# GEN4GEO ver. 1.2 – USER MANUAL

Feb. 06, 2026

## Table of Contents

# 1. Acronyms

| Acronym | Meaning |
|---|---|
| AoI | Area of Interest |
| LLM or llm | Large Language Model |
| AI | Artificial Intelligence |
| | |
| | |
| | |
| | |

# 2. Quick Start

GEN4GEO is a dashboard that allows the exploration of geospatial data in natural language.

## 2.1. Step 1 – Select an area of interest

Data exploration starts with the selection of an area of interest (AoI) on the map shown on the right side of the GEN4GEO landing page (Figure 1).

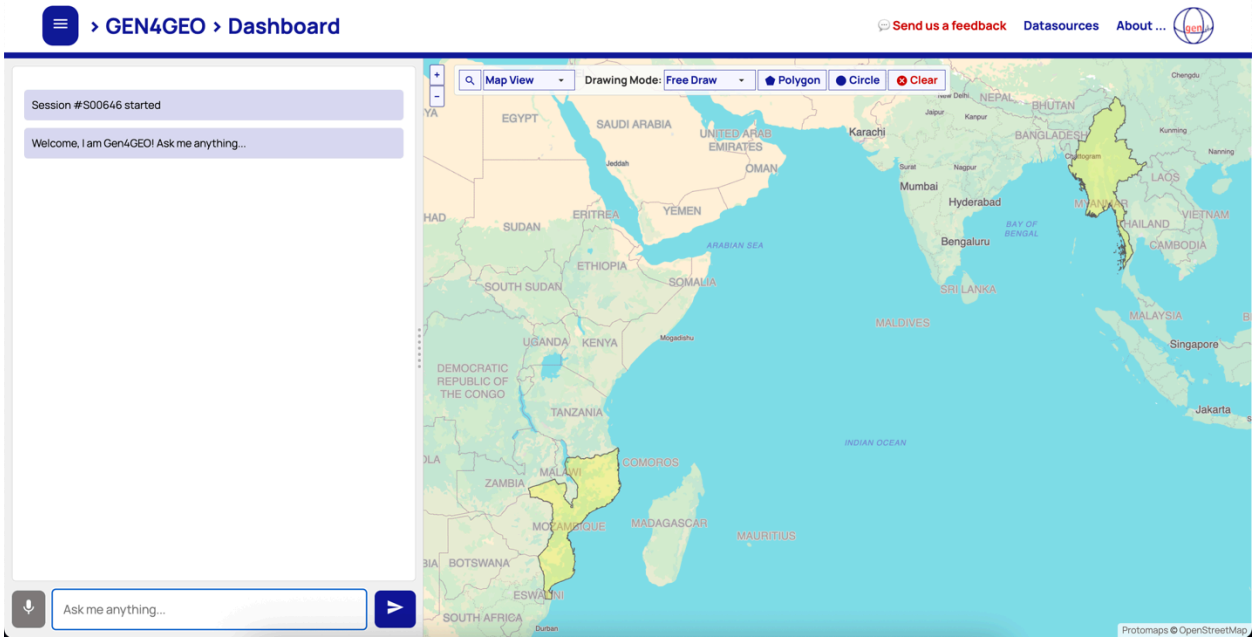


Figure 1 – GEN4GEO landing page.

By default, the map highlights the countries for which the dashboard can provide data. If an area of interest is not selected, questions will be answered for all available countries (highlighted in yellow in Figure 1), providing data aggregated at country level. The map can be repositioned on a different geographical area in different ways:

- By clicking on the map and dragging it as needed.
- By using the geo-search functionality of GEN4GEO, clicking on the search icon shown in Figure 2 and typing the name of the location of interest (for example, “Myanmar” or “Myanmar Naypyidaw”). This will automatically identify the location of interest and reposition the map accordingly.

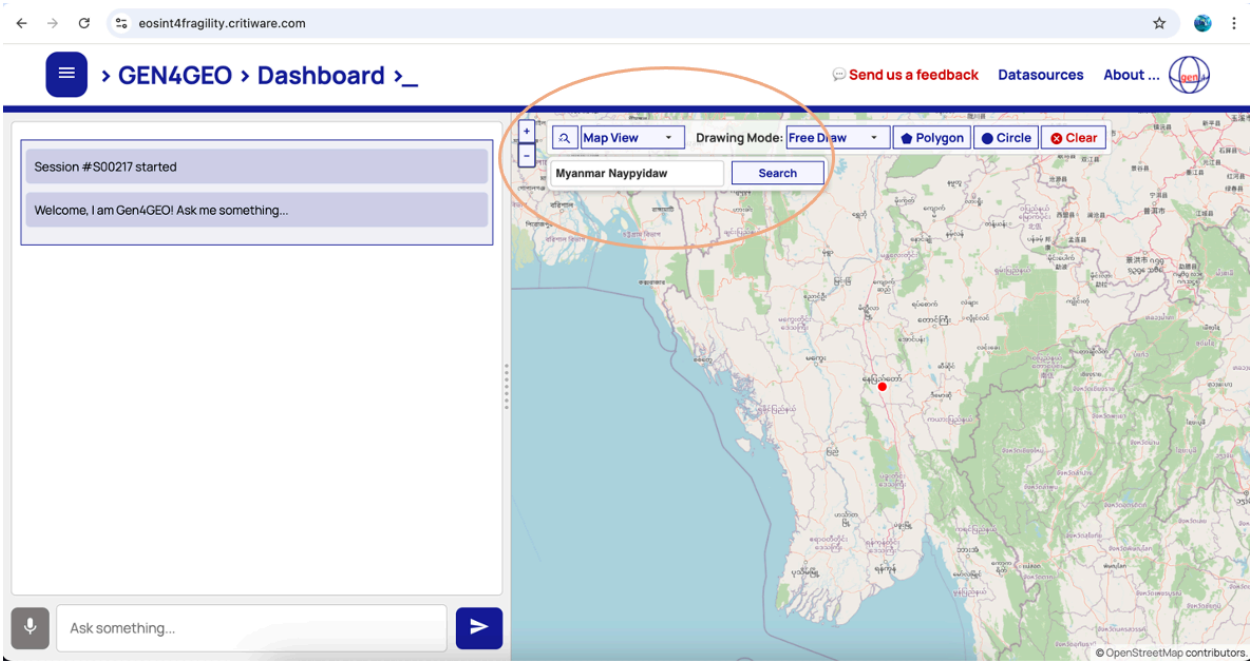


Figure 2 – How to reposition the map with geo-search.

The map can be zoomed in and out with the +/- buttons shown in Figure 3 or by using the scroll wheel of the mouse.

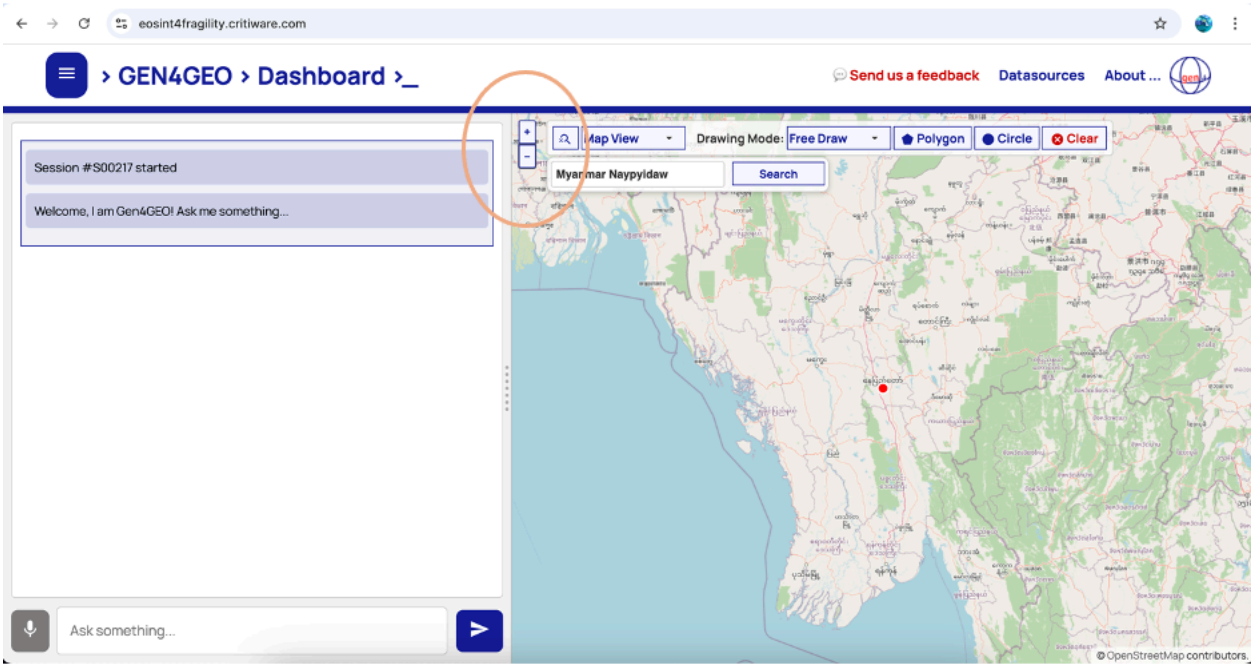


Figure 3 – How to adjust the map's zoom level.

Once the map is positioned where needed, the area of interest (AoI) can be selected by drawing a polygon or a circle on the map. This can be done by clicking either on the "Polygon" or on the

“Circle” button on the top menu, as shown in Figure 4, and then drawing the target AoI on the map.

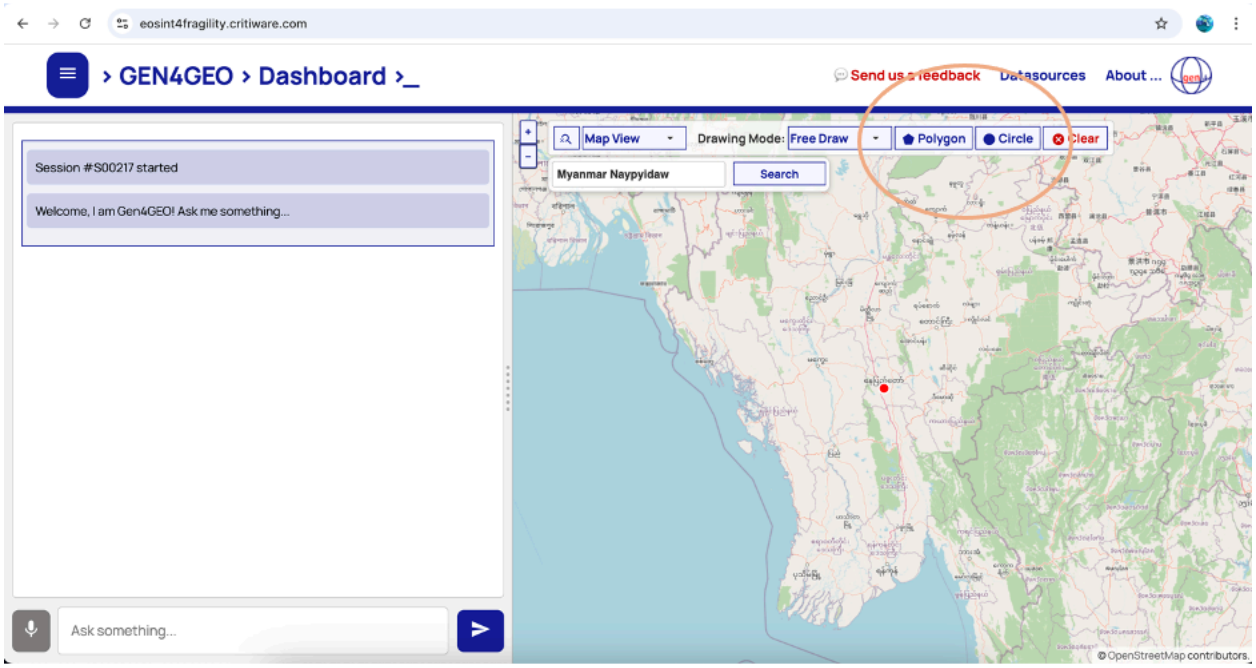


Figure 4 – How to select a drawing tool.

## 2.2. Step 2 – Ask a question in natural language

After selecting an area of interest, we can ask a question by typing it in the prompt box shown in Figure 5. For example, as a first question, we could ask “What data are available?”.

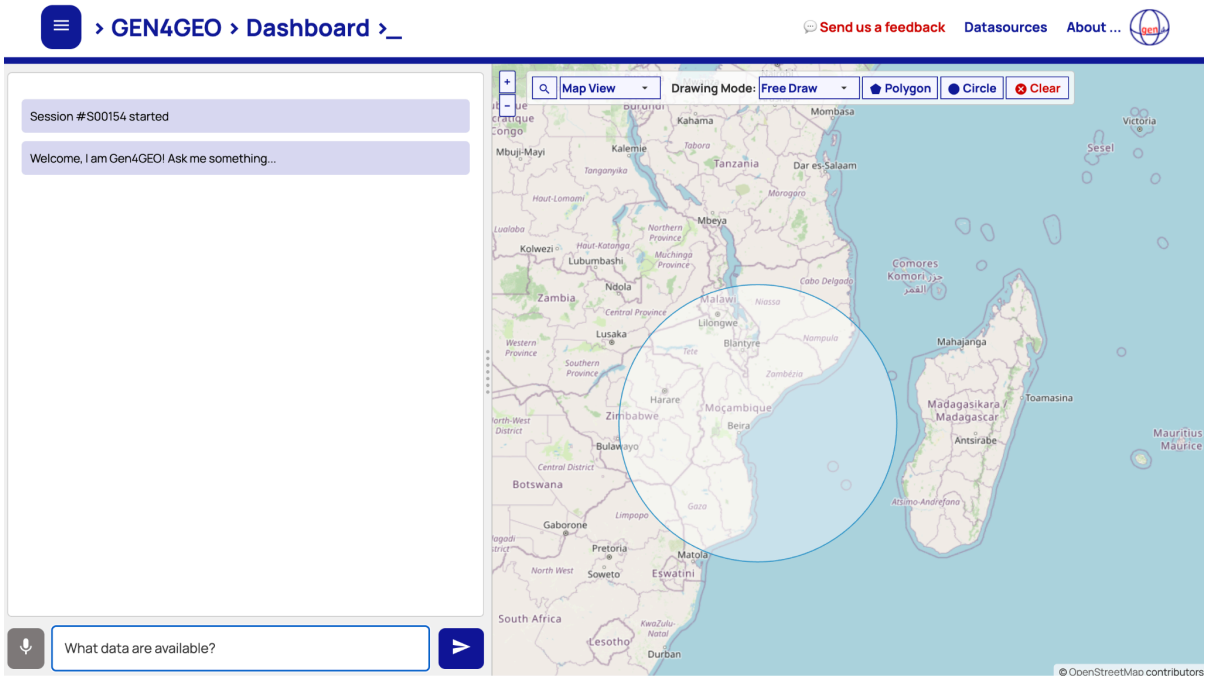


Figure 5 – How to ask a question in natural language by writing it in the prompt box.

