesn’t just have to be to “produce” something specific but could instead be develop a shared understanding/familiarity or build team culture.
- Balance goal orientation with the need for flexibility
- Include social activities throughout the meeting days such as coffee breaks, happy hours, and shared meals
- Consider including a ~15 min morning and afternoon email/phone break (not part of coffee break) encouraging members to actively engage with the team all other times
- Circulate a draft agenda 4–6 weeks before the meeting to seek agenda input from the team and ask each member to identify several sessions they would be willing to co-facilitate
- Circulate final agenda at least 2-3 weeks before the meeting
2: Identifying priorities, expertise, and desired outcomes
The first team goal is to begin learning to be creative together. This requires trust and openness which comes when the team understands and values: what each member brings to the project; their differences in epistemologies, language, and beliefs; and, the range of perspectives on priorities and desired outcomes.

Launch the meeting to set a collaborative tone
- Share roundtable rapid introductions
- Use ice breakers that give people a chance to learn something about everyone outside of their scientific persona – this semi-social time is extremely important
- Briefly review what motivated the project, leaving its design for later final co-development by the team
- Encourage members to use a definition/terminology board or flip chart you created that is added to throughout the meeting. Take time periodically to discuss additions, particularly words/topics that have different meanings to different participants
- Clearly state goals for the day: understand team expertise, member priorities, big picture goals (outcomes), and how each of these relate to the research problem

Allow participants to define themselves and reveal their expertise
- Allow each participant ~ 12 minutes to introduce themselves, their work and how that links to the research problem. Allow brief time (5 min) for clarifying questions. Be somewhat flexible on the timing for this (within reason!) perhaps trading off who keeps track of and enforces timing
- Ask each team member to share their perspective on why/how the team research problem is important and who might use the knowledge generated from the project.
- Allow each team member to share their desired outcome (e.g., products, impacts, etc.) from the project and who might use the knowledge generated from the project’s desired outcome(s)

Open the problem up for refinement and iteration
- Leaders synthesize important information discussed up to this point, particularly what each team member identified as:
  - the most important aspect(s) of the project
  - where their skills best apply
  - who the potential “knowledge-users” are
  - the various desired outcomes
- Facilitate an extended open discussion of the above, creating space and process to explore this at a preliminary level
- Close with a brief outline of tomorrow’s goals

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On timing ... groups vary in the amount of time they need to spend on each of the activities outlined in this document.
3: Reaching agreement on paths forward

The team re-engages and begins the process of moving from individual understandings or conceptualizations ("mental models") of the research problem to a team consensus. Individual members recognize then share their mental models of the problem. Extensive and often facilitated discussion the diverse models helps reveal tacit and explicit knowledge that each member brings to the table. And it readies the group for moving beyond one model (e.g., the leaders) or just “linking” understandings (e.g., as in multidisciplinary research) to the development of an integrative team model.

Prepare the team for re-engagement

- Open the morning semi-socially e.g., group sharing about restaurants, asking members to share funny/failed/great experiences with team activities in the past, etc. Humor helps start the day
- Remind team of project motivation, the variety of skills across the team, and thoughts expressed the prior day on shared outcomes
- Allow brief time for any comments or requests to discuss something from the prior day
- Introduce goals for the day and allow team to revisit the agenda and make revisions if needed

Eliciting individual mental models

- Pass out poster size sheets of paper and crayons/markers and ask participants to space out so they can work on their own. They can certainly opt to use computers but having hand drawings or textual depictions to post on the wall is useful for later.
- Ask each participant to draw a schematic or conceptual model ("mental model") of the research problem, including its drivers and factors influencing its resolution. This is their conceptualization of the problem/research question (e.g., Is food security threatened by water scarcity-related conflict?) rather than how the project will address the question in order to move forward (that comes later), although the two may be related.
- Ask each participant to now make a list of assumptions that underly their conceptualization
- After 45 min?? to an hour (and perhaps tack on time for a coffee break) re-convene

Recognizing diversity in mental models

- Have each participant present their mental model to the group, allowing team members to ask questions, respond, and/or react.
- Be certain to spend time discussing terms or concepts that come up during the presentations that may need defining or that require discussion of differences in meaning among members
- Make sure a discussion of the assumptions underlying different conceptualizations occurs as well as the commonalities among them
- The end of this session is a good time for lunch or at least a break if not the end of day

Facilitate co-development of a shared mental model

- Allow time for members to reflect on the various mental models
- Guide the group in developing a shared conceptualization of the problem and its desired outcomes based on the day’s earlier discussions
4. Linking the shared mental model to project tasks

Now that the team has reached some agreement on a shared mental model of the research problem, they are ready to begin asking what information is needed to address this problem and how should it be linked or integrated. This may or may not involve discussion of actual analyses. The team may want to develop multiple paths forward since there are diverse perspectives on every socio-environmental problem (i.e., a “family of solutions”) and each may require different types of information or ways in which it is integrated.

Prepare the team for re-engagement
- Open the morning semi-socially with a different activity from what was done the prior day
- Review the shared mental model that the team developed earlier and allow time for additional discussions and edits. Remind team that they can and will revisit this over the course of the project. It is a “living” team model.
- Introduce goals for the day and allow the team to revisit the agenda and make revisions if needed

Identify project tasks and begin work specific to the project
- The shared conceptual model is the starting point for the team to identify exactly how they will address the research problem including:
  o what types of information/data, model, or theoretical pieces are needed
  o ideally, how these will be linked and/or synthesized
- Develop a workflow or some document that illustrates the above tasks in bullets
- The above team tasks can take considerable time and are rarely completed on Day 2. In fact, they may not even be near completion by the end of Day 2 depending on how much re-meeting planning had been done. Further, additional work outside of the team meetings is usually needed to determine if the information desired is available.
- Revise the workflow and conceptual model if needed (iteratively) based on data/information availability and new findings.

Review accomplishments and assign tasks
- Using a process that is agreeable to the team, identify who is responsible for completing each task that is needed prior to the next meeting. This is an essential step and it is the leadership responsibility to follow up periodically with a phone call or video meeting to monitor each member’s progress and encourage them to move forward
- Review the assignments with all
- End the meeting with a celebration.
Further Resources

- Resource #1
- Resource #2
- Resource #3