

# CAMBODIA HAZARD VULNERABILITY ANALYSIS



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A comprehensive Power BI dashboard designed to provide stakeholders with in-depth insights into community well-being and resilience in Cambodia.

Leveraging data from 2014 to 2019, this dashboard is a multi-level analysis tool that examines vulnerability and resilience dynamics at the national, province, commune, and even village levels, offering a comprehensive understanding of Cambodia's social and environmental landscape.

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# OBJECTIVE

## Identify Vulnerable Area

Utilize interactive visualizations and dynamic filters to pinpoint high-risk regions susceptible to storms, floods, and droughts across Cambodia.

## Inform Targeted Interventions

Analyze vulnerability indices at multiple levels to inform stakeholders, including policymakers, NGOs, and researchers, enabling them to devise tailored solutions and interventions to enhance community resilience and sustainable development.

## Empower Community Engagement:

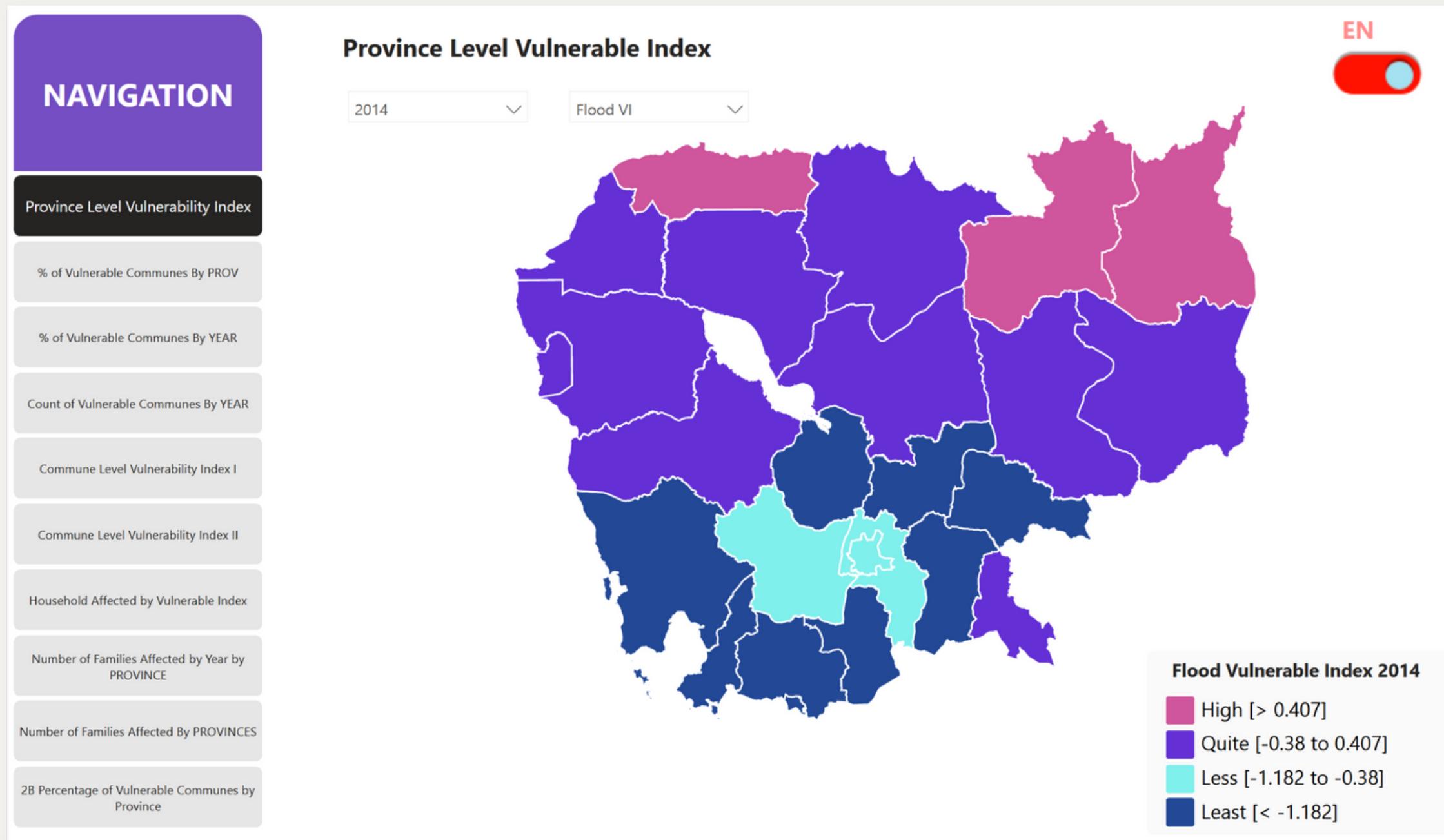
Foster greater community involvement by providing localized data and insights, encouraging community-driven resilience-building efforts and ensuring sustainable development outcomes across villages and communes.

