

Analysis of Resilience for Integrated System Effectiveness (ARISE) Users Guide

(Updated 23 May 2019)

1. Introduction

A reality of the world we live in is that major, and sometimes catastrophic, events can significantly change the viability and stability of communities, regions or countries. These events can occur as natural disasters or as consequences of human actions. Preventing disruptive events is generally not possible; however, reducing their impacts and providing greater resiliency to recover from these events is the goal communities, countries, and regions. From the perspective of the United States (U. S.), stronger and more resilient partners ultimately help to reduce threats and burdens to U. S. interests.

The literature abounds with numerous definitions for “resiliency.” For the purpose of this effort, the following definition for resiliency is being used:

“Resilience is the ability of an entity — e.g., asset, organization, community, region — to anticipate, resist, absorb, respond to, adapt to, and recover from a disturbance from either natural or man-made events.”

When we are working with communities of people at any level, four basic characteristics contribute to the resilience of a community as shown in Figure 1. One can find different terms for the characteristics in the literature, but they boil down to 1.) Having the capacity to meet basic needs, 2.) Having the will to improve the quality of life, 3.) Providing services and functionality to improve the quality of life, and 4.) Being able to provide security for the individuals and resources in the community.

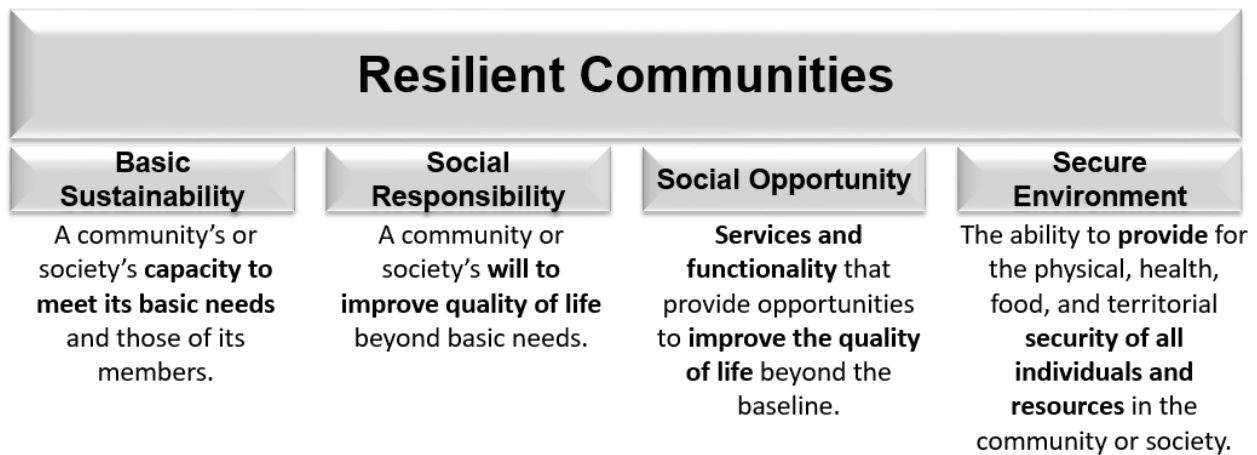


Figure 1. The Characteristics of a Resilient Community.

In order to improve the resilience of a community, one must first be able assess the state of the community. The Analysis of Resiliency for Integrated System Effectiveness (ARISE) framework is a tool to assess the state of resiliency in a country or region and examine options that could increase the resiliency so they can be less reliant on external support following disruptive events. ARISE was originally developed to support the Center of Excellence in Disaster Management and Humanitarian Assistance (COE DMHA). The COE DMHA wanted a tool to assess the resiliency of countries in the Pacific Rim to support efforts to make the countries

stronger and more able to respond internally to disruptions, thereby reducing the need for U.S. support when crises would hit.

Developing regional resilience requires a new way of looking at regional issues. The increasingly multifaceted and unstable international security environment requires a detailed common operational picture to inform effective planning strategies that foster stable and highly functioning communities and societies. New kinds of data, such as data from social media sources, must be incorporated into developing situational awareness and resiliency strategies. Finally, the complex, interconnected nature of the threats to community and societal functioning, and the solutions for becoming more resilient to them, necessitate coordinated solutions based on identifying and countering specific community and societal weaknesses.

2. Structure of ARISE

Conceptually, the ARISE framework is built upon five “pillars”, shown in Figure 2, that describes activities that contribute to the structure of a region or community. The pillars are based on a structure used by the Center of Excellence for Disaster Management and Humanitarian Assistance (COE DMHA) to characterize health care systems in developing countries.

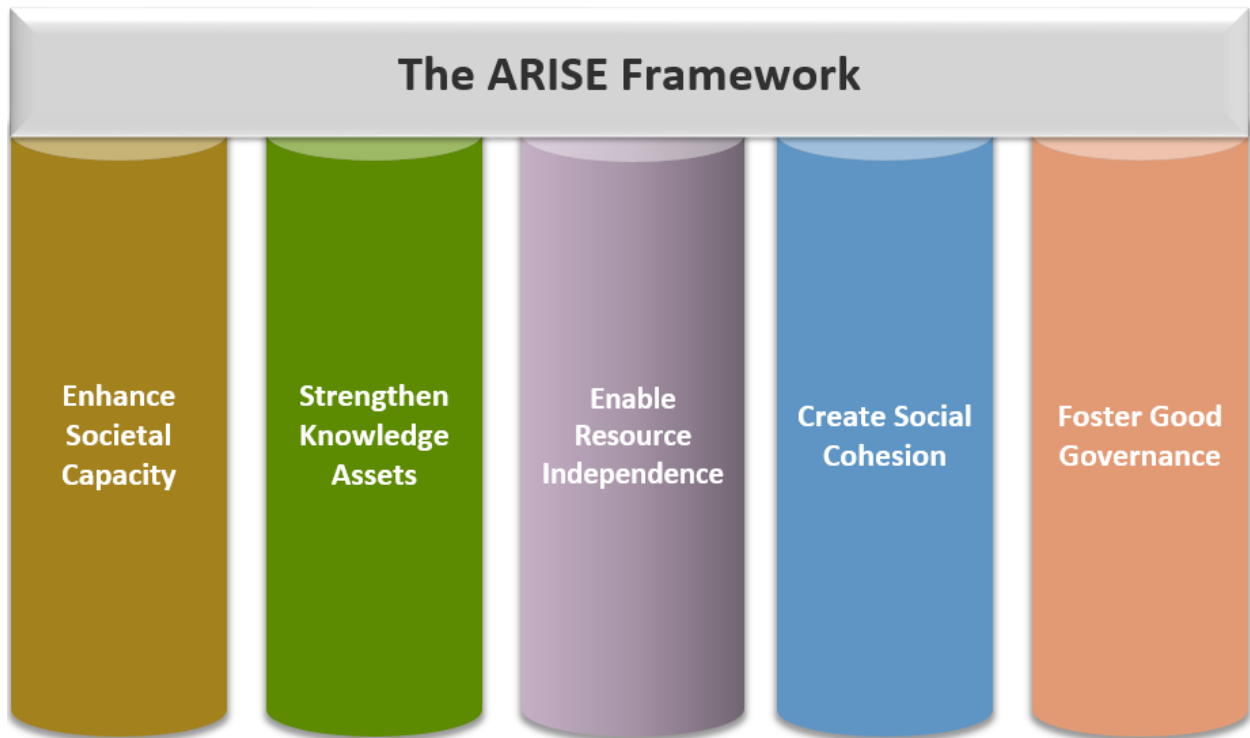


Figure 2. The Pillars of the ARISE Framework.

