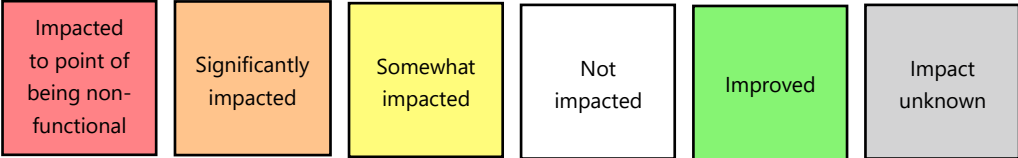# GUIDE TO SHOCK MAPS IN KUMU

To demonstrate how to conduct a Rapid System Assessment, please see our example on the impact of the COVID-19 pandemic on the agriculture market system in Uganda, available here: https://kumu.io/MSM/usaid-uganda-ftf-msm-activity-covid-19-map. You do not need to create an account to view the map. If this is your first time using Kumu, please see the Kumu Guide below for an introduction to the basics.

UNDERSTANDING A SHOCK MAP

If you are not familiar with our system mapping methodology, we recommend you begin by reviewing the comprehensive Element Guide at the end of this document, which explains what the different shapes and colors represent on the map. We have added some new features to specifically represent shocks and their effect on the system, reproduced in the table below.

SHOCK A shock is represented as a filled-in red box.	Shock	**Definition:** **Example:**	Shocks are sudden changes to the way in which a system operates. They often occur from outside the system, affect many parts of the system, and evolve over time. • *Government imposes movement restrictions*
SHOCK EFFECT A shock effect is represented a red circle.	Shock Effect	**Definition:** **Examples:**	Shocks effects are new elements that have cropped up as a result of the shock. • *Markets are closed* • *CAHWs movement is limited* • *Herd movement is restricted*
SHOCK CONNECTION	→	**Definition:**	Shocks connection are connections that have been impacted by the shock.
STATUS The fill color of existing elements indicates how they have been impacted by the shock.	Impacted to point of being non-functional / Significantly impacted / Somewhat impacted / Not impacted / Improved / Impact unknown		
INFORMATION LAYERS When an information layer is toggled on, the outline of elements indicates how many facts have been used to determine its status. If there is no outline color, the element has no facts.	1 fact / 2-3 facts / 4 or more facts		

GUIDE TO SHOCK MAPS IN KUMU

INTERPRETING A SHOCK MAP

In our example, the overall shock is the COVID-19 pandemic, and corresponding government responses. This is represented on the map as a series of shock and shock effect elements. This allows us to represent the shock in specific ways that are relevant to the agriculture market system.

For example, a shock effect element in this example is "*Cost of imports increases*", in the far left of the map. Try zooming in to this area of the map to find this element.

One powerful feature of Kumu is the Focus tool, which allows you to focus on a particular element and see how it is connected to the rest of the system. We encourage you to explore this map using the Focus tool:

- Click on the red shock effect element, *Cost of imports increases*

- Click on the Focus tool

- You will then see the elements that are directly linked to this shock effect element:

    o *Importer sources quality inputs* has the status "Significantly impacted" (represented as an orange fill-in color) and *Manufacturer sources quality inputs* has the status "Somewhat impacted" (represented as a yellow fill-in color) partially as a result of this shock effect.

    o This shock effect element is a result of both *Currency depreciates*, a shock element, and *Significant delays for imported products*, another shock effect element.

- Click on the arrow above the Focus tool. This expands the focus to the next level of connected elements. This view allows you to see how the shock continues to move through the system, and the second- and third-order effects that occur as a result.

- To clear the focus, click on the Focus tool again

The default view on the example map is the shock status. To select other views, use the drop-down menu in the top left. In this example, "No Status" hides the status, and "Intuition Status" shows the status based on expert intuition about the system, instead of new information that has been gathered.
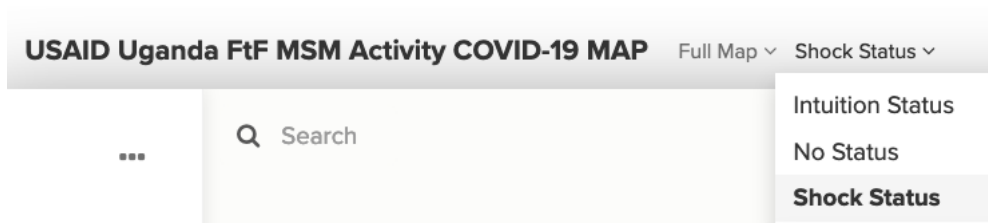
GUIDE TO SHOCK MAPS IN KUMU

INFORMATION LAYERS

In addition to showing how a shock propagates through the system, a shock map can also document how much information is available about the shock and its effects. This information could be from various types of sources, and will have been processed into distinct "facts" – eg. *93% of survey respondents in the agriculture sector continued working through COVID*. Facts are then assigned to elements. Information Layers (accessible from the buttons at the top of the map) show how many facts each element has.