GEN4GEO will answer with a list of the available fragility indicators as shown in Figure 6.

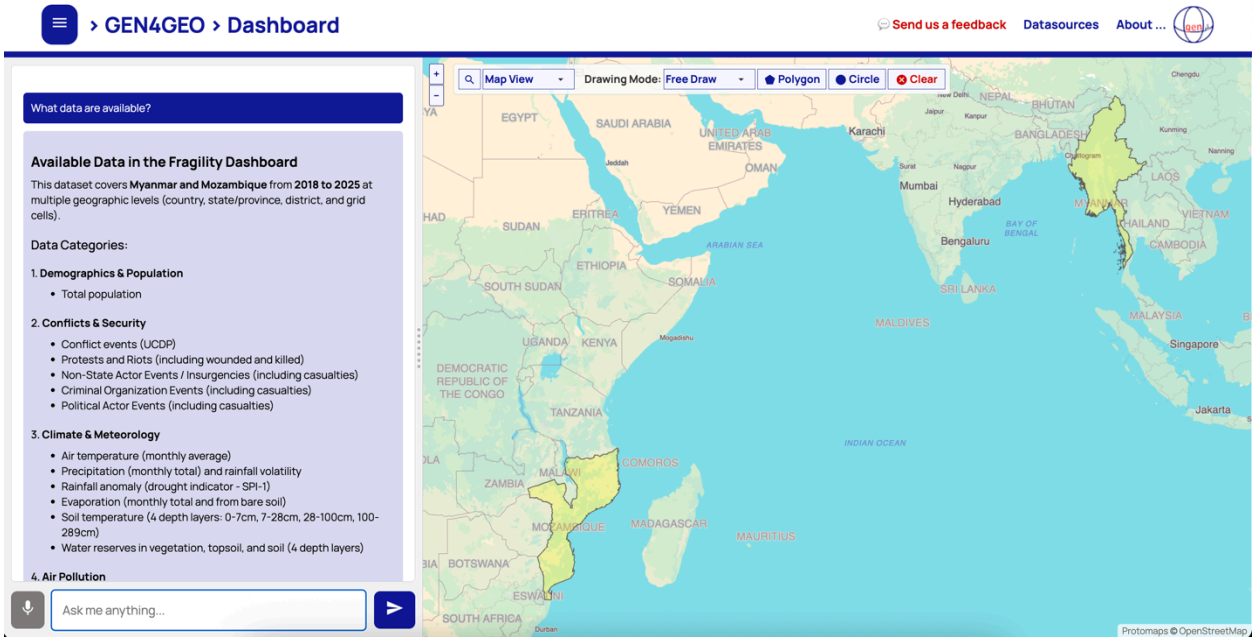


Figure 6 – GEN4GEO answer to the question “What data are available?”

The complete list of fragility indicators together with the data sources that have been used to produce them is also available by clicking on the “Datasources” button on the top menu, as shown in Figure 7.

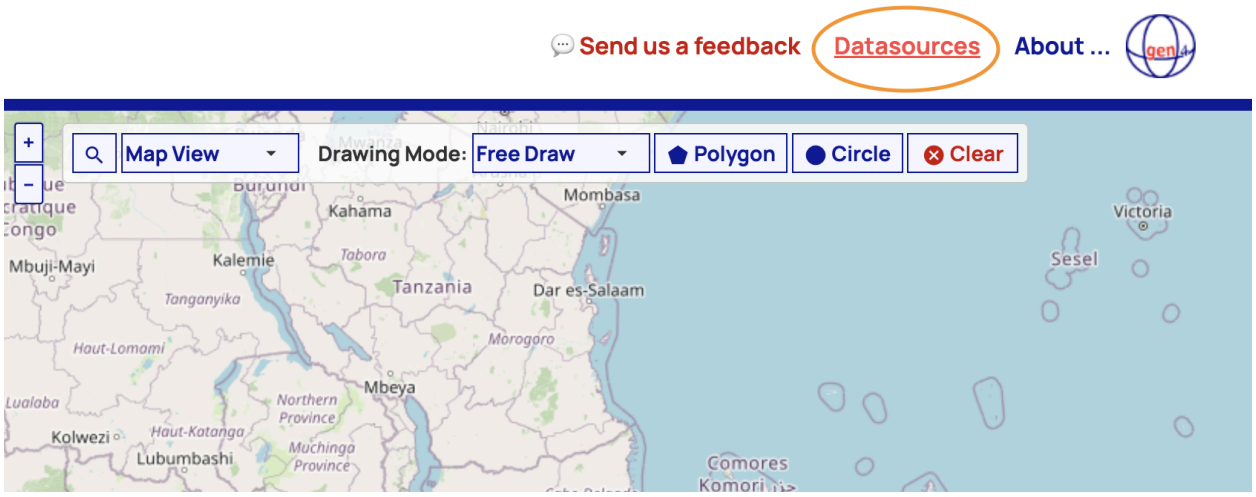


Figure 7 – How to obtain the complete list of fragility indicators and their sources.

Figure 8 shows the list of indicators obtained by clicking on the Datasources button. The list can be scrolled with the mouse.

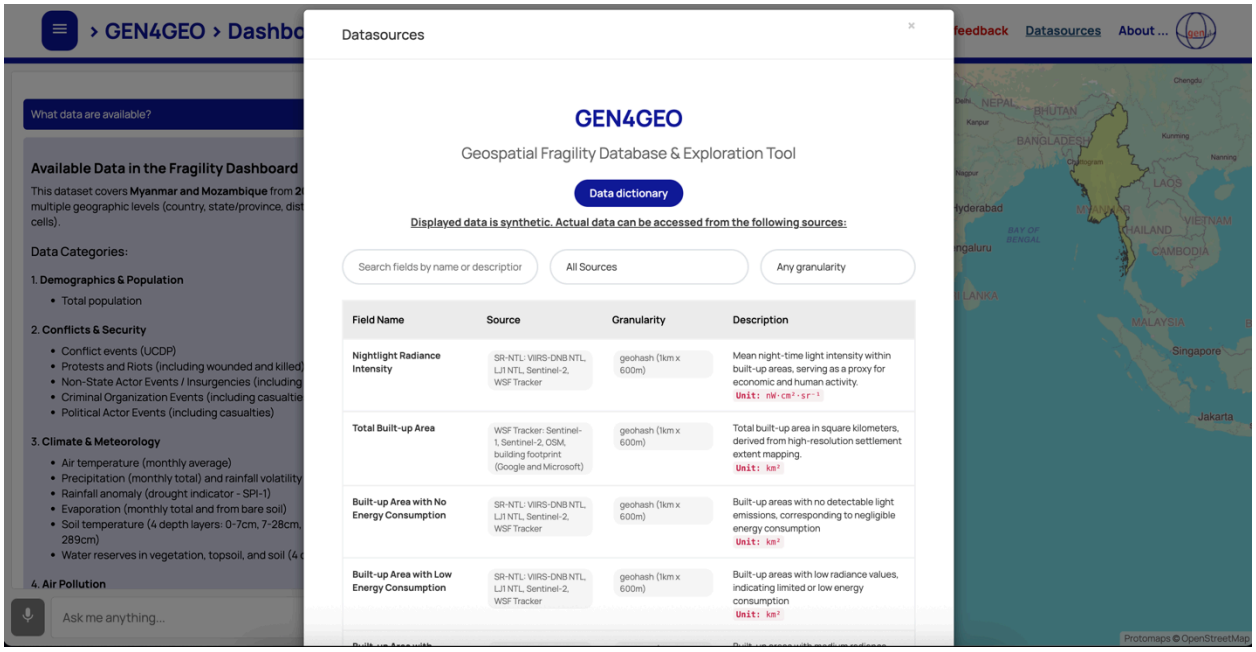


Figure 8 – Complete list of fragility indicators.

You're now ready to use GEN4GEO and can ask your own questions. You don’t need to use the exact names of indicators —GEN4GEO will interpret your query and provide information on the indicators that can help answer it.

# 3. Free vs. Admin navigation mode

The area of interest (AoI) can be selected by drawing a custom area on the map, as explained in Section 2.1, or by selecting predefined administrative areas, namely countries, regions within countries, or provinces within regions. These three levels of predefined administrative areas are called “Admin Level 0” (i.e. countries), “Admin Level 1” (i.e. regions), and “Admin Level 2” (i.e. provinces). You can click on the “Drawing mode” drop-down menu to select your navigation mode, as shown in Figure 9. By default, the drawing mode is set to “Free Draw.”

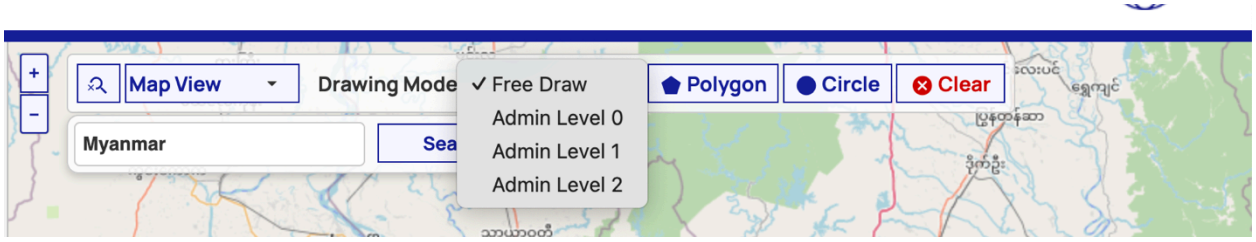


Figure 9 – How to select a navigation mode.

As an example, if you select “Admin Level 1” (i.e. regions) navigation mode, you will be able to draw a point, a line, a polygon, or a circle to select your regions of interest. If you click on the “Point” button, the administrative borders of regions will show automatically (see Figure 10) and you can click on one or more than one of them by keeping the “shift” key pressed on your keyboard until you have selected all regions of interest. If you make the wrong selection, you can click on the “Clear” button and choose again.

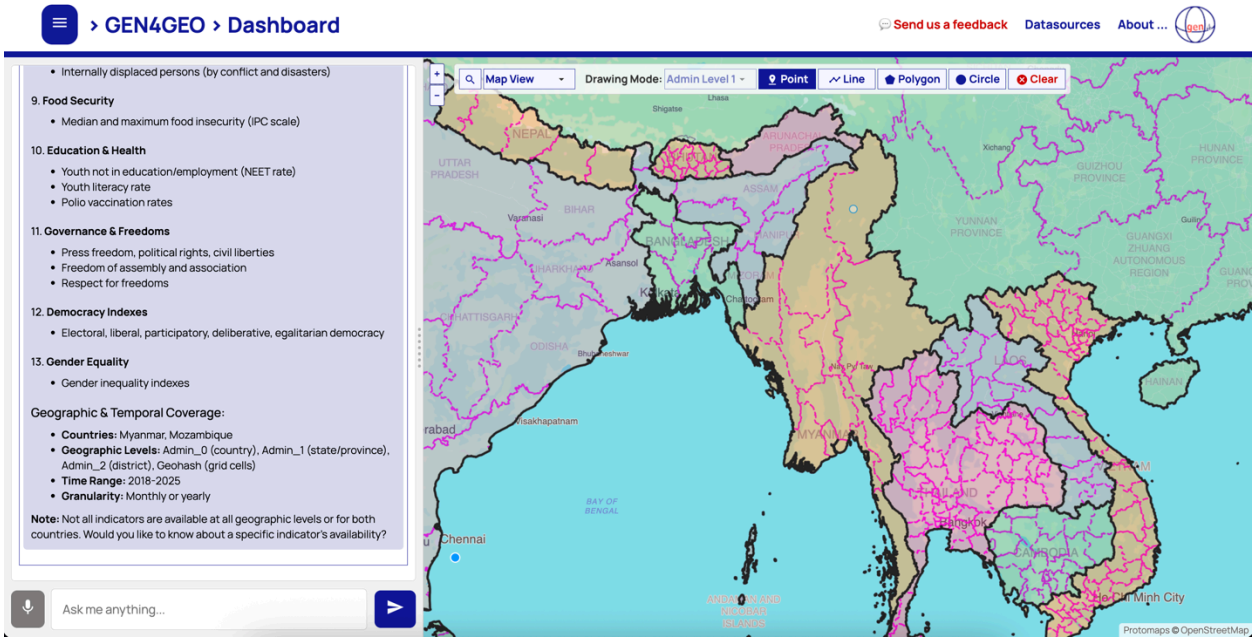


Figure 10 – Admin Level 1 navigation mode – example.