Each pillar is broken down into a series of sectors, which can be further subdivided to represent a specific element of resiliency. Each element contains one or more indicators. When there are multiple indicators in a resilience element, the indicator values can be weighted to provide a weighted assessment for the resilience element. Figure 3 shows an example of the decomposition of the Enhance Societal Capacity pillar.

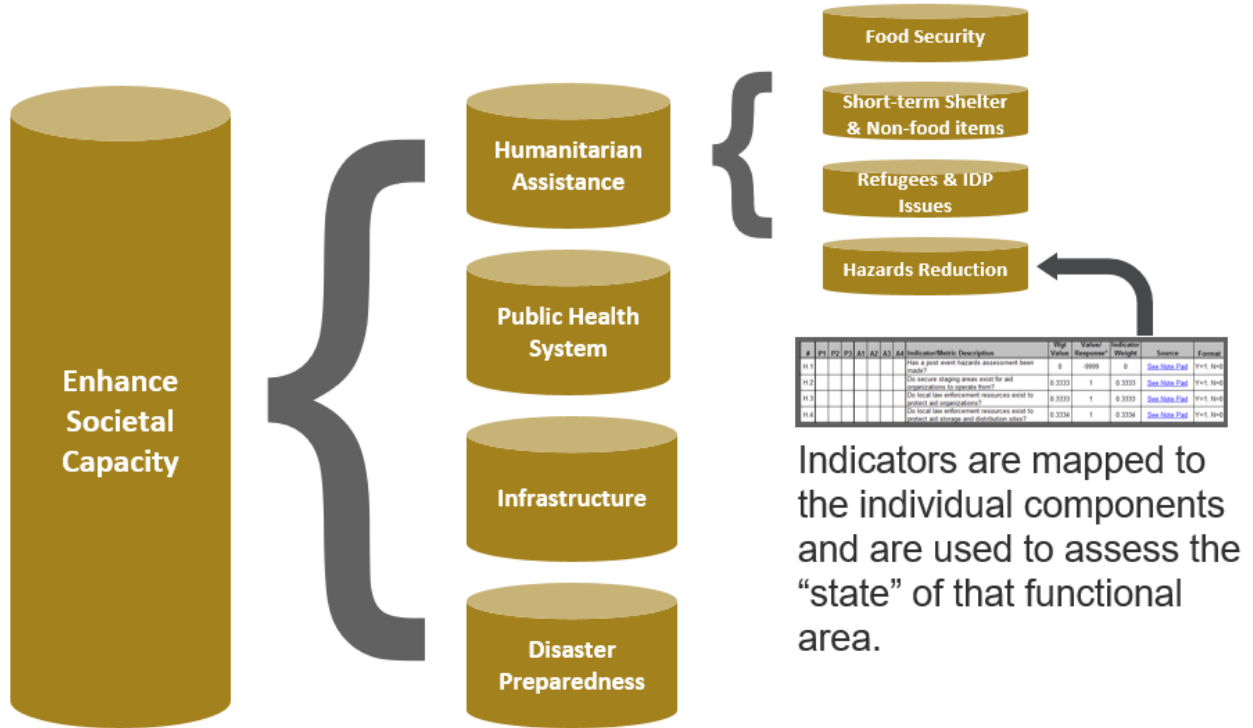


Figure 3. An Example of the Construction of a Pillar in the ARISE Framework.

ARISE was developed as a Microsoft Excel application that consists of a number of linked worksheets that contain data about different elements of a community or region. Table 1 summarizes the worksheets in the ARISE Excel model.

Table 1. The Worksheets in the ARISE Excel Application.

| Worksheet Name | Description |
|-----------------------------|---|
| Overview | Overview of the data used in a specific study |
| Instructions | Currently unused. |
| Data Sources | Description and links to the data sources used in a study. |
| High Level Rollup | Graphical rollup of the evaluation of the indicators. |
| Dashboard | Graphical representation of the pillar evaluations. |
| Humanitarian Assistance | Indicators for Humanitarian Assistance segment of the Enhance Social Capacity pillar. |
| Public Health System | Indicators for the Public Health System segment of the Enhance Social Capacity pillar. |
| Infrastructure | Indicators for the Infrastructure segment of the Enhance Social Capacity pillar |
| Disaster Preparedness | Indicators for the Disaster Preparedness segment of the Enhance Social Capacity pillar |
| Education | Indicators for the Education segment in the Strengthen Knowledge Assets pillar. |
| Communication & Information | Indicators for the Communication & Information segment in the Strengthen Knowledge Assets pillar. |
| Research & Innovation | Indicators for the Research & Innovation segment in the Strengthen Knowledge Assets pillar. |
| Economy | Indicators for the Economy segment in Enable Resource Independence pillar. |
| Sustainable Development | Indicators for the Sustainable segment in Enable Resource Independence pillar. |
| Resource Management | Indicators for the Resource Management segment in Enable Resource Independence pillar.. |
| Create Social Cohesion | Indicators for the Create Social Cohesion pillar. |
| Political Systems | Indicators for the Political Systems segment of the Foster Good Governance Pillar. |
| Institutional Capacity | Indicators for the Institutional Capacity segment of the Foster Good Governance Pillar. |
| Rule of Law | Indicators for the Rule of Law segment of the Foster Good Governance pillar. |
| Security | Indicators for the Security segment of the Foster Good Governance pillar. |
| Assessment | Indicators for the Assessment segment of the Good Governance pillar. |
| Sustainability | The indicators linked to the Sustainability resilience characteristics. Under development. |
| Social Responsibility | The indicators linked to the Social Responsibility resilience characteristics. Under development. |
| Social Opportunity | The indicators linked to the Social Opportunity resilience characteristics. Under development. |
| Secure Environment | The indicators linked to the Secure Environment resilience characteristics. Under development. |
| Task Manager | Simple methodology to develop and test plans. Currently not used. |
| Change Log | Changes made to the version. |
| Public Health System | A prototype of a public health system mapped to the ARISE indicators. |

Figure 4 is a screenshot of the *Overview* worksheet of the ARISE framework. The overview worksheet is used to provide a high-level overview of a specific study, including details on where data were obtained, the number of indicators for which data could not be obtained for indicators, a reason for why the data were not found, and a high-level summary of some of the authoritative data sources used.