In the example below, the "News Facts" layer has been toggled on. This shows how many "News Facts" (ie. facts that have come from a news source) have been assigned to each element. In this example, most elements have no news facts. A few (*International travel restrictions are imposed* and *Manufacturer produces quality inputs*) have one news fact – represented by a bold red border. Some have two or three news facts – represented by a bold orange border. A few have four or more news facts – represented by a bold green border.
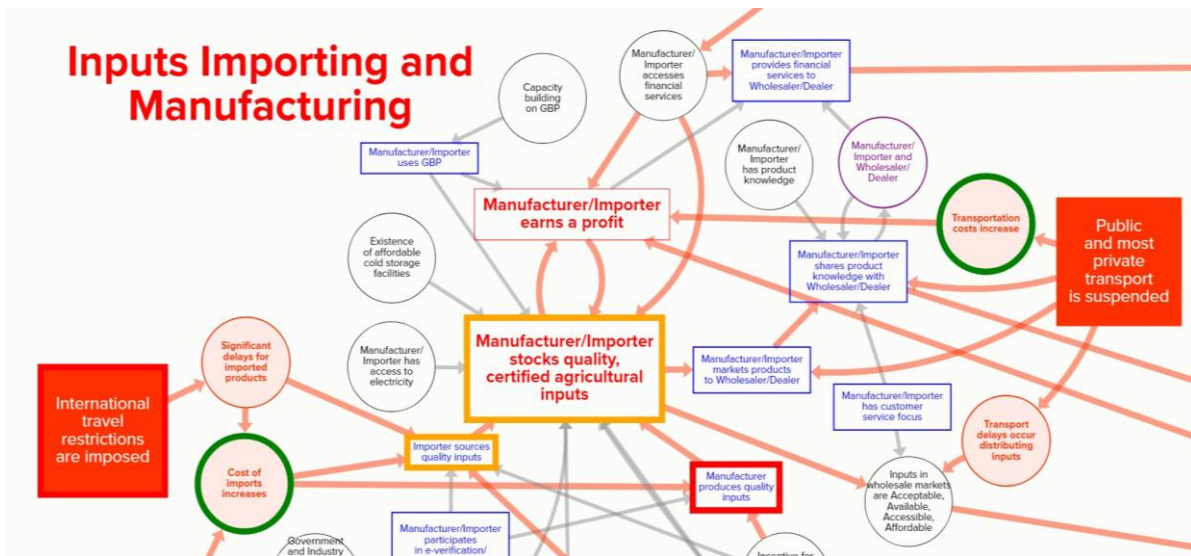
Clicking on an element and opening the left sidebar shows the actual facts corresponding to an element, as well as hyperlinks to the facts' sources (if available).

To view facts from other types of sources (in this example, Interviews, Studies, or Data), click on the other buttons. To view the information layer for all facts together, click All Facts.

LEARN MORE ABOUT SYSTEM MAPPING

Thank you for your interest in system maps! If you have any questions about conducting a Rapid System Assessment or creating your own shock map, please contact us at uganda.research@mit.edu.

GUIDE TO SHOCK MAPS IN KUMU

KUMU GUIDE

WHAT IS KUMU?

Kumu is an online system mapping tool, available at https://kumu.io. It is open-source and free to use, and an excellent platform for creating dynamic, complex system maps that are easy to access and explore. The Market System Monitoring Activity uses this tool for all of our system maps.

ACCESSING THE MAP

The Example Shock Assessment Map can be viewed at this address: https://kumu.io/MSM/example-shock-assessment-map-usaid-uganda-ftf-market-system-monitoring-activity. You do not need to create an account to view the map.
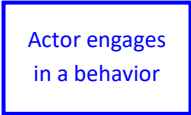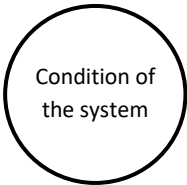
NAVIGATING THE MAP

- Move the map around by clicking in the white space and dragging.

- **Zoom** in and out using the ➕ and ➖ buttons, or with your mouse.

- Kumu has a very powerful **focus** ✛ feature, which allows you to view subsets of the map.

    o You can focus on a particular subsystem, which will display only those elements contained in the subsystem. To do this, click on the label of the subsystem you would like to focus on, then click on the focus button on the right-hand side.

    o You can also focus on a particular element. This highlights all the elements it is connected to. To do this, first click on an element (a red outline will appear around it), and then click on the focus button on the right-hand side.

    o The up and down arrows around the focus button allow you to expand or contract the scope of the focus. Expanding the focus, for example, would include the next layer of elements that are connected to the elements you are currently focusing on.

    o To clear the focus, click on the focus button again.