The “Admin Level 2” (i.e. provinces) and “Admin Level 0” (i.e. countries) navigation modes work in the same way. The only difference is the administrative boundaries that are shown on the

map. Figure 11 shows the “Admin Level 2” boundaries for Myanmar. Black borders indicate countries, black dashed borders indicate regions, and pink borders indicate provinces. The names of the provinces appear on the map when you hover the mouse over a province.

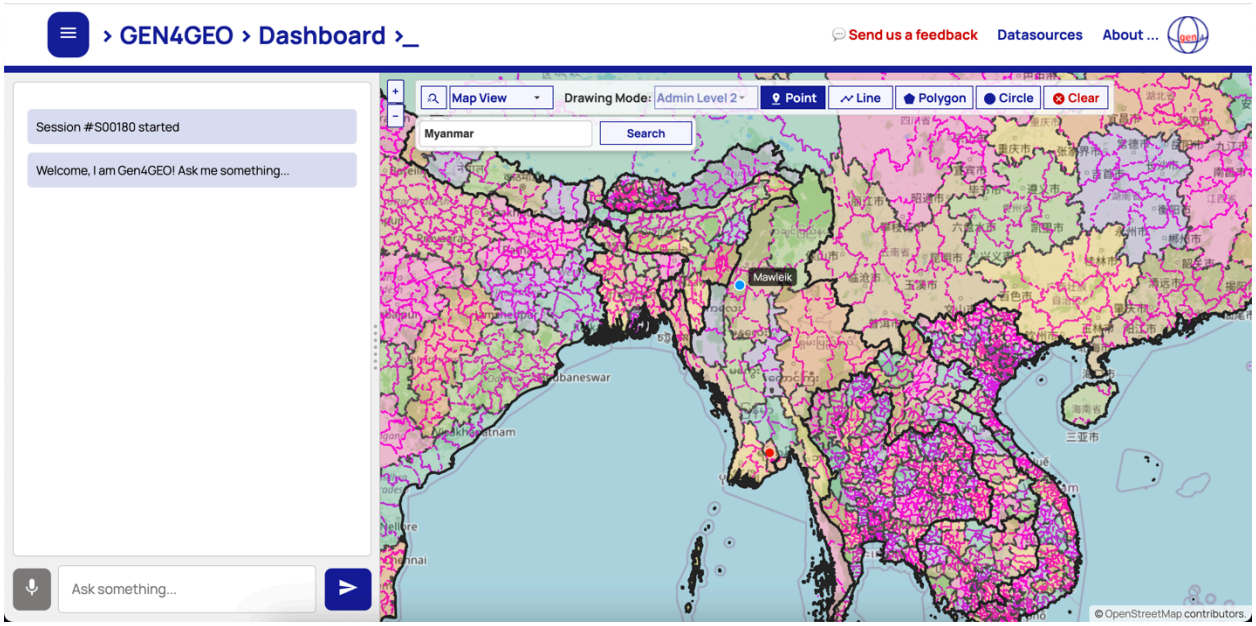


Figure 11 – Admin Level 2 navigation mode – example.

You can also use the key combination Ctrl+A to select:

- all regions within a country (Navigate at ADM0 level, select the country, Ctrl+A)
- all the provinces within the selected region(s) of a country (Navigate at ADM1 level, select the region(s), Ctrl+A))
- the countries to which the selected provinces belong (Navigate at ADM2 level, select the province(s), Ctrl+A)).

The Ctrl+A shortcut can be used multiple times consecutively and the selection will automatically change accordingly.

# 4. How GEN4GEO answers your questions

## 4.1. General structure of a GEN4GEO answer

When you ask a question through the prompt window, GEN4GEO can answer in two ways:

1. If the question is generic and cannot be answered based on the fragility indicators stored in the database, GEN4GEO will answer based on the general knowledge of the underlying large language model (llm). For example, Figure 12 shows the answer to the question “Can you give me a brief summary of the current political situation in Myanmar?”.

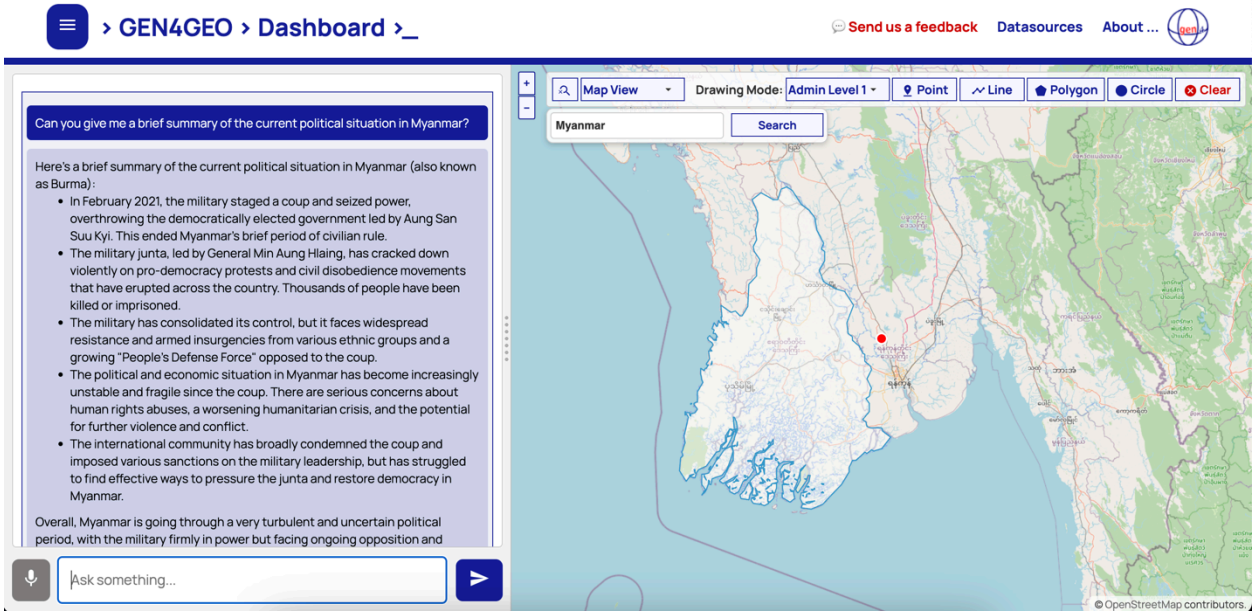


Figure 12 – Answer to a generic question (i.e. a question that cannot be answered based on the fragility indicators stored in the database).

2. If the question can be answered based on the fragility indicators stored in the database, GEN4GEO will retrieve the indicators that can help answer the question and will provide the answer in four different formats:
    a. An AI-generated text comment.
    b. A chart displaying the time series of the indicators across the entire period covered by the data in the database.
    c. A table showing the indicators aggregated as requested by your question.
    d. A map visually representing the selected indicators.

For example, let us consider the following question: “Can you give me the average population in 2025 for the selected regions?” The answer is shown in Figure 13. As you can see, the answer includes the four components listed above, that is a comment, a chart, a table, and a map.

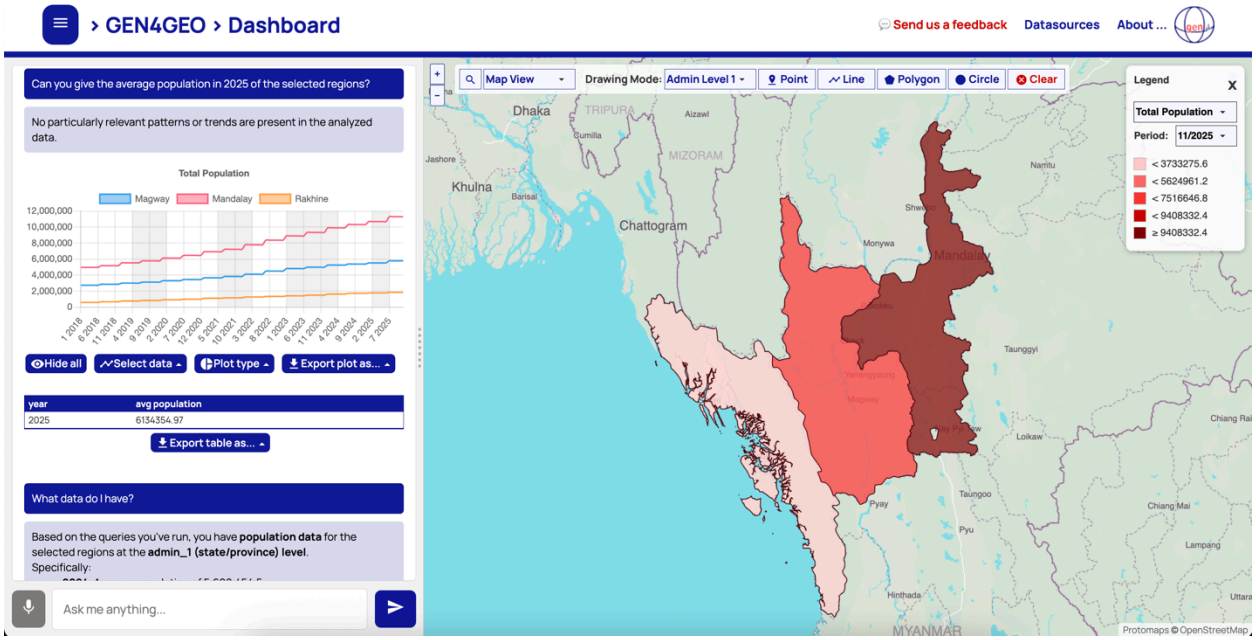


Figure 13 – Answer to the question: “Can you give the average population in 2025 of the selected regions?”

## 4.2. How to customize a GEN4GEO answer

*How to customize maps*

By default, the map is shown for the last month of the last year available in the database. You can change month and year by using the “Period” selector shown in Figure 14.

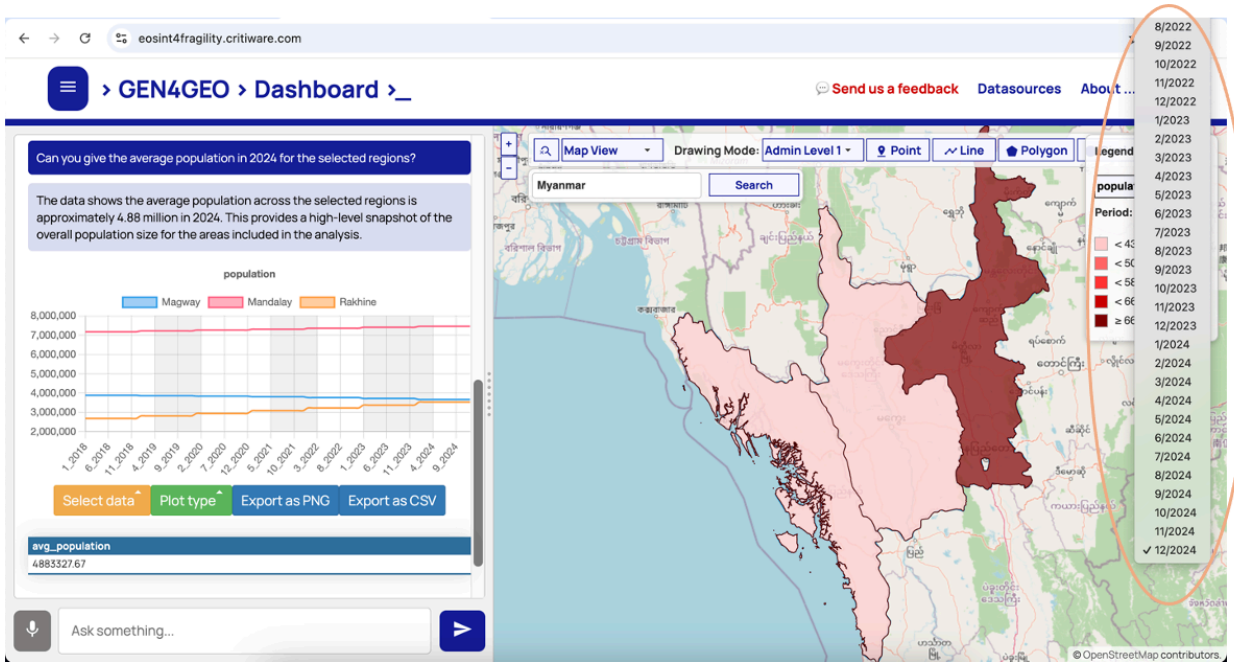


Figure 14 – How to change the time frame of a map.

If the answer to your question includes multiple indicators, you can also select the indicator to be represented on the map, using the drop-down menu shown in Figure 15. The question answered in Figure 15 is “Can you give me the average population and average mentions of elections in 2024 for the selected regions?”. The answer includes the “population” and “mentions_elections” indicators, accordingly. Note that this is possible only if you choose your area of interest in admin mode (“Admin Level 0” or “Admin Level 1” or “Admin Level 2”, see Section 3).