Specific details about data sources are contained in the *Data Sources* worksheet, which is summarized in Figure 5. The *Data Sources* worksheet is used to provide information about the specific data sources used, links to the data, and in some cases an embedded copy of the data.

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| ARISE Framework Tools | | # of Indicators: 282 | |
|-----------------------|--|----------------------------------|--|
| Study Name: | | # of Indicators without data: 53 | |
| Study Purpose: | | | |

| | # of Indicators | # W/O Data | Reasons for No Data Available | | "Standard" Data Sources | | | | | | Research Indices |
|--|-----------------|------------|-------------------------------|--|-------------------------|--|---------------------------|---------------------|-----------------------|---------------------------------------|------------------|
| | | | Event Specific | Finer Level of Detail than that in Standard Data sources | CIA World Fact Book | World Bank, World Development Indicators | World Health Organization | Department of State | Millennium Data Goals | Country Indicators for Foreign Policy | |
| Enhance Societal Capacity Pillar | 81 | 17 | | | | | | | | | |
| Humanitarian Assistance | 15 | 8 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Public Health Systems | 37 | 2 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Infrastructure | 18 | 7 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Disaster Preparedness | 11 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Strengthen Knowledge Assets Pillar | 42 | 0 | | | | | | | | | |
| Education | 26 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Communication & Information | 10 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Research & Innovation | 6 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enable Resource Independence Pillar | 54 | 16 | | | | | | | | | |
| Economy | 30 | 16 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sustainable Development | 12 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Resource Management | 12 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Create Social Cohesion Pillar | 15 | 4 | | | | | | | | | |
| Foster Good Governance Pillar | 90 | 16 | | | | | | | | | |
| Political Systems | 15 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Institutional Capacity | 10 | 2 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rule of Law | 42 | 14 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Security | 12 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assessment | 11 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Figure 4. A Screenshot of the *Overview* Worksheet that Summarizes the Indicators and Data Sources Used in an ARISE Study.

Nepal Study Data Sources

Primary Sources



| Acronym | In Use | Description | Source URL | Local Version |
|---------|--------|--|---|---|
| CIA WFB | X | CIA World Fact Book - Nepal Data | https://www.cia.gov/library/publications/the-world-factbook/ |  |
| DoS1 | X | Department of State, Bureau of South and Central Asian Affairs | http://www.state.gov/r/pa/ei/bgn/5283.htm# | |
| DoS2 | X | Department of State, Bureau of Consular Affairs, Country Specific | http://travel.state.gov/travel/cis_pa_tw/cis/cis_980.html#medical | |
| WB | X | World Bank, World Development Indicators | http://data.worldbank.org/country/nepal | |
| WHO1 | X | World Health Organization, Country Health System Profiles | http://www.searo.who.int/en/Section313/Section1523.htm | |
| WHO2 | X | World Health Organization, Country Profile. (The link requires additional inputs after you reach the site to get to the data.) | http://apps.who.int/ghodata/?theme=country |  |
| MDG | X | Millennium Data Goals (United Nations) | http://mdgs.un.org/unsd/mdg/Search.aspx?q=nepal&Provider=Data | |
| UNHCR | X | United Nations High Commissioner for Refugees - 2005 Statistical Handbook | http://www.unhcr.org/4641beb10.html | |
| ESD | X | Energy Statistics Database (United Nations) | http://data.un.org/Search.aspx?q=nepal+datamart%5bEDATA%5d | |

Figure 5. A Screenshot of the *Data Sources* Worksheet Providing Details About the Specific Data Sources Used in an ARISE Study.

The data used in an ARISE study come from a variety of sources as summarized in Figure 6. The first source for data is a variety of primary data that are often from authoritative sources, such as the CIA World Factbook, World Bank, or United Nations World Health

Organization. These data sources are generally considered to be static, objective, and a combination of qualitative and quantitative data. The second source of data are a variety of research grade data sources that are focused on a specific set of criteria. An example is the Fragile States Index that is produced each year by the Fund for Peace. These research indices are often based on proprietary analysis approaches and focus on the negative aspects of a country or region. The last source of data are sources like news feeds, governmental reports, and social media. These data sources are generally more current than the other sources, but may include biases and errors and may lean towards specific, politically driven contexts.



Figure 6. Conceptual Representation for Data Sources Used in ARISE Analyses.

3. ARISE Rolled Up Assessment Results

Figure 7 is an annotated screenshot of the *High Level Rollup* worksheet that displays the results of the indicator evaluations and the rolled assessments. The purpose of the visualization in the worksheet is to provide decision makers with a high level assessments of conditions in a country or region.

The worksheet shows the vertical mapping of the indicators to the ARISE pillars, segments, and elements. Each of the indicators are linked to the segment worksheets that are described in the next section. The results shown mirror the data in the individual segment worksheets. The item D in Figure 7 is the average assessment of all of the items in the column element and the number of indicators contributing to the assessment. The three values in the columns under the Humanitarian Assessment heading are averaged to give the rolled assessment for the Humanitarian Assessment segment (Item B.) The individual segment values are averaged to give the assessment for the pillar (Item A.)

The indicators are also mapped horizontally to the resiliency characteristics. The average of the indicators in a pillar to a resiliency characteristic is shown (Item F) as well as the average of all pillars (Item E.)

All of the evaluated cells are color coded using a stoplight color scheme to give a visual assessment of conditions. A grey colored cell (Item G) is one in which no data were collected and can be used to assess where “boots-on-the-ground” data collection efforts may be required.

Finally, each indicator in the display is a “hotlink” and clicking on it will take the user to segment worksheet where the indicator resides. This provides the user the ability to “drill down” into the data.

