 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Data for Democracy:**

**Data for Decision-Making Student Handbook**

*Module 1*

What are data? Work with a partner to brainstorm 5 words that you think of when you hear the word **data.** Be prepared to share them with the class.

**Key Term: Data**

Write the definition for data provided by the instructor in the box below.

**Key Term: Decision-Making**

Write the definition for decision-making provided by the instructor in the box below.

**Key Term: Data-driven decision-making**

Write the definition for decision-making provided by the instructor in the box below.

**Course goals and objectives:**

* **Goals**: The goal of this 3-day workshop is to equip you with ability to understand issues and resources around data and data collection, and learn the importance of using the data to make an informed, evidence-based decision. This workshop is meant to help you and your organization better understand, use, and manage data for decision making.
* **Outcomes**: Use a basic set of processes and questions to assess the data environment at your own organization. Understand data lifecycle theory, basic skills when working with data, and the resources needed to support working with data. Be able to create a data project plan that is specific to your own organization.

**Applied Example, Data for Decision-Making (Armenia):**

Many countries around the world are using data to make decision on a daily basis, and are seeking ways to solve existing problems using new forms of data.

As a prior to beginning the case study, provide context by briefly outlining the case study below in Armenia (adapted from UNDP, A guide to Data Innovation for Development, 2016). Alternatively, a locally specific example can be provided. If implementing this in Myanmar, please see the second example.

In Armenia, Tourism has great potential for growth. Commonly used data sources such as hotel booking logs and border control records are expensive and time-consuming to collect, and only provide part of the picture.

The UNDP office in Armenia saw an opportunity to help the tourism industry by using a new form of data collection: understanding tourist preferences by analyzing the number of roaming foreign SIM cards in use.

The UNDP team in Armenia used this new form of data collection to track origin and travel patterns for tourists in Armenia, and could then share the data with government decision-makers and local businesses to understand and adapt to shifting tourism trends.

**Key questions to consider:**

* What was the problem the UNDP in Armenia was trying to solve?
* How did they use data collection to solve it?
* How did they use new data to solve the problem?
* How can they now use that data to make a decision?

**Applied Example, Data for Decision-Making (Myanmar):**

**I**n Myanmar, smartphones have become increasingly accessible and popular since foreign investors entered the country in 2014. Most individuals now have a smartphone and a data-enabled SIM card.

MIMU wanted an easier and more accurate way to compile and update baseline data on school locations across Myanmar. Data collection where individuals visit each school and mark the location is time consuming and costly. Accurate and up-to-date baseline data are important to developing more sector-specific data. Information regarding the number and location of schools is also important to help communities identify where available schools are, which schools close, and where more schools are needed. In 2015, MIMU decided to utilize the growth of cell phones and mobile data to facilitate baseline data collection on schools. This was cost effectively, fast, and would allow for data to be collected and updated more frequently.

They created the “School Location Collector” tool, which collects the GPS location of schools. School officials use the service to get the GPS location and save it to the system’s database. They can then send the GPS coordinates over the internet or by SMS.

**Key questions to consider:**

* What was the problem MIMU was trying to solve?
* How did they use data collection to solve it?
* How did they use new data to solve the problem?
* How can they now use that data to make a decision?

**Case Study (Egypt): Improving agricultural yields through data innovation**

*Read the below case study on your own and answer the accompanying questions.*

Climate change is increasingly threatening agriculture around the world, including in Egypt, where the UNDP office set out to address the problem through data, in collaboration with the Faculty of Computers and Information at Cairo University.

The Challenge to farmers, and the lack of data, comes from unexpected shifts in rainfall and planting seasons. Most agricultural producers reply on historic data, which are increasingly unreliable in a shifting climate. But data innovation is offering a new tool.

The team knew that in Colombia, for example, a team of researchers and a local industry organization were able to create a new predictive weather model for rice farmers.

The team used multiple data sources:

* Annual rice surveys
* Harvest monitoring data
* Experiments on rice sowing dates
* Weather data

Using these data, the researchers indemnified geographically specific relationships between climate and agricultural yields. The tool they created successfully forecast a drought, and helped 170 million farmers in Colombia avoid an estimated 3.6 million loss during the drought.

Following the previous experience from the Colombia research, the team in Egypt identified new sources of data that could be used within their own country. They established two sources: data from the sensors network for the Central Laboratory for Agricultural Climate, and the local and international weather station data, a combination that (Based on previous successes) proved to reveal insights for decision makers in the area of water management.

**Key questions to consider:**

*Use the blanks below to write responses to the following questions.*

* What was the problem the UNDP in Egypt was trying to solve?

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* How did they use data collection to solve it?

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* How did they use new data to solve the problem?

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* How can they now use that data to make a decision?

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**Case Study: Data for decision-making in Myanmar (hypothetical)**

Natural disasters in Myanmar threaten both crop production and populations in affected areas. Both the cyclone in 2008 and the excessive flooding in 2015 resulted in many deaths, displaced persons, and crop and paddy destruction. The new parliament is working to create new policies to address concerns following future natural disasters. They want to understand if crops and export potential or the displacement of local populations are affected more by these natural disasters. In order to do so, they need to draw from several data sources to evaluate the effect of natural disasters on crop production and on local populations:

-          Annual rice surveys

-          Monthly exports

-          Weather data

-          National population data and UN data on internally displaced persons

Using these data, politicians can use past weather data and data from UN agencies to determine which townships were most affected by the cyclone in 2008 and the rainfall and flooding in 2015. They can then analyze the population data published yearly by the Central Statistical Organization to identify if there was a significant population decrease in these townships and increases in neighboring townships. They can also use the population data to identify if populations returned to the affected areas by observing any growth in affected townships.

The politicians can then identify if the UN data on internally displaced persons aligns with the affected townships. To evaluate the effect on crop production, politicians can use annual rice surveys to identify any decreases in rice production in the states and regions with affected townships. The politicians can also identify if rice production remained low in these areas in following years, which would indicate more permanent damage to crop fields. They can also use data on the amount of rice exported and changes in the price of rice to identify the effect of natural disasters on the nation’s economy. To identify if natural disasters in Myanmar have a larger effect on populations or crop production, politicians can then compare their findings. In this situation, data collection and sharing are instrumental in helping individuals make informed decisions.

**Key questions to consider:**

*Use the blanks below to write responses to the following questions.*

* What was the problem the parliament in Myanmar was trying to solve?

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* How did they use data collection to solve it?

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* How did they use new data to solve the problem?

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* How can they now use that data to make a decision?

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**Key Term: Qualitative**

Write the definition for qualitative provided by the instructor in the box below.

**Key Term: Quantitative**

Write the definition for quantitative provided by the instructor in the box below.

**Key Term: Primary data**

Write the definition for primary provided by the instructor in the box below.

**Key Term: Secondary data**

Write the definition for secondary provided by the instructor in the box below.

**Key Term: Dataset**

Write the definition for dataset provided by the instructor in the box below.

**Key Term: Documentation**

Write the definition for documentation provided by the instructor in the box below.

**Key Term: Data visualization**

Write the definition for data visualization provided by the instructor in the box below.

**Key Term: Stakeholders**

Write the definition for stakeholders provided by the instructor in the box below.