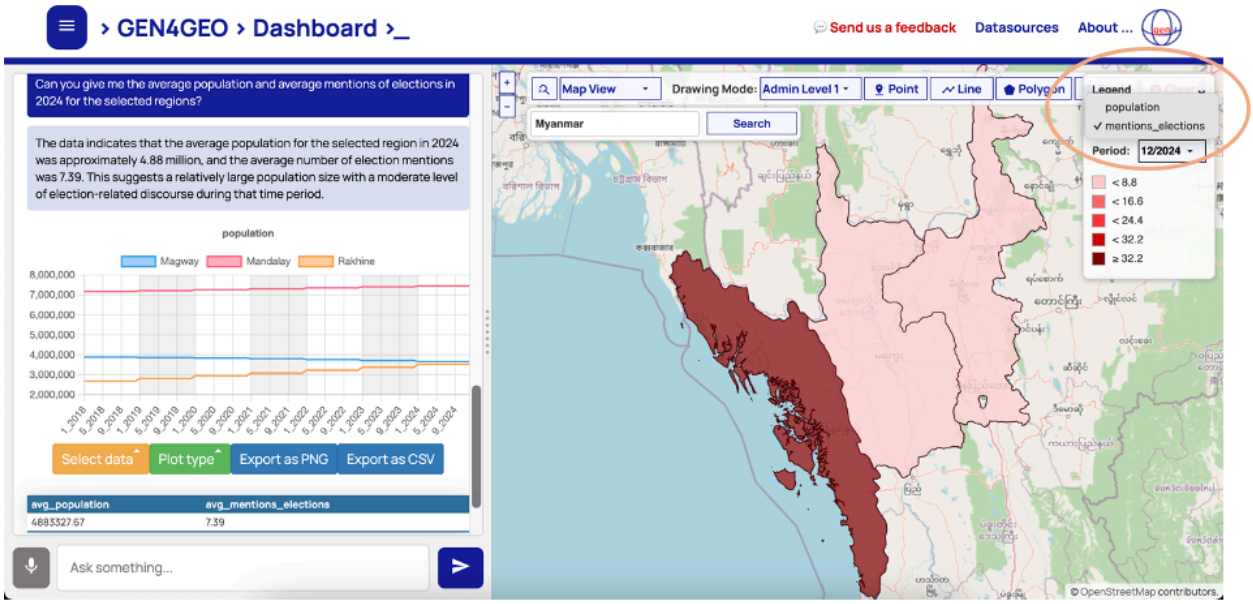


Figure 15 – How to change the indicator represented on the map.

If you are navigating in “Free Draw” mode, all indicators are represented on the same map. In this case, you can only change the month and the year of the map as shown in Figure 14. Figure 16 shows how the population and conflicts indicators are both represented on the map answering the question “Can you give me the average population and average conflicts Uppsala in 2025 for the selected area?”.

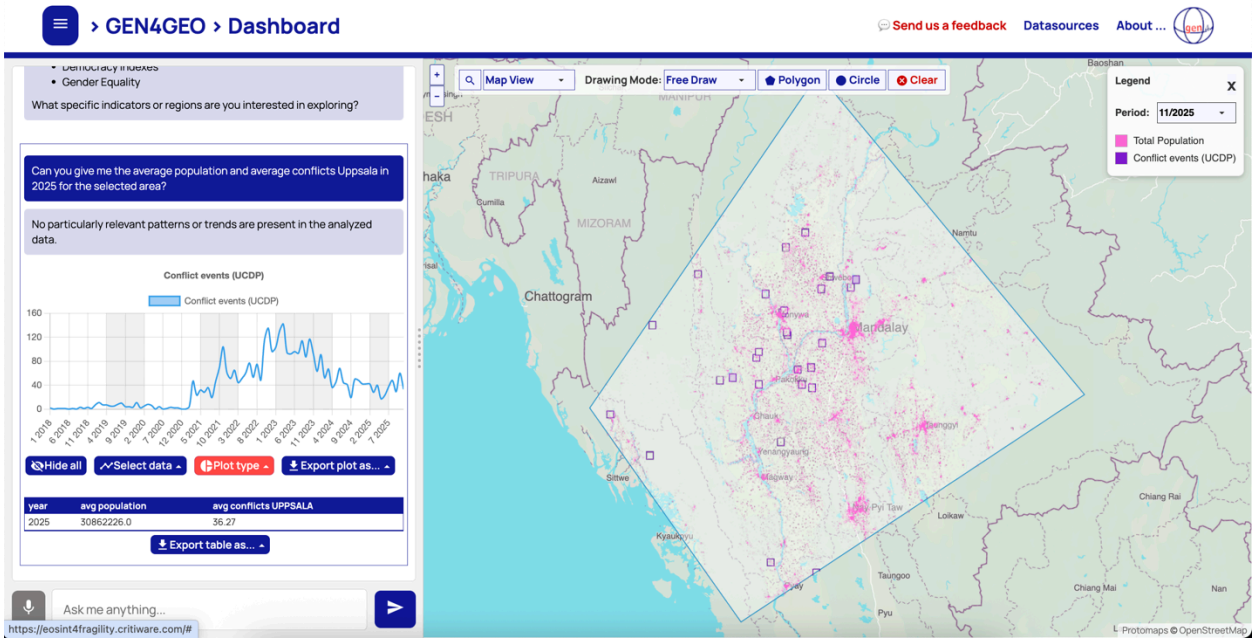


Figure 16 – Using “Free Draw” navigation mode to see multiple indicators on the same map.

*How to customize charts*

Charts can be customized by:

1. Selecting the indicator that is shown in the chart using the “Select data” menu below the chart (Figure 17).

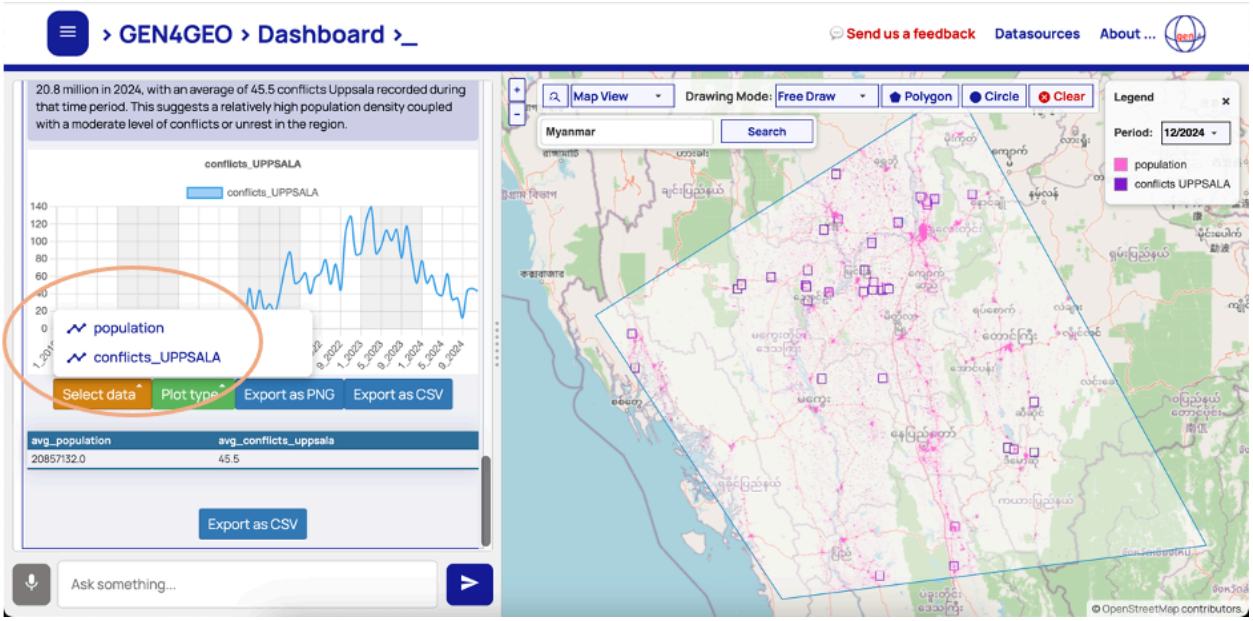


Figure 17 – How to change the indicator that is shown in the chart.

2. Changing the plot type using the “Plot type” selector below the chart (Figure 18).

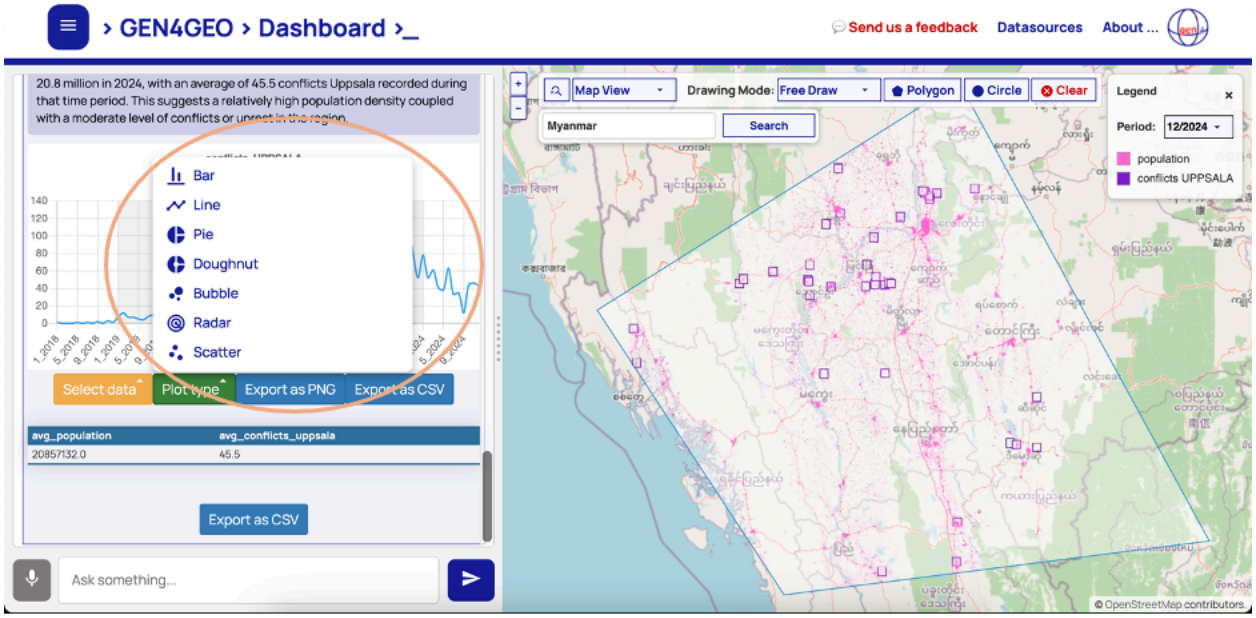


Figure 18 – How to change the plot type of the chart.

3. Selecting and deselecting countries, regions, or provinces by clicking on their names right above the chart (Figure 19). In this case, Figure 19 shows the answer to the question “Can you give me the average population and average mentions of elections in 2024 for the selected regions?” for the Magway, Mandalay, and Rakhine regions of Myanmar.

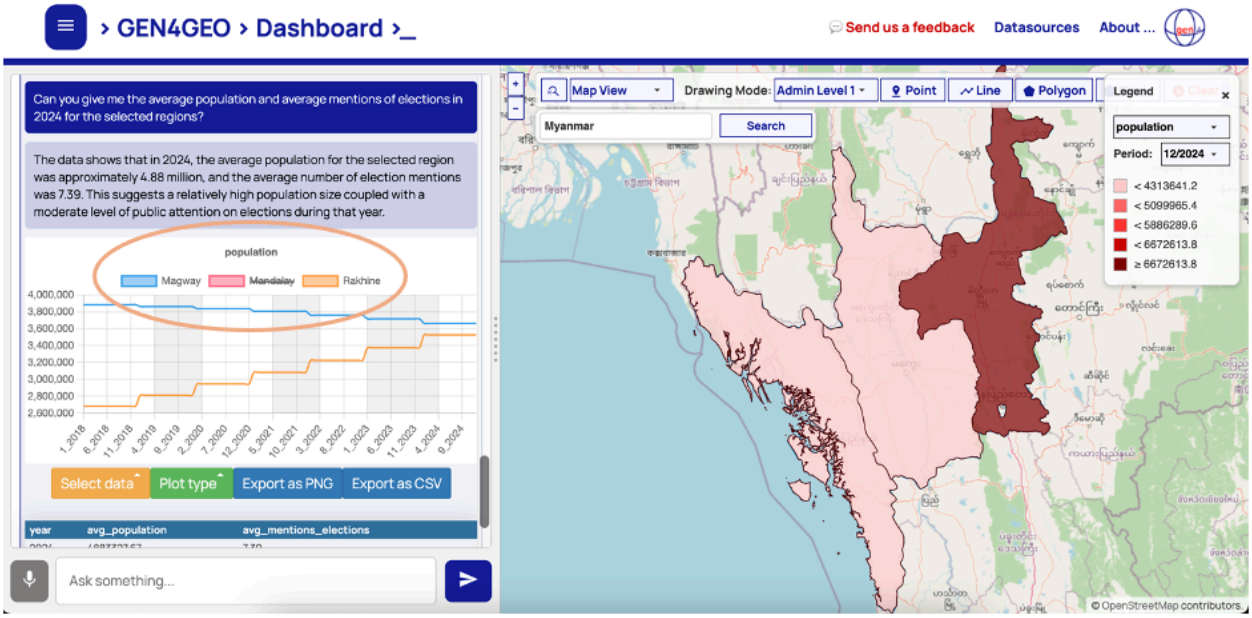


Figure 19 – How to select/deselect time series in the chart.

4. Selecting and deselecting all countries, regions, or provinces by clicking on the “Hide all”/“Show all” button right below the chart (Figure 20Figure 19). In this case, Figure 20 shows the answer to the question “Can you give me the average population and average mentions of elections in 2025 for the selected regions?” for the Magway, Mandalay, and Rakhine regions of Myanmar.