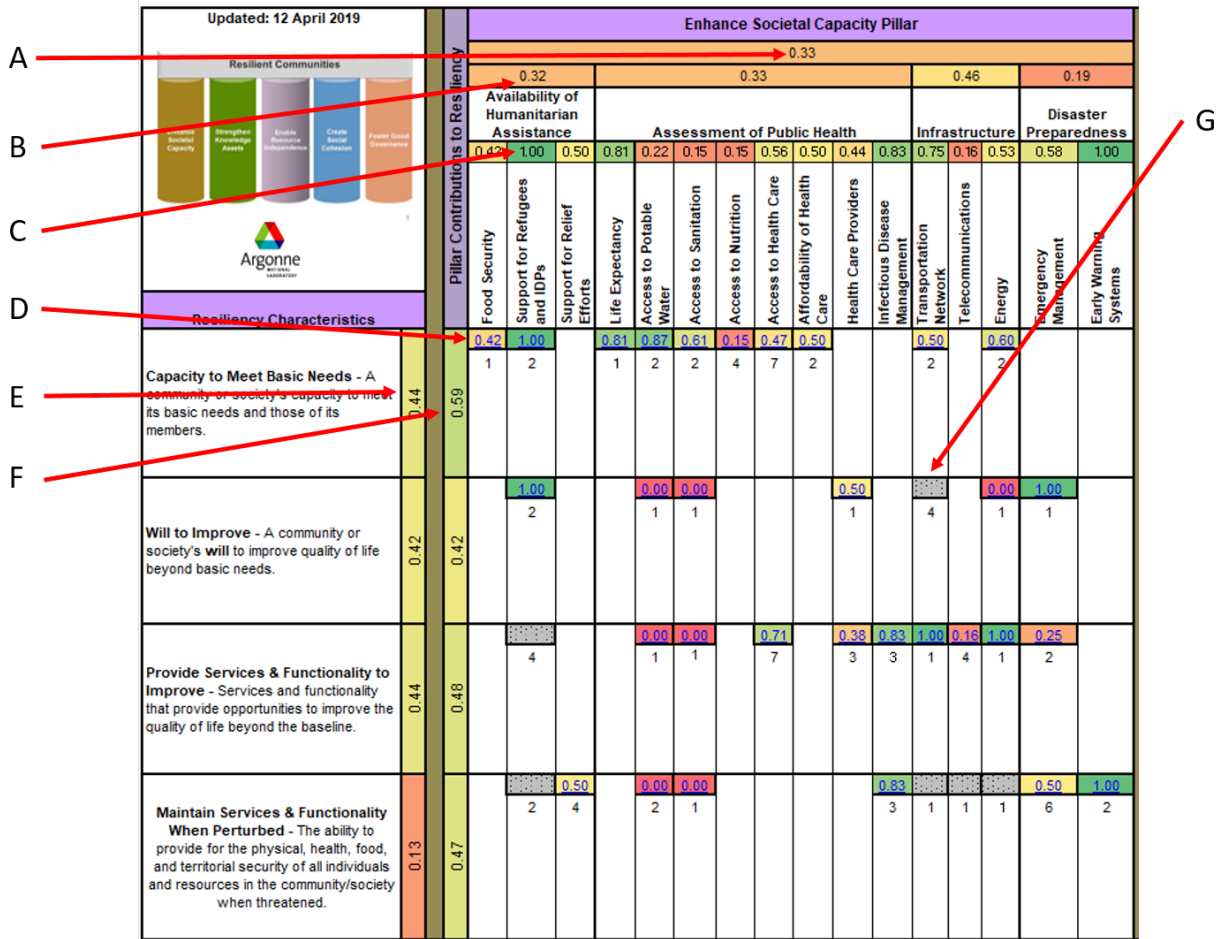


Figure 7. A Screenshot of the *High Level Rollup* Worksheet that Provides a High Level Assessment of the Resilience Analysis.

4. ARISE Indicators

The ARISE indicators are mapped to the 17 sectors that make up the ARISE pillars. The ARISE indicators have come from a variety of sources. Many of the indicators are based on questions from the original COE DMHA health care system evaluations. Additional ones were taken groups that produce authoritative assessments in specific subject domains, such as the World Health Organization (WHO), World Bank (WB), and the American Bar Association (ABA). In the area of rule of law, we have adopted evaluation approaches used by the ABA when they assess legal systems around the world. Additional indicators were developed by the original Argonne development team to fill gaps in the resiliency assessments.

The indicators are managed in individual worksheets in the ARISE Excel spreadsheet. Many of the indicators have been grouped into similar topics the worksheets re are a total of 17 segments, each one represented by an Excel worksheet. The indicators in each worksheet have a code associated with them that maps them to the ASRISE framework. Table 2 lists the pillars, the

names of the pillar sector worksheets, the prefix used to identify the indicators, and the number of indicators as of the date of this report.

Table 2. The Indicator Prefixes Used to Link the Indicators to the ARISE Framework and the Number of Indicators in the Segment¹.

| Pillar | Pillar Sector Worksheet Name | Indicator Prefix | # of Indicators |
|-------------------------------------|-------------------------------------|-------------------------|------------------------|
| Enhance Societal Capacity | Humanitarian Assistance | H | 15 |
| | Public Health System | P | 37 |
| | Infrastructure | I | 18 |
| | Disaster Preparedness | D | 11 |
| Strengthen Knowledge Assets | Education | Ed | 26 |
| | Communication & Information | C | 10 |
| | Research & Innovation | Ri | 6 |
| Enable Resource Independence | Economy | Ec | 30 |
| | Sustainable Development | Sd | 12 |
| | Resource Management | Rm | 12 |
| Create Social Cohesion | Create Social Cohesion | Sc | 15 |
| Foster Good Governance | Political Systems | Ps | 15 |
| | Institutional Capacity | Ic | 10 |
| | Rule of Law | R | 42 |
| | Security | S | 12 |

4.1. Structure of an ARISE Segment Worksheet

Figure 8 is a screenshot of the ARISE Political Systems sector worksheets. The screenshot has been annotated to highlight different features of the worksheet. One can get to a sector worksheet either by selecting the worksheet tab or by clicking on an indicator in the rolled up visualization of ARISE.

¹As of May 2019.