### TOOLS USE



#1 VISUALIZATION

# PROVINCE LEVEL VULNERABLE INDEX - MAP

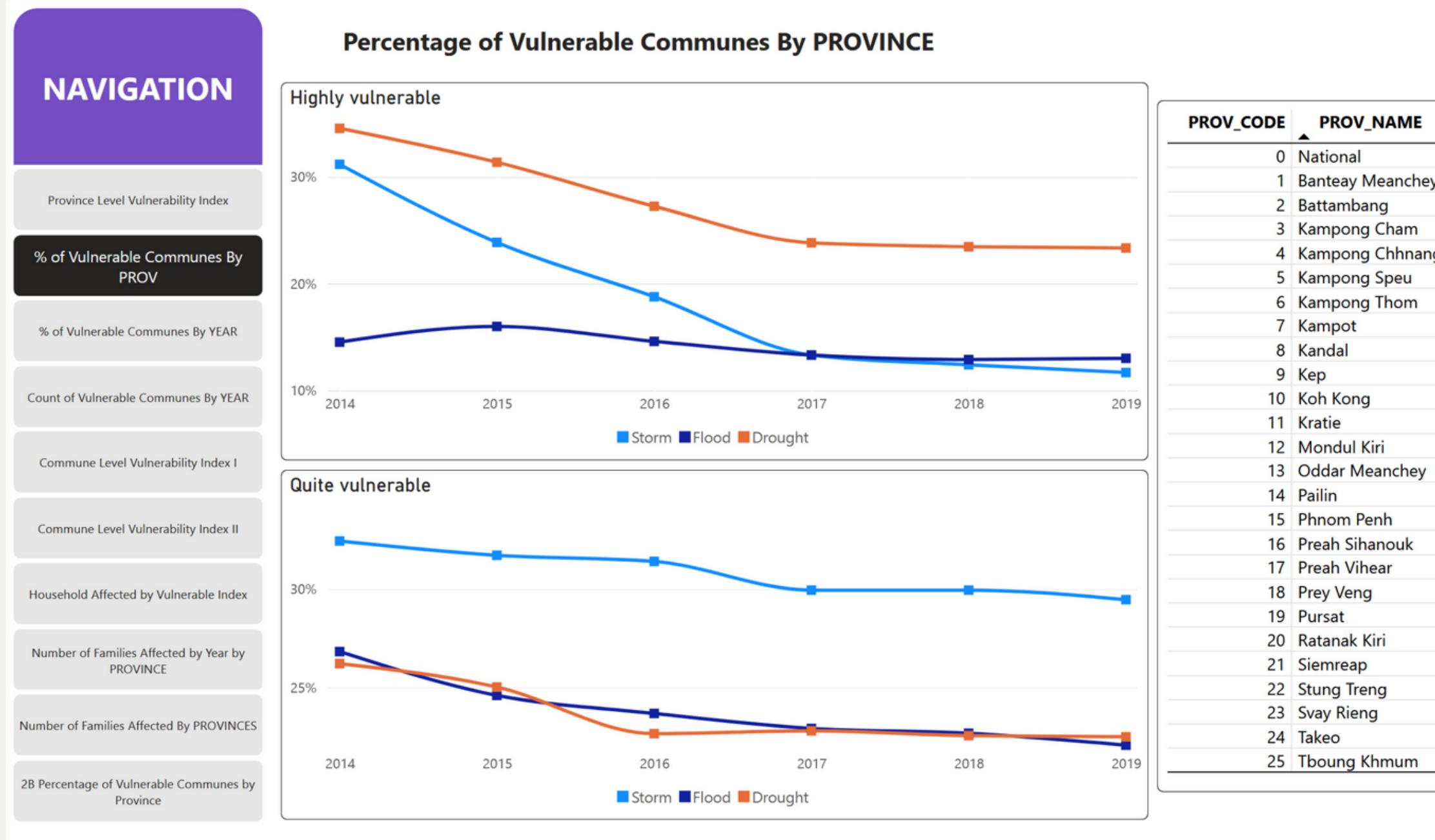


## DESCRIPTION:

- Visualizes Cambodia's natural hazard vulnerabilities (floods, storms, droughts, etc.) at the provincial level.
- Spans 2014-2019 for year-to-year comparisons.
- Provinces color-coded for quick vulnerability assessment (from "High" to "Least").
- Provides numerical ranges for each vulnerability level.
- Users can customize by selecting years and hazard types.
- Switch between Khmer and English visualizations.