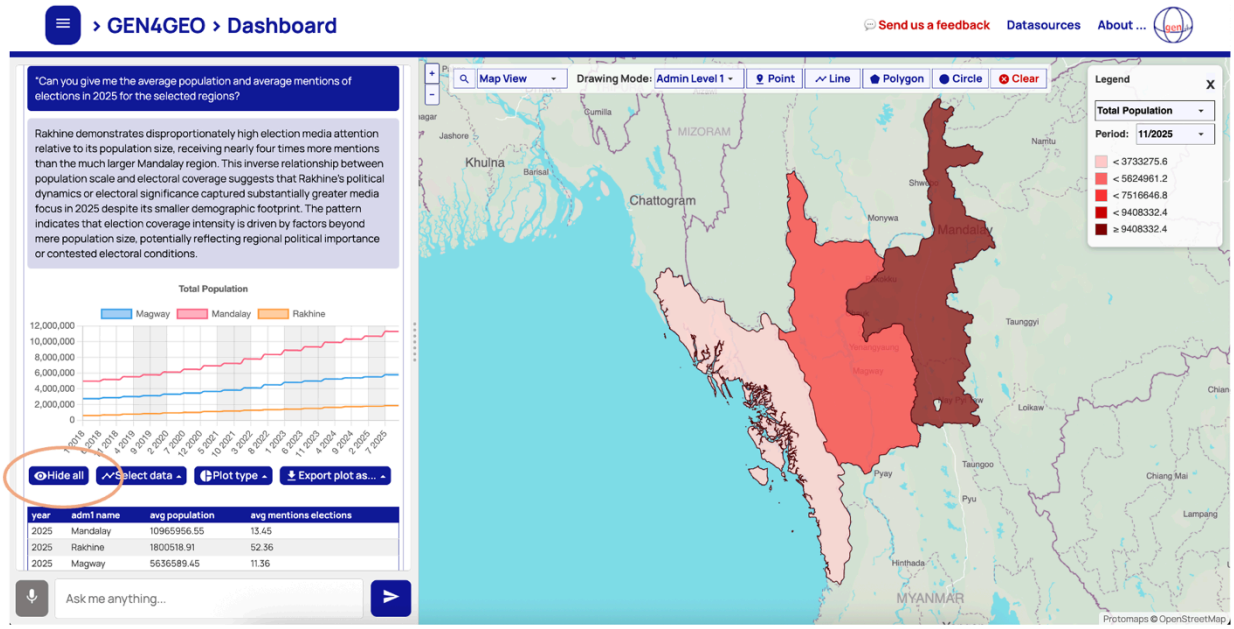


Figure 20 – How to select/deselect time series in the chart all at once.

5. Selecting a custom temporal range: The plot supports interactive navigation along the temporal axis to allow precise selection of time intervals.
    a. **Select a specific time interval**: Click-and-drag over the plot area to select a custom temporal interval. The selected range is highlighted with a darker grey background.
    b. **Pan in time**: Hold the ALT/Option key and Click and drag the plot to move backward or forward in time while maintaining the current zoom level.
    c. **Reset the view**: To return to the default temporal extent, click the Reset button located in the top-right corner of the plot. The button appears automatically when the mouse hovers over and the default zoom has changed.

*How to customize tables*

Tables can be customized by sorting the data in ascending or descending order based on one or multiple selected columns, as shown in Figure 21. In this case, Figure 21 shows the answer to the question “Can you give me the population and mentions of elections in 2024 for the selected

regions? Specify the month and the region.” for the Magway, Mandalay, and Rakhine regions of Myanmar. The data in the table are sorted by population in descending order.

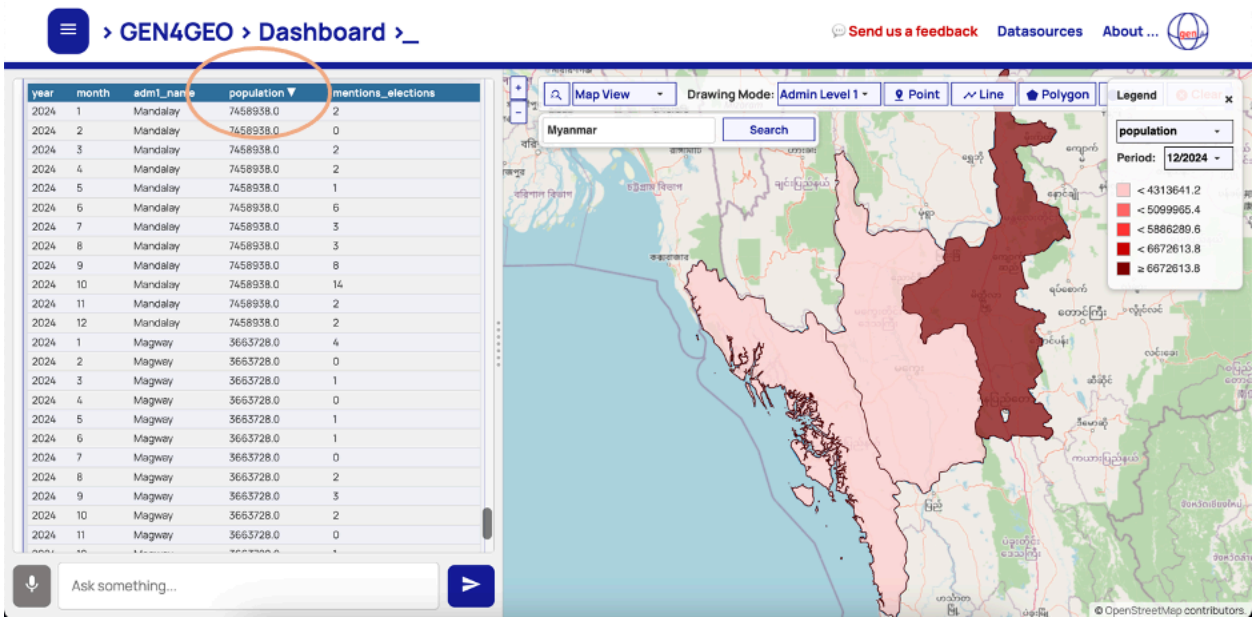


Figure 21 – Ordering data in the table.

*How to customize AI-generated text comments*

Text comments can be customized only by asking the same question again by specifying the changes that you would like to see in the comment. Figure 22 shows the answer to the question “Can you give me the population and mentions of elections in 2024 for the selected regions? Specify the month and the region. Give me a super short comment.” for the Magway, Mandalay, and Rakhine regions of Myanmar.

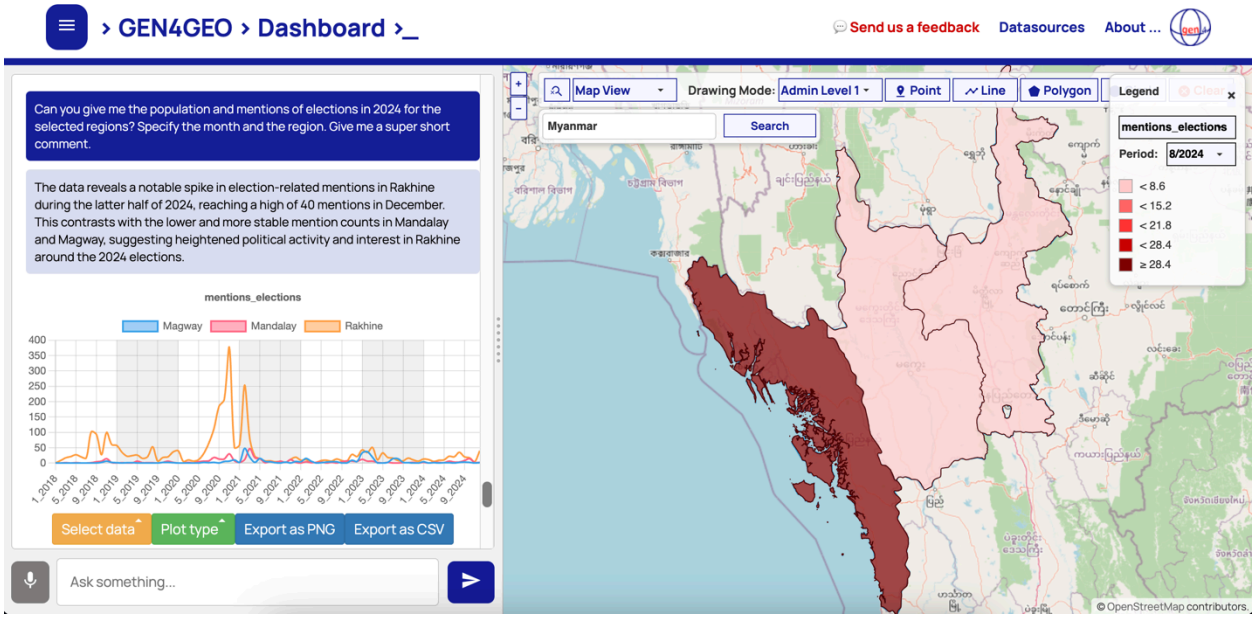


Figure 22 – How to customize AI-generated text comments.

# 5. How to create a report

## 5.1. How to remove content

Any content generated in the chat, including text and maps, can be deleted if needed. To remove an item, select it and then click the “Delete” button located in the top-right corner of the item, see Figure 23. The item will be permanently removed.

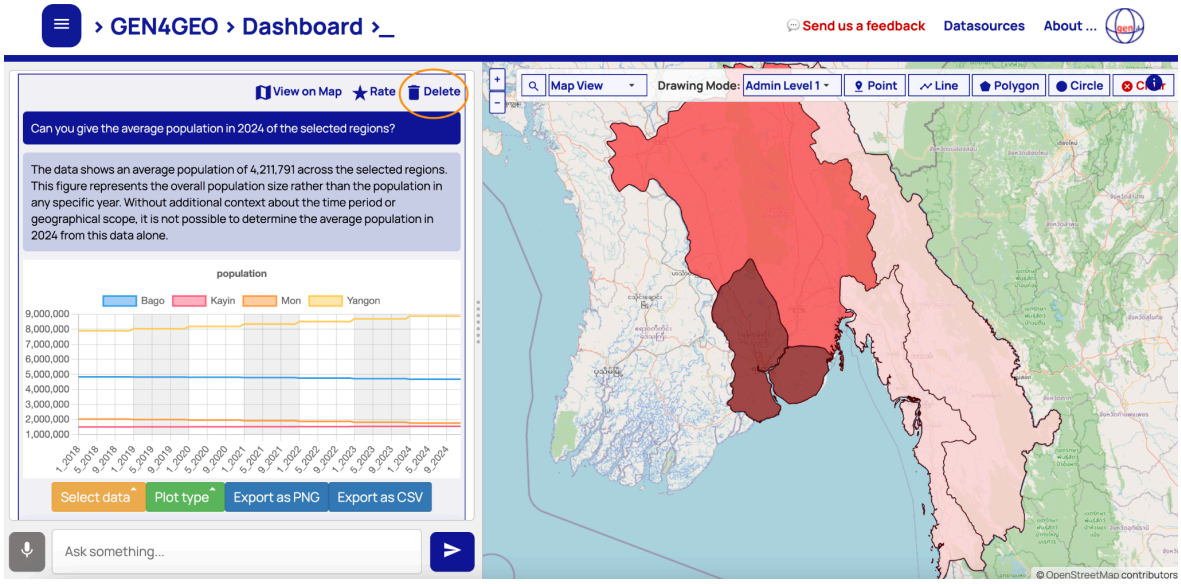


Figure 23 – How to delete an answer.

## 5.2. How to generate and save a report

Click the three horizontal lines (☰) in the top-left corner of the page to open the main menu, as shown in Figure 24.

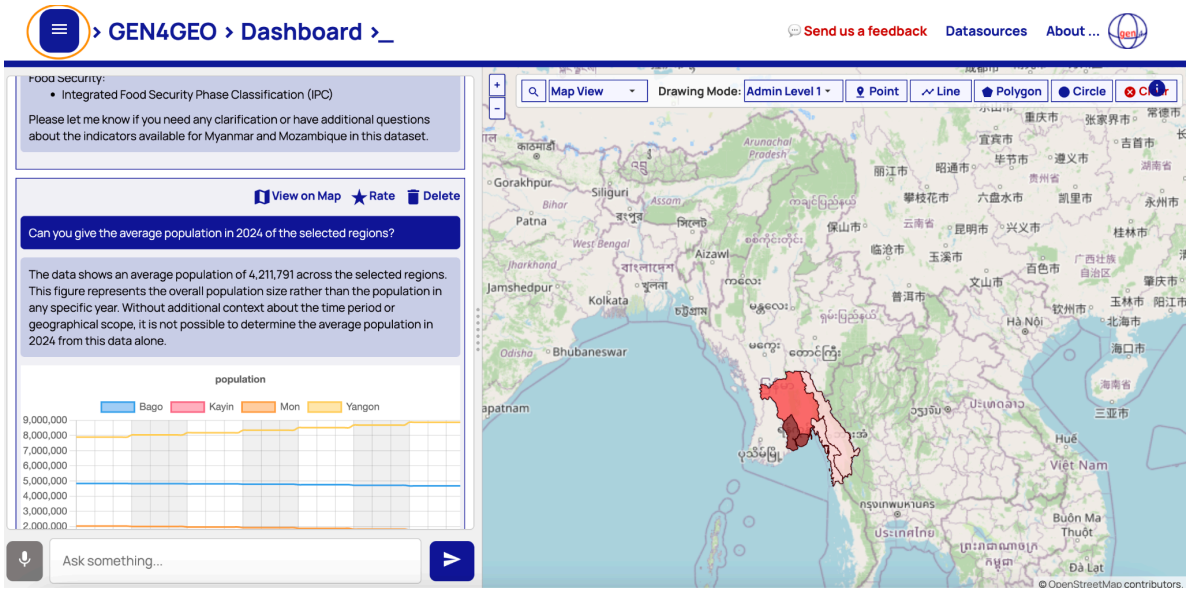

Figure 24 – How to open the main menu.

Before creating a report, you can include the map from the latest chat answer. To do this, click the “Add a map screenshot” button, as shown in Figure 25.