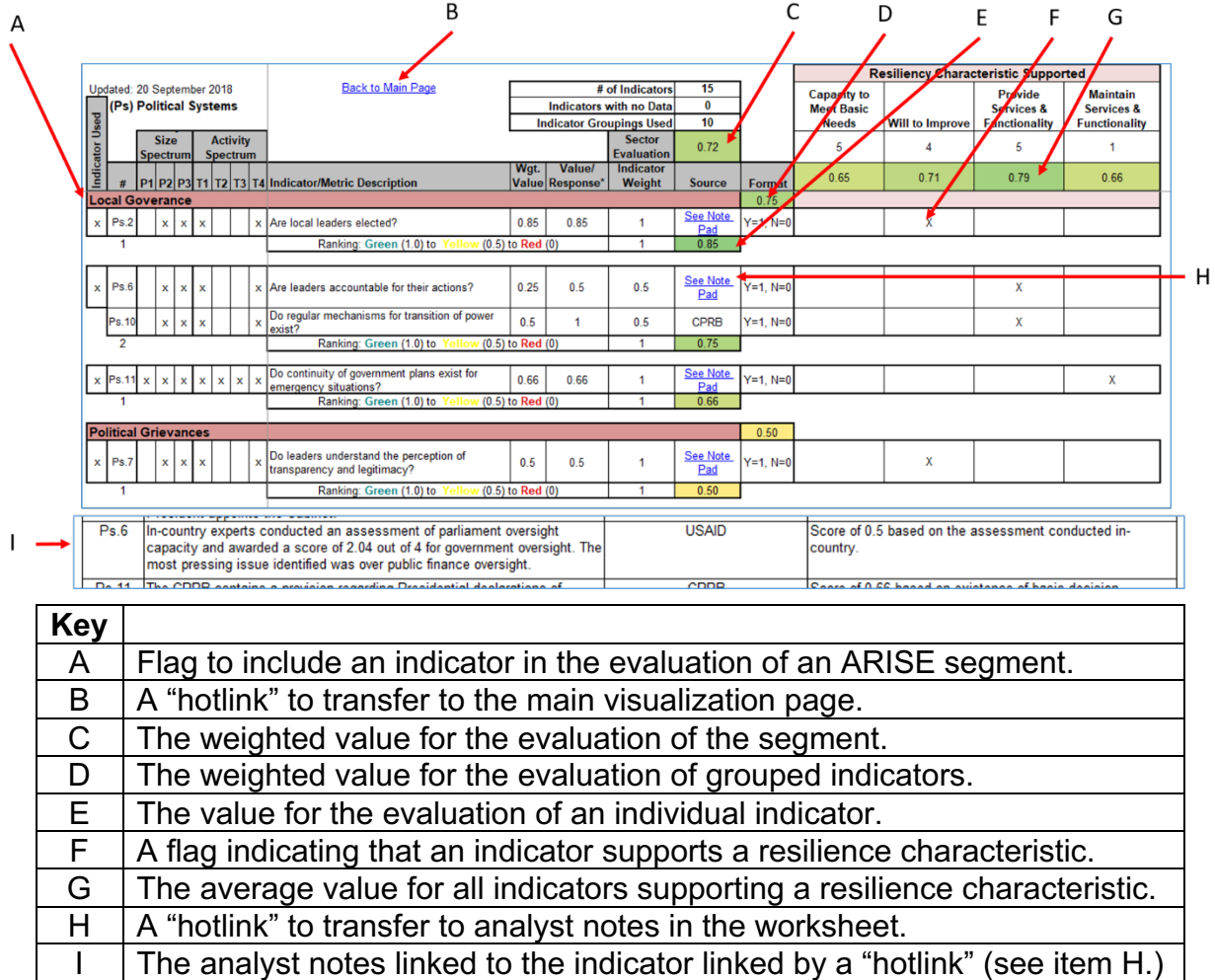


Figure 8. A Screenshot of the Political Systems Segment Worksheet.

In the upper left-hand of the worksheet is a note stating when the worksheet was last modified. In the upper center of the worksheet are cells noting how many indicators are contained in the sector, how many indicators did not have data given for them, and how many indicator groupings are being used in the current analysis. An "X" in the cell under the column labeled "Indicator Used" denotes that the indicator is being used (see Item B).

Indicators can be evaluated individually or in groups. Item E shows an evaluation for an individual indicator and Item D shows the assessment for a group of indicators that address local Governance issues. The evaluations are done on a scale of 0 to 1 and the cells color coded using a stoplight color scheme in which green is a positive assessment and red a negative assessment. However, the quantitative values that denote positive or negative assessments can vary depending on the individual indicator.

The overall assessment of a sector is made using all of the indicators that have been selected for a given study. The value is given at the top of the worksheet (see Item C).

Each indicator has a unique identifier that is a combination of letters and number. The prefix is one or more letters followed by a number (see Table 2). The indicators in a worksheet

may not necessarily be in an ascending numbered order. This can be the result of how indicators have been grouped together or when they were developed.

The indicators are expressed as questions that can be answered either qualitatively as “Y/N” or quantitatively between 0 and 1. The “Yes” or “No” responses are converted to numerical values with Y=1 and N=0. Each question is assigned a weight that is used to support the analysis of the segment. Default weights have been assigned to all indicators, but they can be modified by an analyst to support a specific study.

Indicators can be grouped into similar categories in which a weighted assessment is made of all of the indicators in the group. The weights must be entered manually by an analyst. The default assumption for ARISE is that if there is one indicator in a defined category, a default weight of 1 is given. If there are multiple indicators in a group, a default uniform weight is given that will sum up to 1. Each indicator and grouped set of indicators are given weighted values (under the “Wgt. Value” column header) that are the result of the value of the indicator (under the “Value/Response” column header) multiplied by the weight of the indicator (under the “Indicator Weight” column headers.) For a single indicator, the result is shown in a color-coded cell, noted by Item E in Figure 7. For a grouped set of indicators, the result shown is the sum of the weighted indicator values that are in the group.

Depending upon a given question, there might be some context that suggests a binary 1/0 valuation is not representative of the actual conditions in a country or region. As an example, in the Rule of Law segment worksheet, there are a number of questions related to if specific types of laws exist in a country or region. In many cases, the answer is that the laws do exist, but the degree of enforcement may be limited. In that case, an analyst may want to change the “1” to a value less than one to reflect the enforcement limitations that may exist. The analyst can also include notes explaining the rationale for the value they have assigned. Those notes are added in a “note pad” section of the worksheet below the indicators that can be accessed via a hotlink. Item H shows an example of hotlink associated with indicator Ps.2 and Item I shows the notes made by the analyst.

Each indicator can be optionally associated on a spatial and activity spectrum. This is accomplished by checking the cells under the “Size Spectrum” and “Activity Spectrum.” The Size Spectrum can be used to identify if an indicator applies on a regional, national, or community scale. The Activity Spectrum relates to the temporal aspects of an indicator and if it relates to an activity that is an ongoing activity or one that is event driven. If it is event driven, it relates to if it is a pre- or post-event action.

4.2. Adding a New Indicator

Adding an indicator to the ARISE framework is a relatively straight forward process, as outlined in Figure 9. To demonstrate the process, we shall follow the process to add a new indicator, prevalence of undernourishment. This is an indicator used by the United Nations Food and Agricultural Organization (FAO) that “expresses the probability that a randomly selected individual from the population consumes an amount of calories that is insufficient to cover his/her energy requirements for an active and healthy life” (FAO, 2014.)