## #2 VISUALIZATION

# % VULNERABLE COMMUNE - PROVINCE

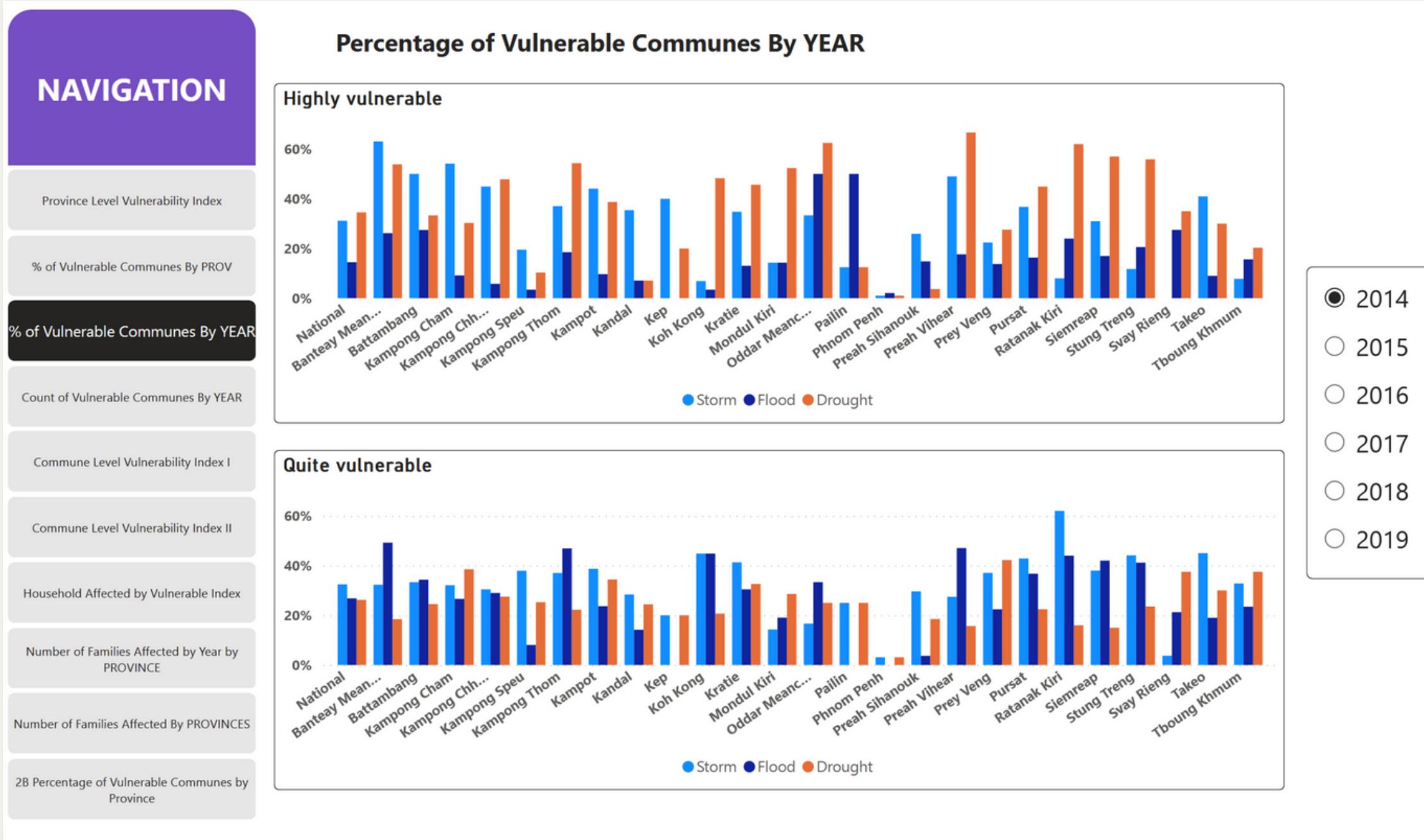


## DESCRIPTION:

- Two sections categorizing the level of vulnerability into 'Highly vulnerable' and 'Quite vulnerable.'
- Line charts for each category display trends for natural hazards, represented by three distinct colors.
- A general decrease in vulnerability percentages from 2014 to 2019 is shown for each hazard type.
- An accompanying table enumerates provinces, providing a reference for geographical data points used in the analysis.

## #3 VISUALIZATION

# % VULNERABLE COMMUNE - YEAR



## DESCRIPTION:

- The upper chart is labeled "Highly vulnerable" and the lower chart "Quite vulnerable."
- Each bar represents a different year, as indicated by the legend, with years ranging from 2014 to 2019.
- The bars are grouped by province and color-coded to reflect three types of natural hazards.
- The charts enable comparison across provinces and over time, highlighting the distribution and changes in vulnerability levels.

## #4 VISUALIZATION

# # VULNERABLE COMMUNE - YEAR

**NAVIGATION**

- Province Level Vulnerability Index
- % of Vulnerable Communes By PROV
- % of Vulnerable Communes By YEAR
- Count of Vulnerable Communes By YEAR**
- Commune Level Vulnerability Index I
- Commune Level Vulnerability Index II
- Household Affected by Vulnerable Index
- Number of Families Affected by Year by PROVINCE
- Number of Families Affected By PROVINCES
- 2B Percentage of Vulnerable Communes by Province

### Count of Vulnerable Communes By YEAR

Top provinces that ranked **highly** and **quite** vulnerable to climate hazards in 2019 ▼