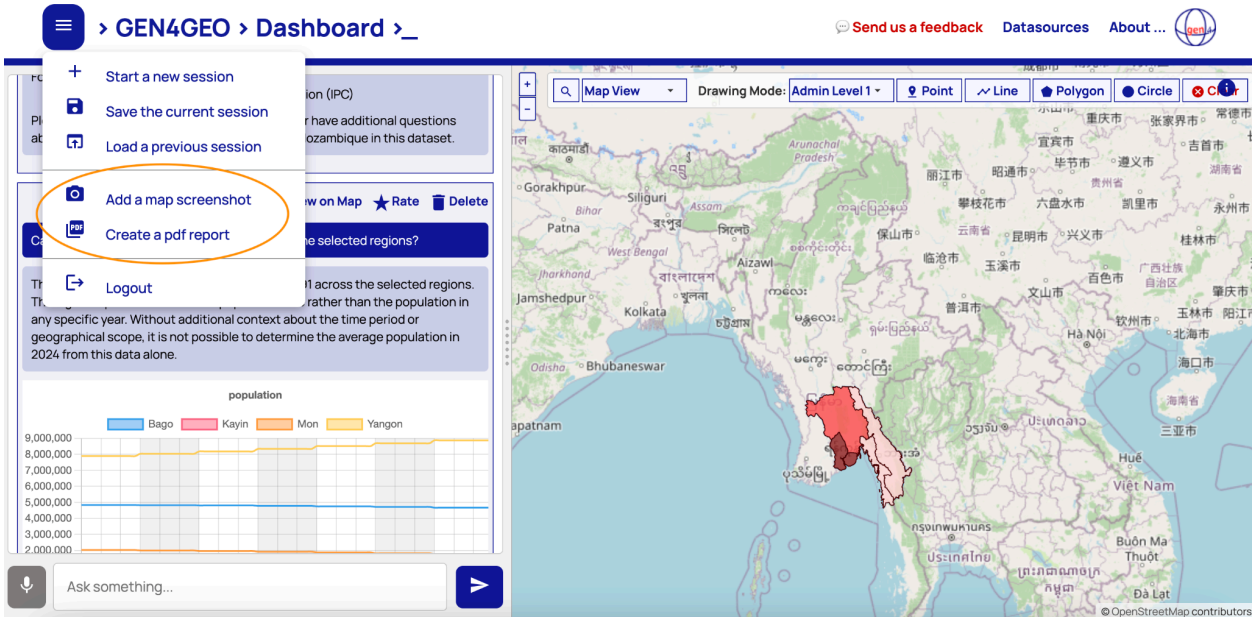


Figure 25 – How to create a report including a map.

Click the **“**Create a pdf report**”** button to generate a report containing all the questions and answers from your GEN4GEO chat, along with any attached maps, as shown in Figure 25.

## 5.3. How to export data

Users can export all charts, tables, and maps produced by GEN4GEO.

To download charts, go to the answer section below the chart and click **“**Export plot as…**”**, as shown in Figure 26. You will be able to choose among different export formats, including .csv, .xlsx, .png.

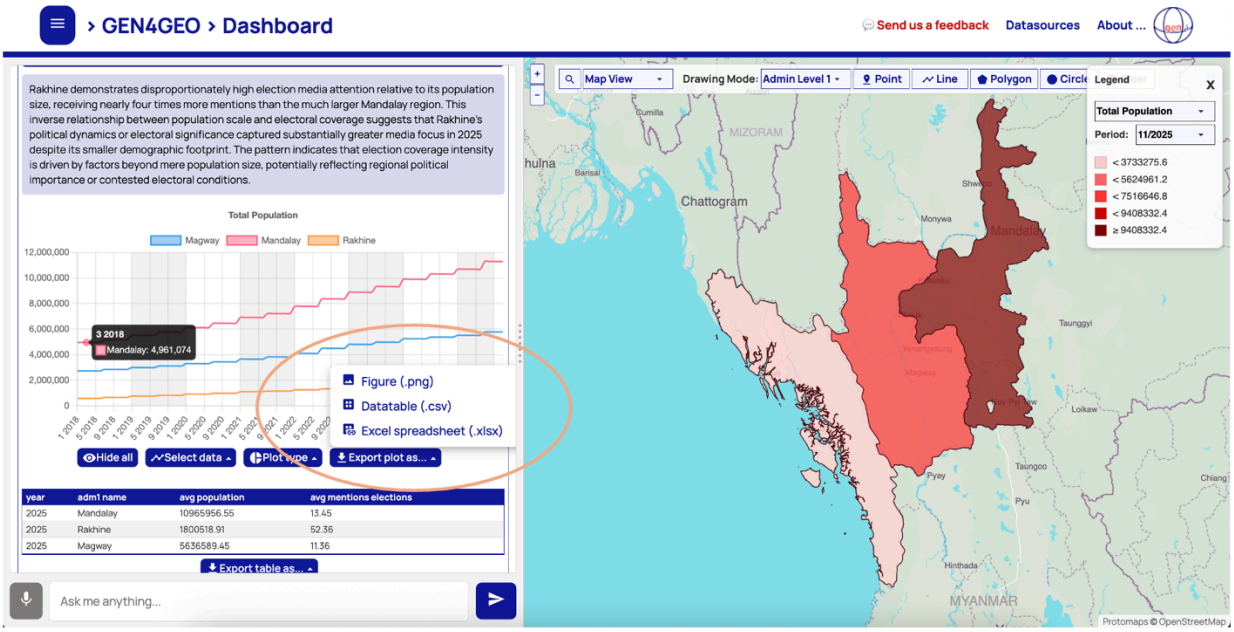


Figure 26 – How to export charts.

To download tables, go to the answer section below the table and click “Export table as…”, as shown in Figure 27. You will be able to choose among different export formats, including .csv, .xlsx, .pdf.

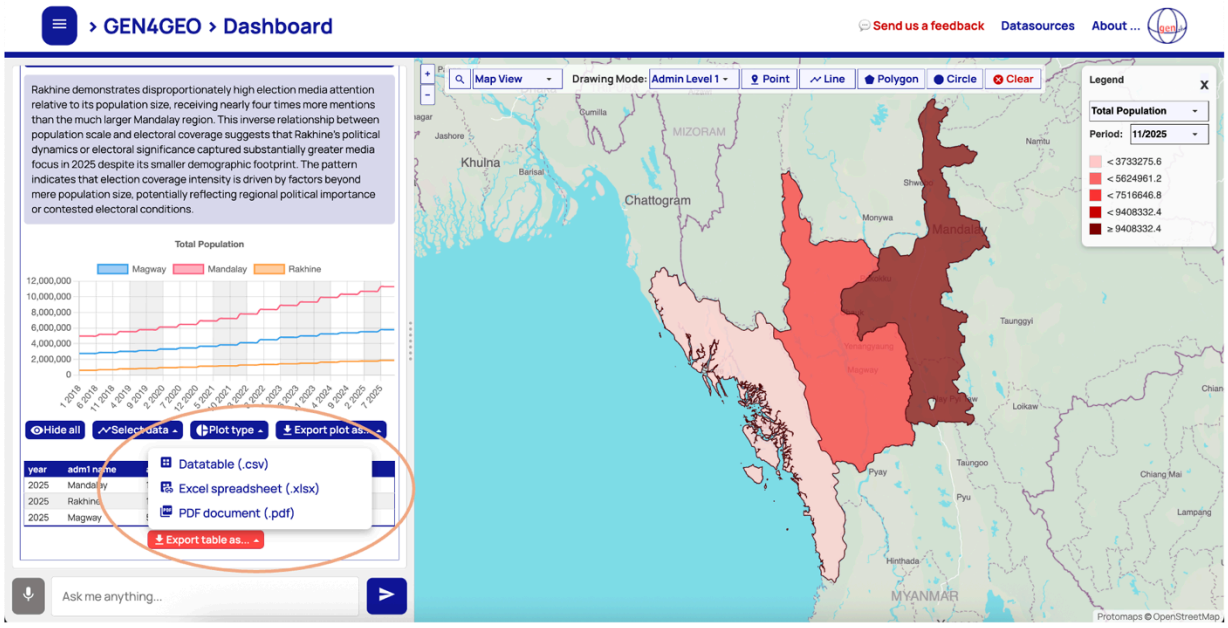


Figure 27 – How to export tables.

To download maps, click “Add a map screenshot”, as shown in Figure 25. Then, in the answer section below the newly generated image, click “Export as image”, as shown in Figure 28.

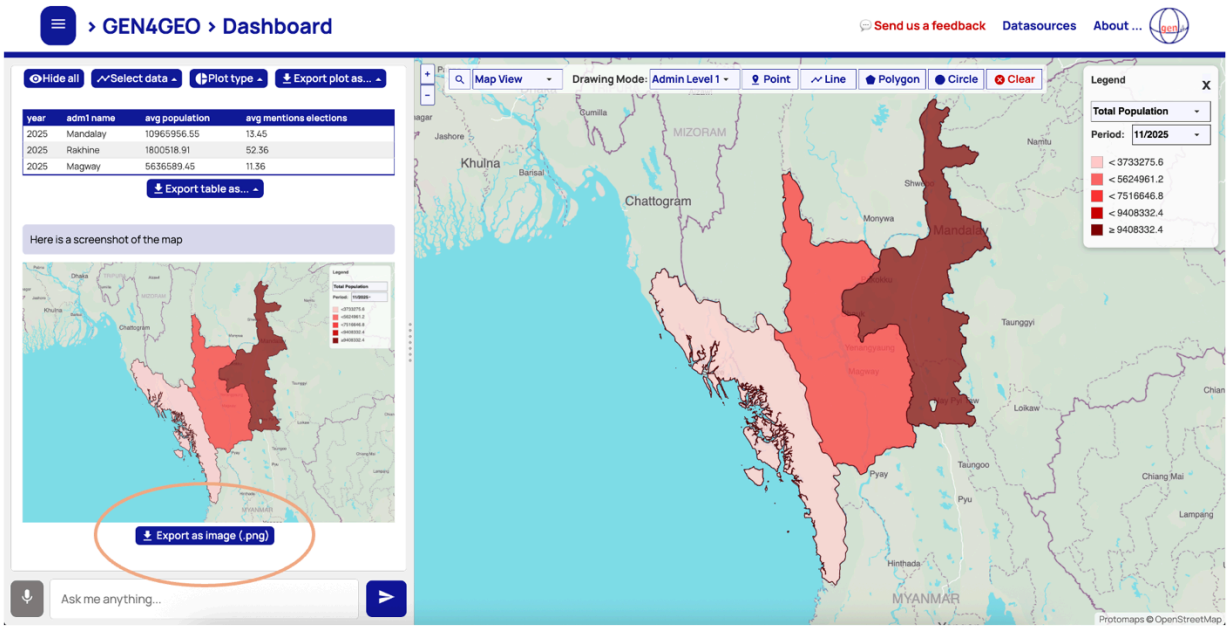


Figure 28 – How to export maps.

## 5.4. How to save and restore a session

To manage sessions in GEN4GEO, click on the main menu (the three horizontal lines (☰) in the top-left corner of the page) and then use the buttons shown in Figure 29.

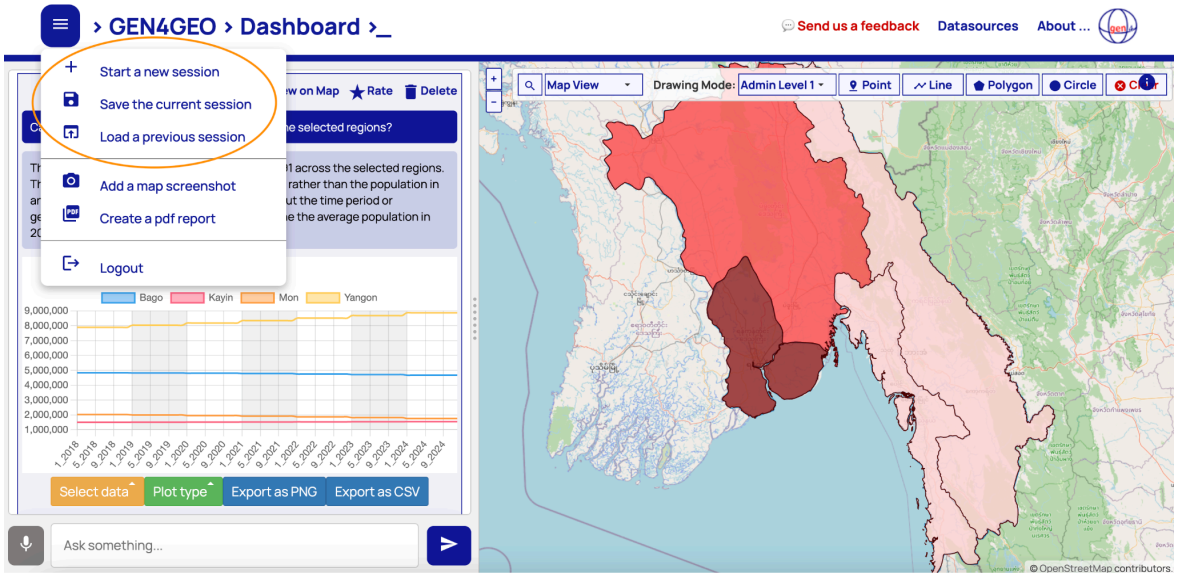


Figure 29 – How to start, save and load sessions.

The “Start a new session” button deletes the current session and starts a new session. All interactions with GEN4GEO from the current session will be permanently deleted, unless they are explicitly saved before starting a new session. The “Save current session” button allows you

to save the current session by storing the chat history as a `.json` file on your PC. The “Load previous session” button allows you to select a previously saved `.json` file to restore a past session.
After restoring a previous session, you can re-draw the map corresponding to anyone of your past questions by clicking on the question and then on the “View on Map” button that appears in the menu right above the question, as shown in Figure 30.