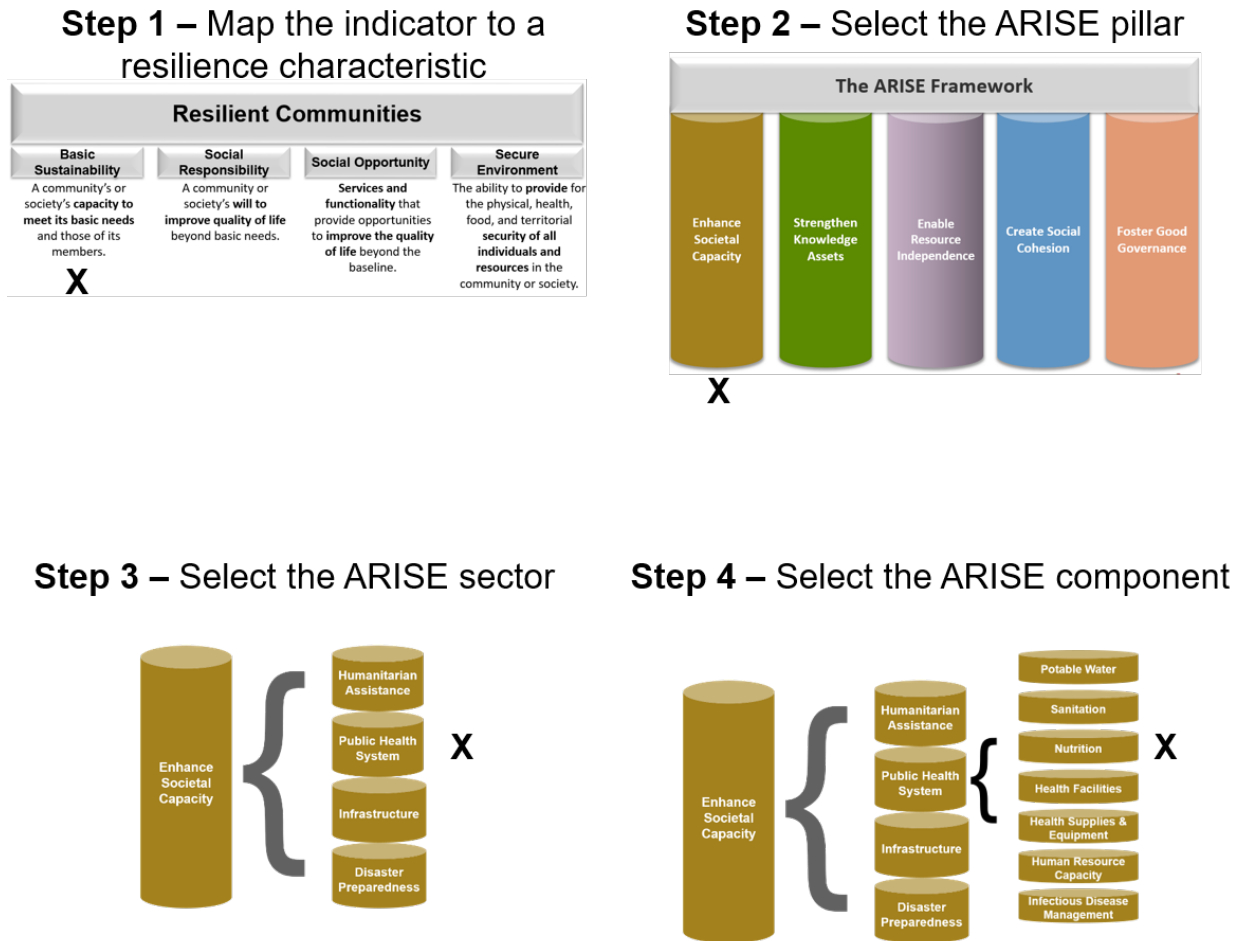


Figure 9. Steps Involved in adding an Indicator to the ARISE Framework. The “X’s” Indicate the Choices Made to Add the Indicator, Prevalence of Undernourishment.

The first step in the process is to map the indicator to a resilience characteristic. This FAO metric (FAO, 2014) addresses the ability of a community or region to meet the basic nourishment needs of its citizens and supports the Basic Sustainability characteristic. The FAO metric was developed to support food security studies around the world. Food security issues are addressed in two sectors of the Enhance Societal Capacity pillar under the Humanitarian Assistance and Public Health System sectors. The metric under the Humanitarian Assistance sector and Food Security component addresses post event conditions while that in the Public Health System sector and Nutrition component addresses general nutritional issues, which is what the FAO metric addresses. Figure 10 shows the Nutrition component of the Public Health System pillar before the new indicator is added. The new indicator will be added after indicator P.12, “What is the average daily caloric intake by individuals?” One needs to insert a new row under the row containing the indicator P.12, as shown in Figure 11. The new indicator is given the index P.35, is noted as a “Numeric” variable and linked to the Basic Sustainability resilience characteristic, as shown in Figure 12. It is noted that the counter for the number of indicators under the Nutrition component has increased to 5 from 4.

After the new indicator has been added, the weighting factors for all of the other indicators in the grouping must be manually changed. In the example shown, only 3 out of the 4 indicators

had been used in the previous analyses and their weights were 0.33, 0.33, and 0.34. With 4 indicators now included, a default equal weighting would be 0.25, 0.25, 0.25, and 0.25. The value added for the indicator is 0.167, the value for Bangladesh. The final results are shown in Figure 13. The worksheet now shows 14 indicators in the Public Health Sector linked to the Capacity to Meet Basic Needs resilience characteristic and the rolled-up assessment of the indicators at 0.43, down slightly from 0.46 before the indicator was added.

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| Indicator Used | Polity Size Spectrum | | Causal Activity Spectrum | | | | Indicator/Metric Description | Wgt. Value | Value/Response* | Indicator Weight | Source | Format | Resiliency Characteristic Supported | | | | |
|----------------|----------------------|----|--------------------------|----|----|----|------------------------------|------------|-----------------|------------------|------------------------------|---------------|-------------------------------------|----|------------------------------|-----------------|----------------------------------|
| | # | P1 | P2 | P3 | A1 | A2 | | | | | | | A3 | A4 | Capacity to Meet Basic Needs | Will to Improve | Provide Services & Functionality |
| | | | | | | | | | | | # of Indicators: 34 | | | | | | |
| | | | | | | | | | | | Indicators with no Data: 2 | | | | | | |
| | | | | | | | | | | | Indicator Groupings Used: 18 | | | | | | |
| | | | | | | | | | | | Sector Evaluation: 0.36 | | | | | | |
| | | | | | | | | | | | 0.46 | | | | | | |
| | | | | | | | | | | | 0.46 | | | | | | |
| | | | | | | | | | | | 0.38 | | | | | | |
| | | | | | | | | | | | 0.37 | | | | | | |
| | | | | | | | | | | | 0.30 | | | | | | |
| | | | | | | | | | | | 0.24 | | | | | | |
| X | P.12 | | | | | | | 0.15 | 0.45 | 0.333 | | Numeric | X | | | | |
| | P.13 | | | | | | | 0.01 | 0.03 | 0.333 | | Numeric | X | | | | |
| | P.14 | | | | | | | 0.084 | 0.25 | 0.334 | | List of items | X | | | | |
| | P.15 | | | | | | | 0 | 0 | 0 | | List of items | X | | | | |
| | | | | | | | | | | | Ranking Approach: TBD | | | | | | |
| | | | | | | | | | | | 1 | | | | | | |
| | | | | | | | | | | | 0.24 | | | | | | |