- You can also **search** for a particular word or element using the search bar at the top left.
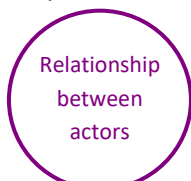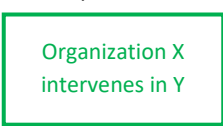
GUIDE TO SHOCK MAPS IN KUMU

ELEMENT GUIDE

SHOCK A shock is represented as a filled-in red box. **Shock**		**Definition:** **Example:**	Shocks are sudden changes to the way in which a system operates. They often occur from outside the system, affect many parts of the system, and evolve over time. • *Government imposes movement restrictions*
SHOCK EFFECT A shock effect is represented a red circle. **Shock Effect**		**Definition:** **Examples:**	Shocks effects are new elements that have cropped up as a result of the shock. • *Markets are closed* • *CAHWs movement is limited* • *Herd movement is restricted*
SHOCK CONNECTION		**Definition:**	Shocks connection are connections that have been impacted by the shock.
KEY OUTCOME A key outcome is represented as a red box. **Key Outcome**		**Definition:** **Examples:**	A key outcome represents an important or desired outcome for the system. A key outcome could be any one of the basic system elements: behavior, relationship, or condition. • *Farmer is resilient to climate change* • *Higher wholesaler/dealer profitability*
BEHAVIOR A behavior is represented as a blue box. Actor engages in a behavior		**Definition:** **Examples:**	A behavior is an action or approach carried out by an individual or entity. The descriptions typically contain an active or passive verb (e.g. "provides", "is aware of", "improves"). • *Wholesaler/dealer stocks quality agricultural inputs* • *Farmer purchases and uses quality agricultural inputs*
CONDITION A condition is represented as a black circle. Condition of the system		**Definition:** **Examples:**	Conditions are attributes of the market that enable a behavior, relationship, or other condition. They are aspects of the system that cannot clearly be defined as a behavior or relationship. An important kind of condition is an incentive that motivates an actor to adopt a behavior or form a relationship. • *Higher demand for quality inputs* • *Public awareness of counterfeit inputs*

GUIDE TO SHOCK MAPS IN KUMU

HOUSEHOLD MINDSET

A household mindset is represented as an orange circle.

Mindset held by the household

Definition: An opinion or perception held by the household which influences their behavior. The household mindset enables the household to engage in a particular behavior, indicating that the household sees the value in taking a particular action.

Examples:

- *Household has positive perception of savings groups*
- *Household understands importance of accessing trained health personnel*

RELATIONSHIP

A relationship is represented as a purple circle.

Relationship between actors

Definition: Relationships between actors are mapped where the quality of interaction between actors is important to enable behaviors or conditions. For instance, good relationships can lead to benefits such as repeated business transactions or increased information sharing.

Examples:

- *Relationship between a dealer and a farmer (enables repeat transactions)*
- *Relationship between farmers and collectors (strengthens farmer access to market information)*

GOVERNMENT BEHAVIOR

A government behavior is represented as a teal box.

Government engages in a behavior

Definition: A behavior or activity carried out by the government. In this map, the actions taken by the government are spread throughout the system, showing how these behaviors enable other elements.

Examples:

- *Government provides and maintains adequate transportation infrastructure*
- *Government enforces bylaws for conservation*
- *Local officials support livestock extension service provision*

INTERVENTION

An intervention is represented as a green box.

Organization X intervenes in Y

Definition: An intervention is a project or initiative being implemented by the development community that aims to influence the system.

Examples:

- *Organization X builds relationships between traders and exporters*
- *Organization Y provides financial literacy training to dealers*

CONNECTION

Definition: An arrow connecting one item to another indicates that the former enables the latter. The arrows do not necessarily represent causation – an arrow merely means that an element facilitates another element or makes it more likely to exist.

STATUS

The fill color of existing elements indicates how they have been impacted by the shock.

| Impacted to point of being non-functional | Significantly impacted | Somewhat impacted | Not impacted | Improved | Impact unknown |

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INFORMATION LAYERS

When an information layer is toggled on, the outline of elements indicates how many facts have been used to determine its status. If there is no outline color, the element has no facts.

1 fact	2-3 facts	4 or more facts

LEARN MORE

Please contact the MSM team with any questions at uganda.research@mit.edu

The Kumu team also has extensive documentation at https://docs.kumu.io/