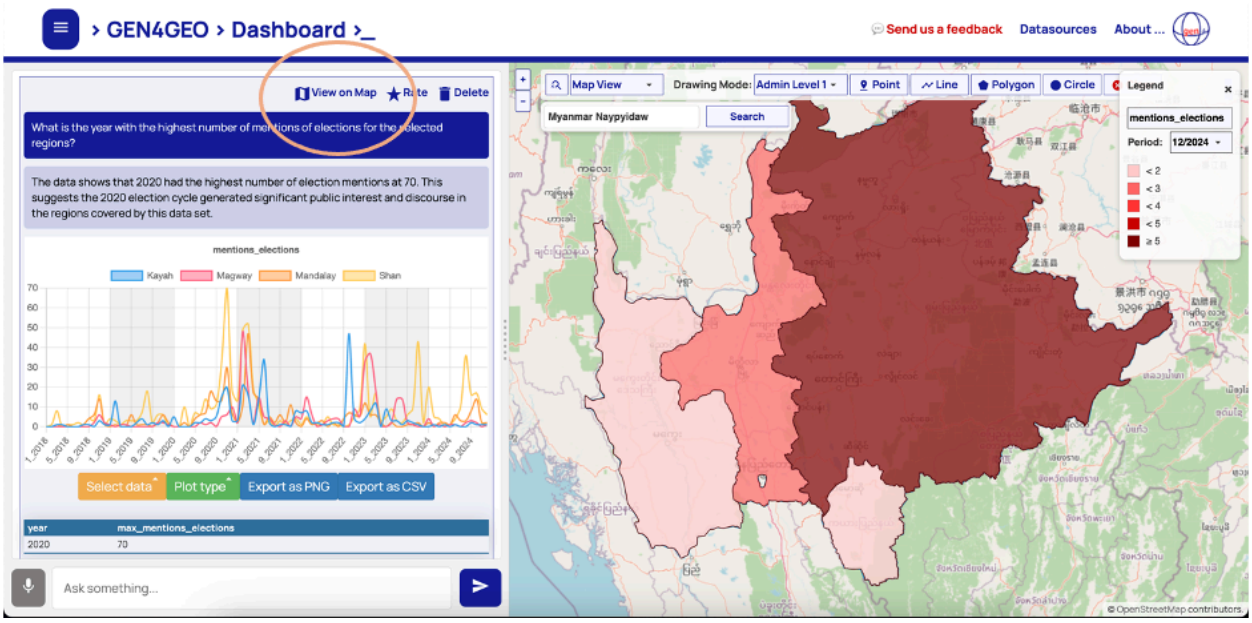

Figure 30 – How to re-draw a map from a previous session.

## 6. How to optimize your prompt

GEN4GEO uses a large language model (llm) to interpret your questions. You do not need to be precise in the way you ask your questions, as the llm can understand your questions and select the indicators that best answer them. For example, you do not need to use the exact name of fragility indicators to extract information on those indicators. You can also make typing errors and the llm will correct them automatically. For example, you can ask “What is *forest* extent in the selected area?” or “What is *frest* extent in the selected area?” and obtain the same answer, as shown in Figure 31. In this case, you are not using the exact name of the indicator (which would be “forest_extent”) and you are misspelling the word forest at the same time, but the llm answers your question correctly.

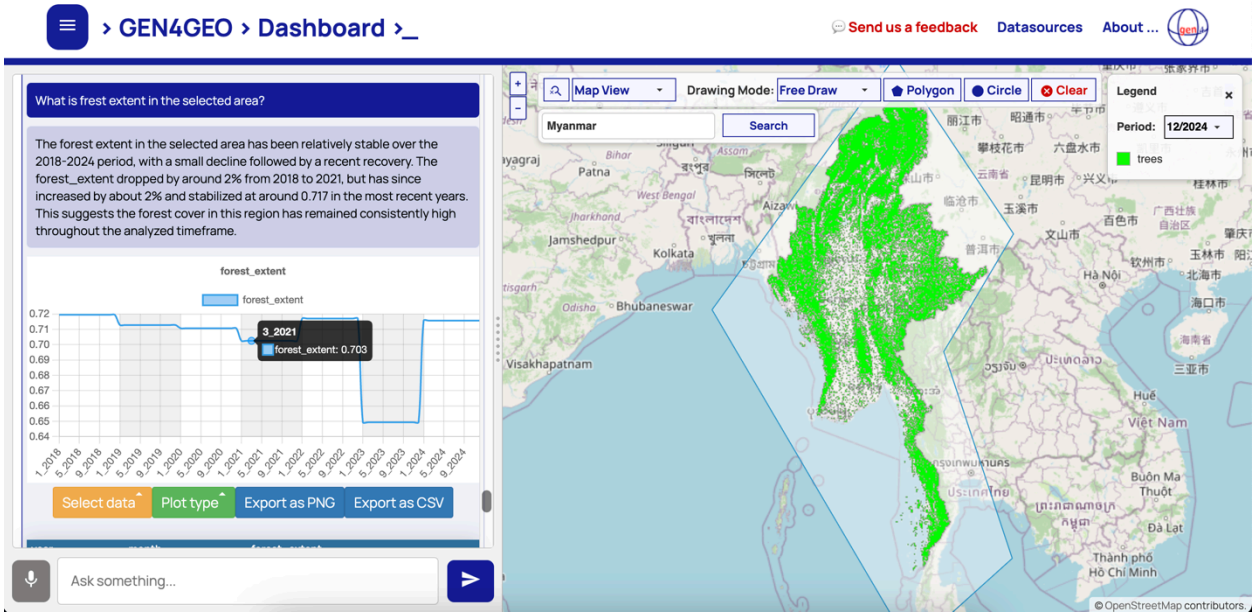


Figure 31 – GEN4GEO can understand questions with typos.

Similarly, you can use generic or collective names to extract multiple indicators at a time. For example, you can ask “Can you give me total mentions by topic?” and the dashboard will return multiple indicators of mentions, as shown in Figure 32.

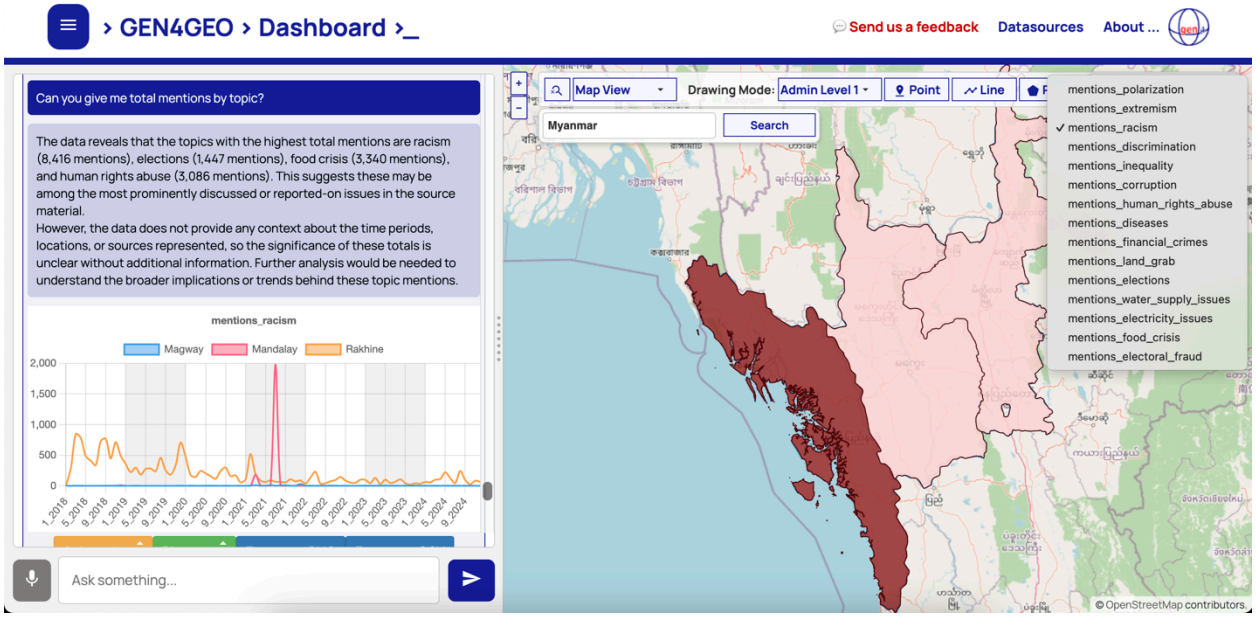


Figure 32 – Answer to the question “Can you give me total mentions by topic?”

However, even if the answer is correct, it may not be complete. In the previous example, you cannot be sure that the answer includes *all* indicators of mentions in the database. You can verify this by clicking on the “Datasources” button in the top menu providing the complete list of

indicators. If you want to make sure that the answer includes all the indicators that you need, you should list them one by one in your question, as shown in Figure 33. The question is “Sum by year for each of the following indicators: Protests and Riots, Non-State Actor Events, Criminal Org Events, Political Actor Events.” The question lists 4 indicators, by their name, and GEN4GEO shows the 4 requested indicators. The question also specifies “sum by year”. This results in a table providing totals for all available years (2018-2025).

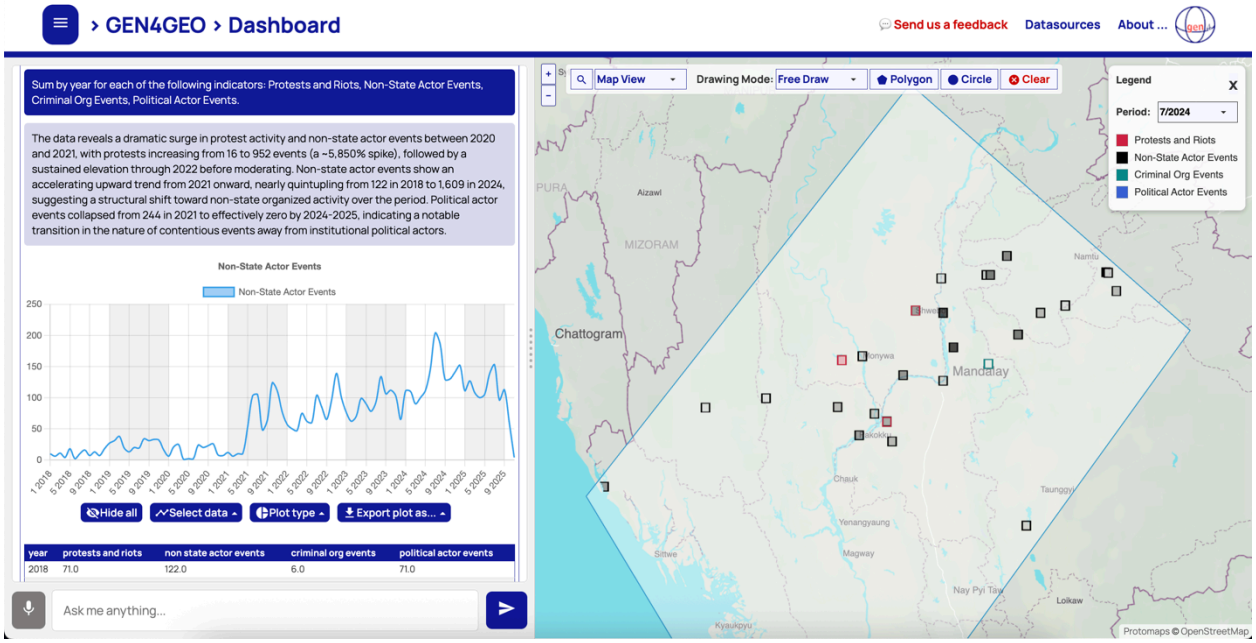


Figure 33 – How to ask a precise question.

By asking specific questions, you can aggregate data in different ways, along the geographical and time dimensions. For example, you can ask “Can you give me the total number of Non-State Actor Events in the entire period?” and, in this way, obtain the total number across the entire 2018-2025 period, as shown in Figure 34.

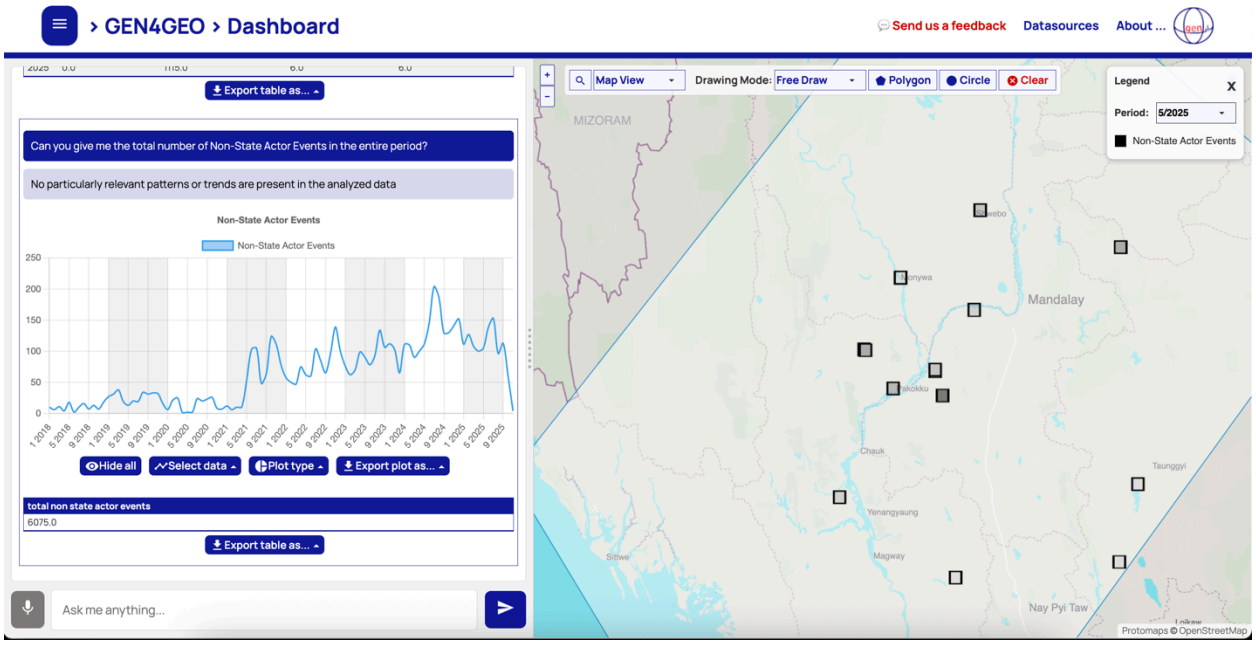


Figure 34 – How to aggregate data along the time dimension.

