

Systems Iceberg Analysis

ACTIVITY DESCRIPTION Participants learn an iceberg systems analysis tool to explore what lies beneath the surface of events, i.e. patterns, structures and mental models. Small groups choose an event and create a visual iceberg analysis of that issue and present it to the large group for discussion.

PURPOSE To analyze all of the systems connected to an issue; to identify underlying patterns, structures and beliefs that contribute to a problem

INTENDED OUTCOMES Participants will be able to critically analyze the underlying patterns, structures and mental models of an issue or event

SKILLS DEVELOPED Systems thinking; critical analysis; collaboration

TOTAL TIME 1 hour, 30 minutes

NUMBER OF PARTICIPANTS At least 4

MATERIALS Systems Iceberg Handout; big paper; markers for each group;

SETTING Chairs in a circle with breakout working spaces

INTRODUCTORY FRAME

One model that is helpful for understanding global issues is the iceberg model often used in systems thinking. We know that an iceberg has only 10 percent of its total mass above the water while 90 percent of it is underwater. But that 90 percent is what the ocean currents act on and what creates the iceberg's behavior at its tip. Social and environmental issues can be looked at in this same way. If we apply the iceberg model to issues, we could say that at the tip, above the water, are *events*, or thing that we see or hear about happening in the world, such as an oil spill. The events that we hear about in the news represent the iceberg tip. If we look just below the water line, we often start to see *patterns*, or the recurrence of events. This might be multiple recurring oil spills in one place or in different parts of the world. Patterns are important to identify because they indicate that an event is not an isolated incident.

Like the different levels of an iceberg, deep beneath the patterns are the *underlying structures and systems* or root causes that create or drive those patterns. For example, the underlying structure of problem such as recurring oil spills might be our dependence on fossil fuels. If you looked only at the event, you might think that we should just build stronger tankers and better pipelines. But if you look at the root cause of such spills, you can start to understand and address long-term, sustainable solutions such as developing energy sources that do not rely on oil transportation.

Finally, at the very base of the iceberg are *mental models*, or *the assumptions and worldviews* that have created or sustained the structures that are in place. The important thing to understand is that in solving problems, the greatest leverage is in changing the structure or applying deep ocean currents to move the iceberg, which will change the events at its tip. Belief systems or mental models are high leverage points because they put the structures and systems into place. In our oil spill example, mental models might be is that we cannot survive without petroleum, the convenience of oil is worth any cost or that alternatives to oil are unrealistic or too expensive.

Another quick example of the iceberg model can be seen in our own health. Catching a cold once is an event, but catching colds on a regular basis is a pattern. The systemic structures or causes for getting tired might include overwork, unhealthy diet, or insufficient rest. If we don't see the pattern, we might just treat the cold with pharmaceutical drugs to relieve the symptoms, forgetting that is caused by the underlying structures of our lifestyle. If we take a systems thinking approach to solving the problem of frequent colds, we would try to address our lifestyle and find ways to make ourselves less overtired, rather than just focusing on the immediate relief in the form of aspirin or other medicine that is a quick fix solution to our cold.

In order to avoid creating new problems, we need to be able to identify all the systems that are connected to a particular event, situation or challenge. We also need to be able to look beneath the surface of a problem so that we can understand the root causes and identify what are the highest influence leverage areas for creative interventions and change.

Hand out and describe the iceberg analysis for looking at a particular event or situation through a systems lens. As we go down to the depths of the iceberg, our leverage power (or power to create significant impact) increases— for example, changing mental models has higher leverage power in changing a system than simply creating a structural policy that regulates behavior.

PROCESS

- Divide the participants into 4-5 small groups. They will have 40 minutes to identify a particular event, situation or challenge that they analyze together using the iceberg visual.
- Identify a single event or situation at the top.
- Below the event, identify what patterns of behavior or recurring trends take place beneath this event. Has it occurred more than once or in multiple places?
- Also identify what structures exist within each system. What are the policies, ways of working, relationships, decision-making structures, rules, distribution of power, etc. that exist and impact this problem? Are there other systems that are connected to this problem, such as economic, political or legal?
- What are the assumptions, belief systems, worldviews that generate or perpetuate these structures?
- Each group will have 5 minutes to share their issue and accompanying systems iceberg.

REFLECTION

- What underlying structures and belief systems do you need to target in your advocacy?