Figure 10. The Nutrition Component of the Public Health Systems Pillar before the Addition of the Prevalence of Undernourishment Indicator.

| | | | | | | | | | | | Nutrition | | | | 0.24 | | | |
|---|------|--|--|--|--|--|--|-------|------|-------|-----------------------|---------------|---|--|------|--|--|--|
| X | P.12 | | | | | | | 0.15 | 0.45 | 0.333 | | Numeric | X | | | | | |
| | P.13 | | | | | | | 0.01 | 0.03 | 0.333 | | Numeric | X | | | | | |
| | P.14 | | | | | | | 0.084 | 0.25 | 0.334 | | List of items | X | | | | | |
| | P.15 | | | | | | | 0 | 0 | 0 | | List of items | X | | | | | |
| | | | | | | | | | | | Ranking Approach: TBD | | | | | | | |
| | | | | | | | | | | | 1 | | | | | | | |
| | | | | | | | | | | | 0.24 | | | | | | | |

Figure 11. Addition of a New Row where the Prevalence of Undernourishment Indicator will be Added.

| | | | | | | | | | | | Nutrition | | | | 0.24 | | | |
|---|------|--|--|--|--|--|--|-------|------|-------|-----------------------|---------------|---|--|------|--|--|--|
| X | P.12 | | | | | | | 0.15 | 0.45 | 0.333 | | Numeric | X | | | | | |
| | P.36 | | | | | | | | | | | Numeric | X | | | | | |
| | P.13 | | | | | | | 0.01 | 0.03 | 0.333 | | Numeric | X | | | | | |
| | P.14 | | | | | | | 0.084 | 0.25 | 0.334 | | List of items | X | | | | | |
| | P.15 | | | | | | | 0 | 0 | 0 | | List of items | X | | | | | |
| | | | | | | | | | | | Ranking Approach: TBD | | | | | | | |
| | | | | | | | | | | | 1 | | | | | | | |
| | | | | | | | | | | | 0.24 | | | | | | | |

Figure 12. Addition of the Prevalence of Undernourishment Indicator and its Linkage to its Resilience Characteristic.

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| Indicator Used | Polity Size Spectrum | | Causal Activity Spectrum | | | | Indicator/Metric Description | Wgt. Value | Value/Response* | Indicator Weight | Source | Format | Resiliency Characteristic Supported | | | | |
|----------------|----------------------|----|--------------------------|----|----|----|------------------------------|------------|-----------------|------------------|------------------------------|---------------|-------------------------------------|----|------------------------------|-----------------|----------------------------------|
| | # | P1 | P2 | P3 | A1 | A2 | | | | | | | A3 | A4 | Capacity to Meet Basic Needs | Will to Improve | Provide Services & Functionality |
| | | | | | | | | | | | # of Indicators: 35 | | | | | | |
| | | | | | | | | | | | Indicators with no Data: 2 | | | | | | |
| | | | | | | | | | | | Indicator Groupings Used: 18 | | | | | | |
| | | | | | | | | | | | Sector Evaluation: 0.35 | | | | | | |
| | | | | | | | | | | | 0.35 | | | | | | |
| | | | | | | | | | | | 0.42 | | | | | | |
| | | | | | | | | | | | 0.38 | | | | | | |
| | | | | | | | | | | | 0.37 | | | | | | |
| | | | | | | | | | | | 0.30 | | | | | | |
| | | | | | | | | | | | 0.18 | | | | | | |
| X | P.12 | | | | | | | 0.113 | 0.45 | 0.25 | | Numeric | X | | | | |
| | P.36 | | | | | | | | 0.167 | 0.25 | | Numeric | X | | | | |
| | P.13 | | | | | | | 0.008 | 0.03 | 0.25 | | Numeric | X | | | | |
| | P.14 | | | | | | | 0.063 | 0.25 | 0.25 | | List of items | X | | | | |
| | P.15 | | | | | | | 0 | 0 | 0 | | List of items | X | | | | |
| | | | | | | | | | | | Ranking Approach: TBD | | | | | | |
| | | | | | | | | | | | 1 | | | | | | |
| | | | | | | | | | | | 0.18 | | | | | | |

Figure 13. Final Results of the Addition of the Prevalence of Undernourishment Indicator to the Nutrition Component of the Public Health Systems Pillar.

References

FAO, 2014, Strengthening the Links Between Resilience and Nutrition in Food and Agriculture, A Discussion Paper, Food and Agriculture Organization of the United Nations, Rome, Italy.
<http://www.fao.org/3/a-i3777e.pdf>

Appendix

A.1 – Modifying the Stoplight Criteria

A “stoplight” coloring scheme is used to give a visual assessment of the various ARISE framework assessments. The approach utilizes Excel’s conditional formatting tools to implement the stoplight visualization.

The context of each indicator determines how to match the quantitative assessments to the stoplight colors. This will be demonstrated using an example from the Public Health Systems sector. Figure A.1 shows a screenshot from the Public Health Systems worksheet in which the results from the Nutrition component assessment have been highlighted.