You can also ask GEN4GEO to compute correlations. For example, by asking “For each region compute the R parameter of correlation between crop extent and conflicts UCDP”, GEN4GEO tests the correlation between crop extent and conflicts on data aggregated at regional level. Results are shown in Figure 35.

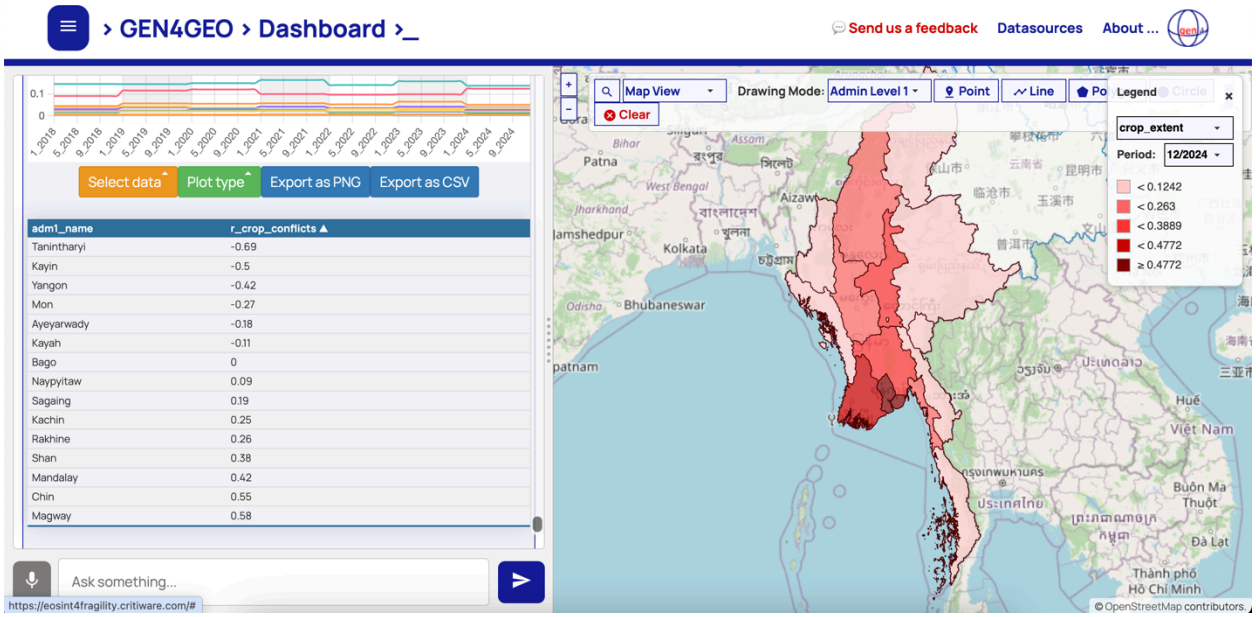


Figure 35 – How to test the correlation between variables.

# 7. How to provide feedback

Feedback can be provided either by rating individual answers or by completing the feedback questionnaire.

To give feedback on the overall functionality of GEN4GEO, click the red “Send us a feedback” button, as shown in Figure 36.

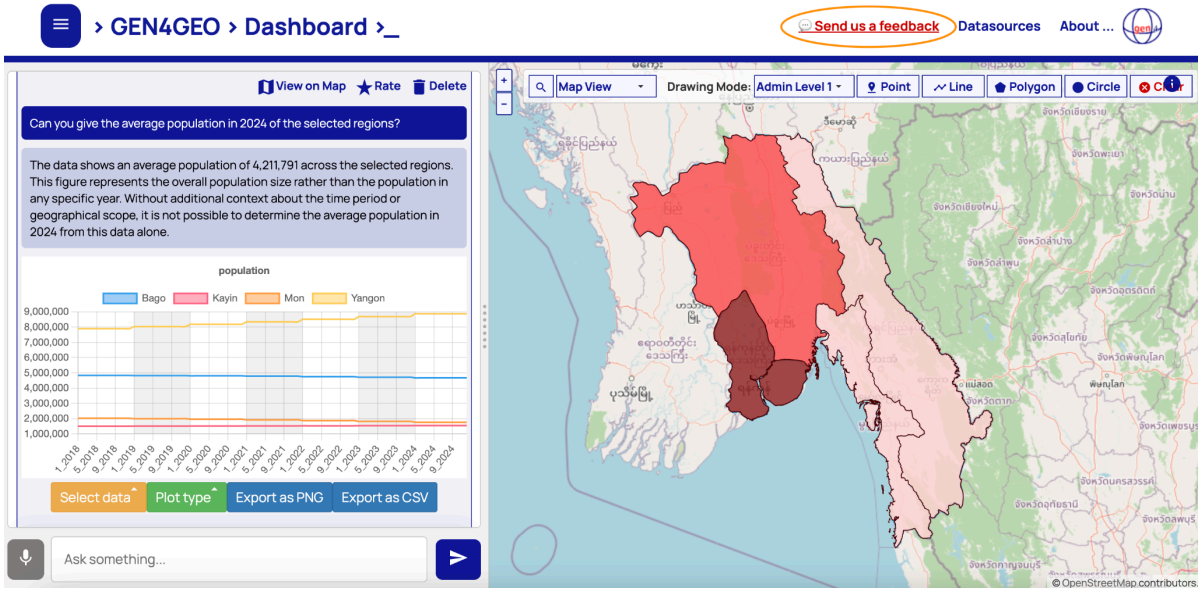


Figure 36 – How to rate GEN4GEO.

A new page will open with an anonymous questionnaire, as shown in Figure 37. Answer the questions by selecting a rating from 0 to 5, reflecting your experience with GEN4GEO’s main features.

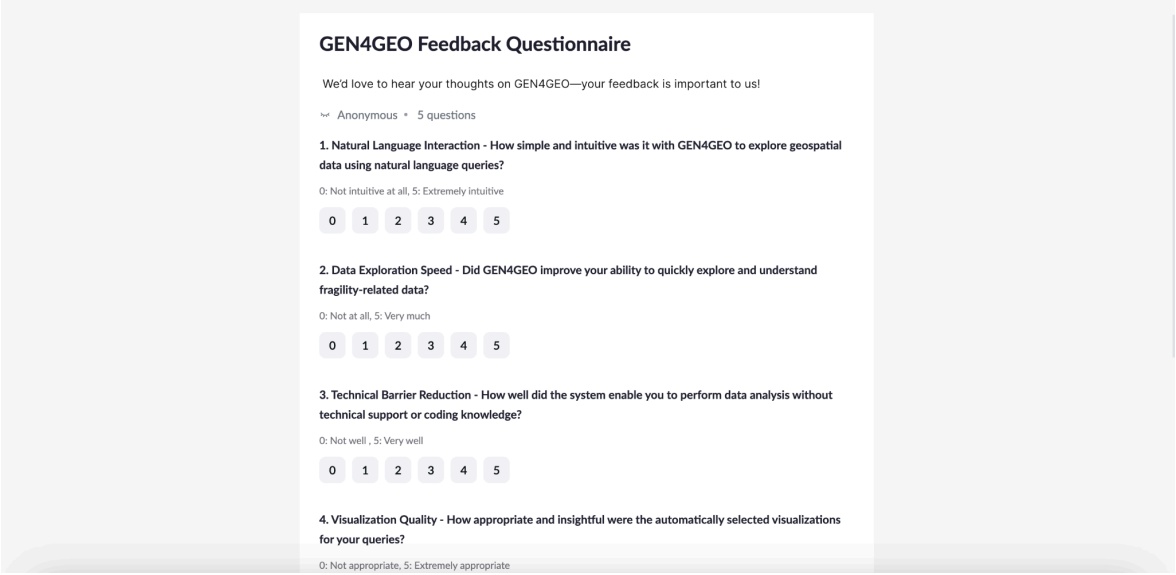


Figure 37 – How to submit your answers to the questionnaire.

To rate an answer from GEN4GEO, you can click on the answer and select the star icon in the top-right corner of the item, as shown in Figure 38.

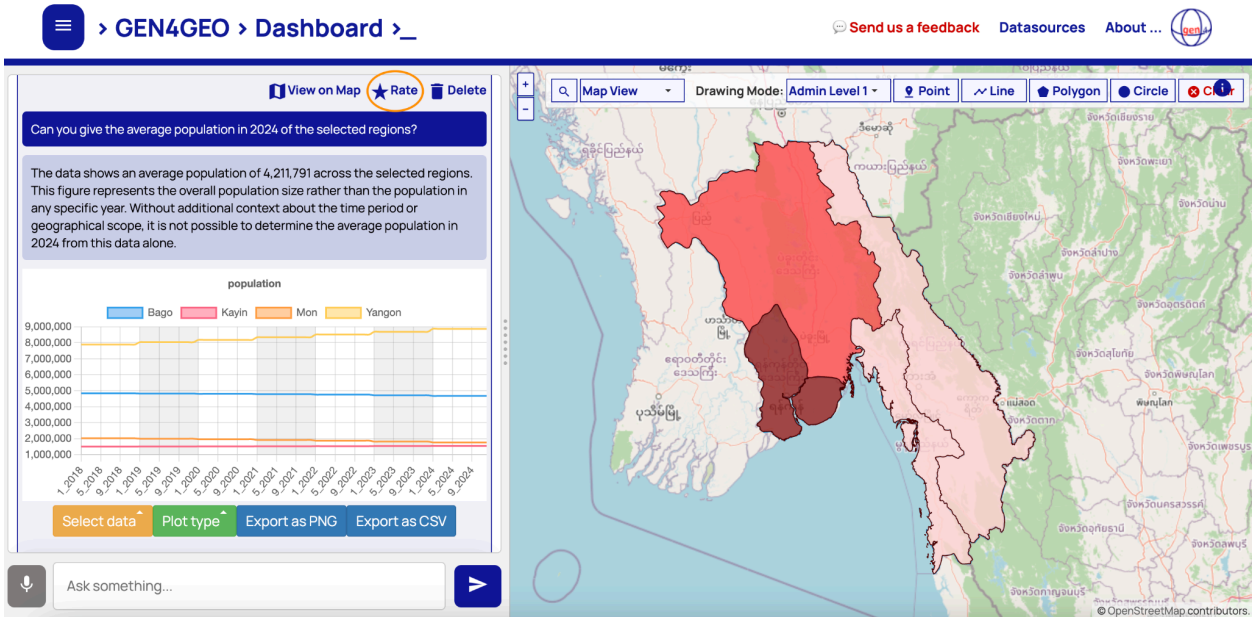


Figure 38 – How to rate an answer.

A pop-up window will then appear, allowing you to submit your rating on a scale of 1 to 5, as shown in Figure 39.

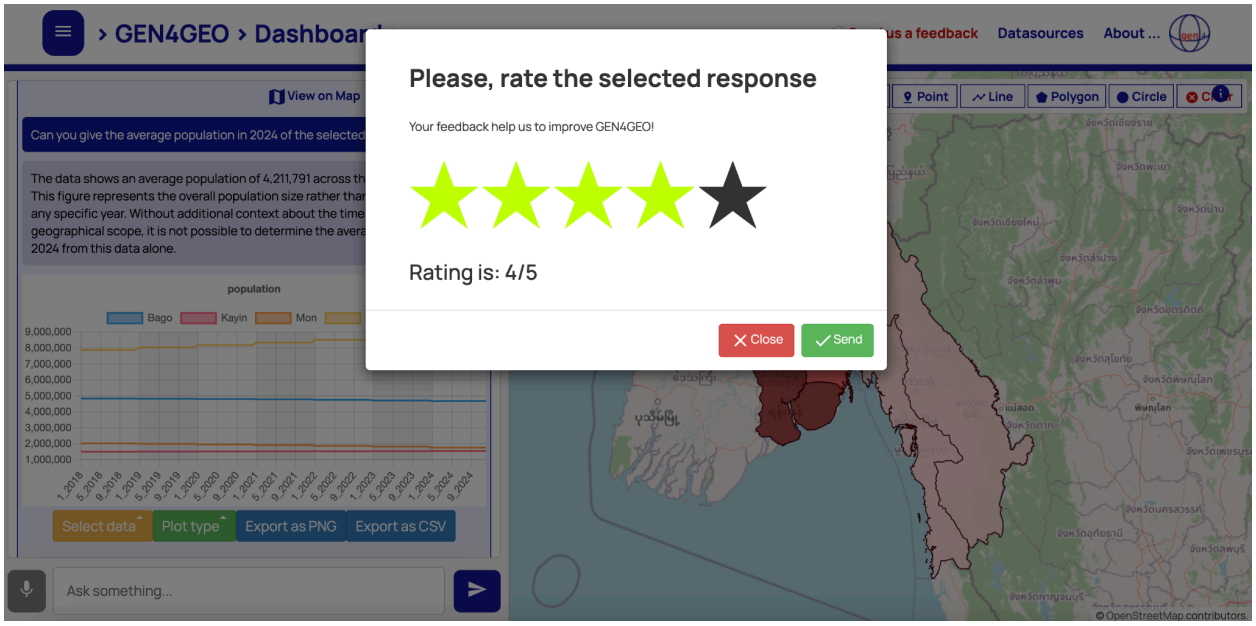


Figure 39 – How to submit your rating of an answer.