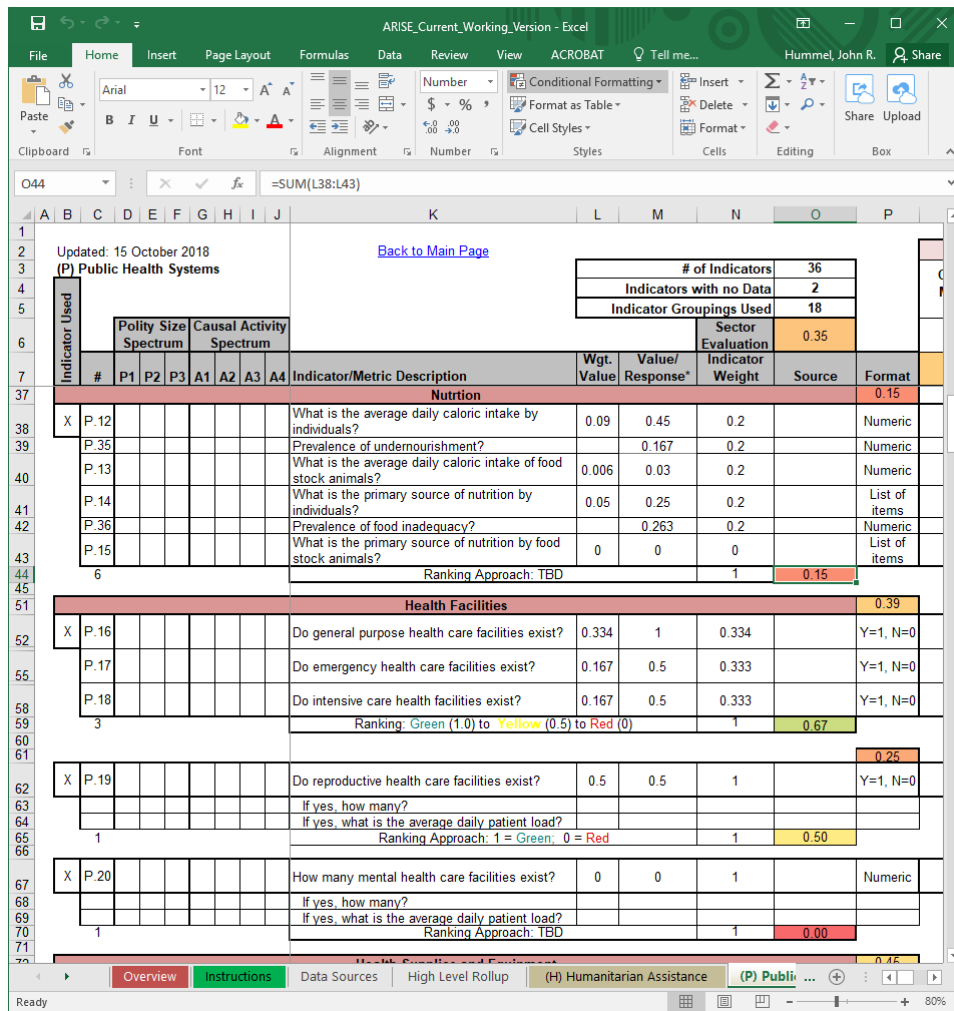


Figure A.1. Screenshot of the Public Health Systems Sector.

The Conditional Formatting tool is part of the Home set of tools shown at the top of the worksheet. When you click on it, a set of options will be displayed. The Manage Rules option is at the bottom of the list of options. Clicking on Manage Rules will show the rules associated with the selected cell, as shown in Figure A.2. The first rule is used to color the cell to indicate that no data were available for the indicators used in the assessment. The second rule is used to set the values to select the colors. Selecting the rule and clicking on the Edit Rule option will display the specific values to set the colors, as shown in Figure A.3.

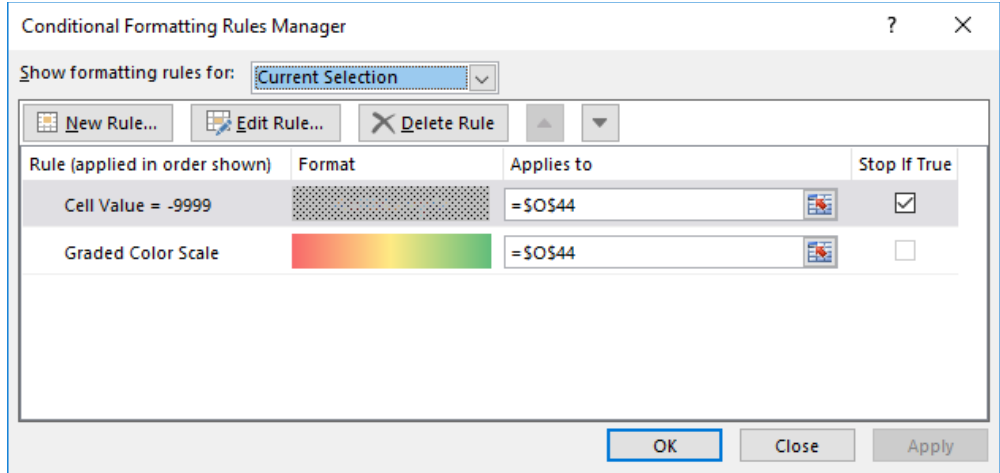


Figure A.2. Conditional Formatting Rules Associated with Assessment of the Nutrition Indicators.

In the example shown in Figure A.3, shades of green are assigned to equal to 1 or less, which then transition to yellow at 0.5. The colors transition to red at 0.

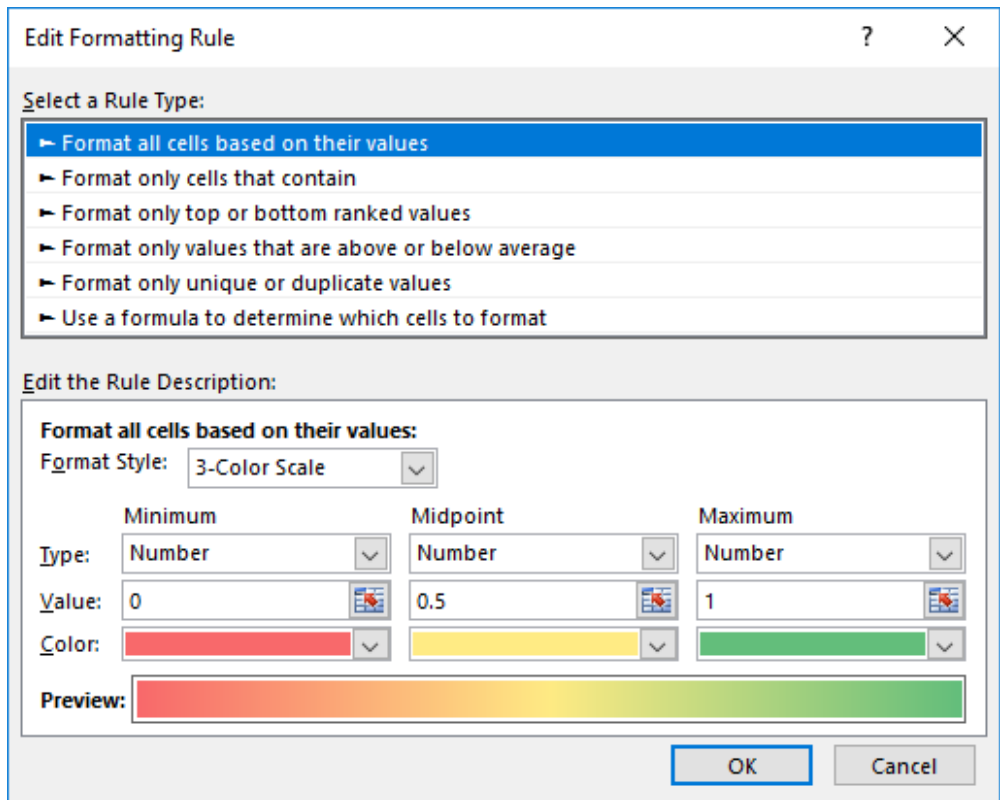


Figure A.3. The Specific Rules Used to Assign Colors to the Assessment of the Nutrition Indicators.

The breakpoints for where the colors transition are dependent upon the context of the indicators being assessed. In general, ARISE uses a stoplight color scheme in which green is associated with values near on and red for values near 0. However, there are a few indicators in which that approach is reversed. For example, in the Humanitarian Assistance sector there is an

indicator that asks “What fraction of the population is undernourished?” For that indicator, green begins at 0 and the transition to yellow is at 0.25.