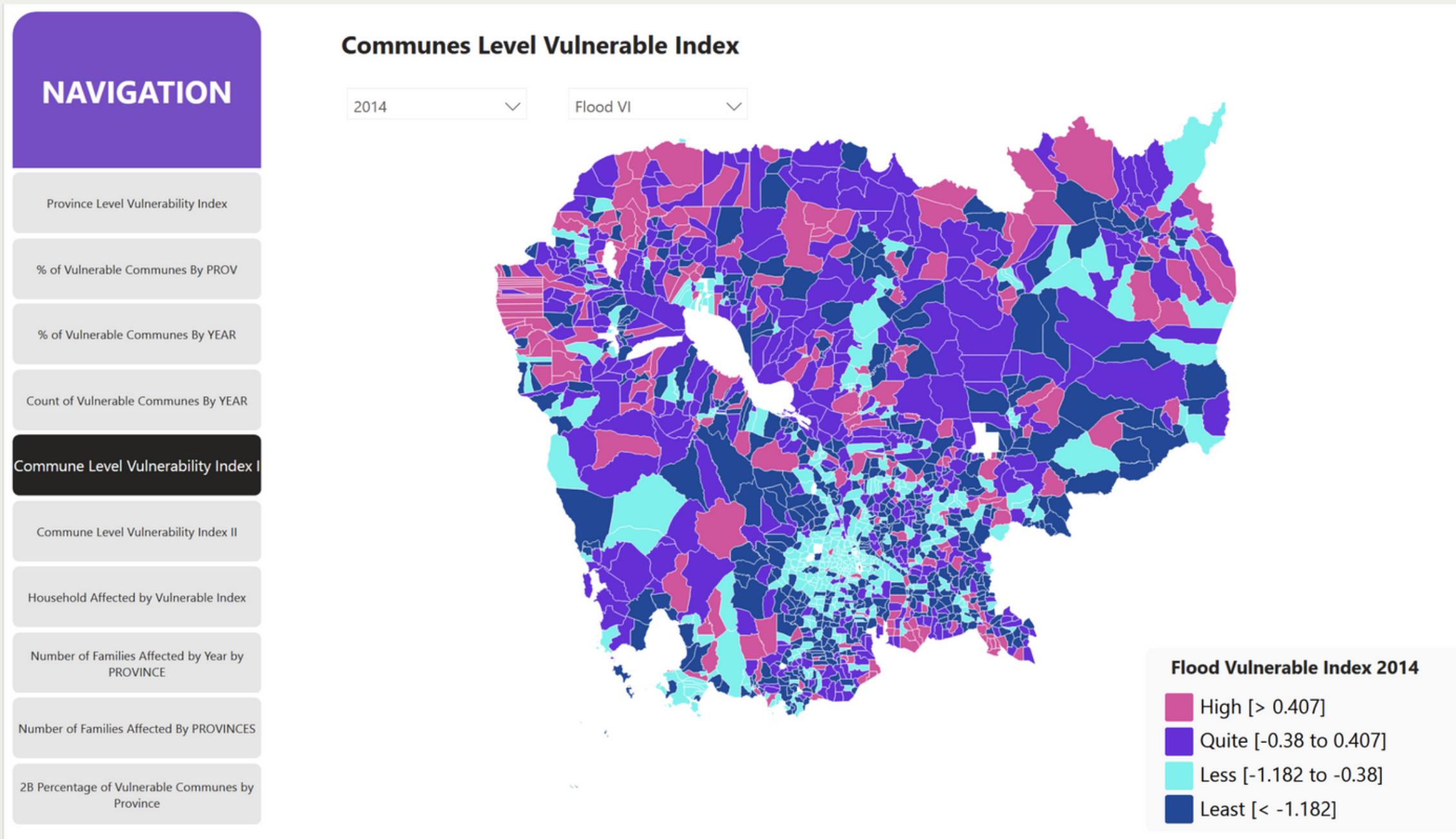
	Storm ▲	Flood	Drought	Composite ▼
<b>Highly Vulnerable</b>	Preah Vihear (1)	Pailin (1)	Preah Vihear (1)	Kampong Thom (9)
	Takeo (2)	Stung Treng (2)	Stung Treng (2)	Pursat (8)
	Kampong Chhnang (3)	Banteay Meanchey (3)	Oddar Meanchey (3)	Preah Vihear (7)
	Pursat (4)	Svay Rieng (4)	Ratanak Kiri (4)	Ratanak Kiri (6)
<b>Quite Vulnerable</b>	Kampong Cham (5)	Ratanak Kiri (5)	Svay Rieng (5)	Oddar Meanchey (5)
	Stung Treng (6)	Oddar Meanchey (6)	Kratie (6)	Stung Treng (4)
	Kampong Thom (7)	Preah Vihear (7)	Tboung Khmum (7)	Svay Rieng (3)
	Kratie (8)	Pursat (8)	Kampong Chhnang (8)	Banteay Meanchey (2)
	Banteay Meanchey (9)	Kampong Thom (9)	Koh Kong (9)	Pailin (1)

### DESCRIPTION:

- Rows are split between "Highly Vulnerable" and "Quite Vulnerable" classifications for each hazard type.
- Provinces are ranked within each hazard category, with their respective ranks in parentheses.
- The table allows for quick identification of the most vulnerable provinces for each type of climate hazard within the selected year.

## #5 VISUALIZATION

# COMMUNE LEVEL VULNERABLE INDEX - MAP



## DESCRIPTION:

- Visualizes Cambodia's natural hazard vulnerabilities (floods, storms, droughts, etc.) at the Commune level.
- Spans 2014-2019 for year-to-year comparisons.
- Provinces color-coded for quick vulnerability assessment (from "High" to "Least").
- Provides numerical ranges for each vulnerability level.
- Users can customize by selecting years and hazard types.

## #6 VISUALIZATION

# COMMUNES LEVEL VULNERABLE INDEX - LIST

**Communes Level Vulnerable Index**

2014 ▾ Banteay Meanchey ▾

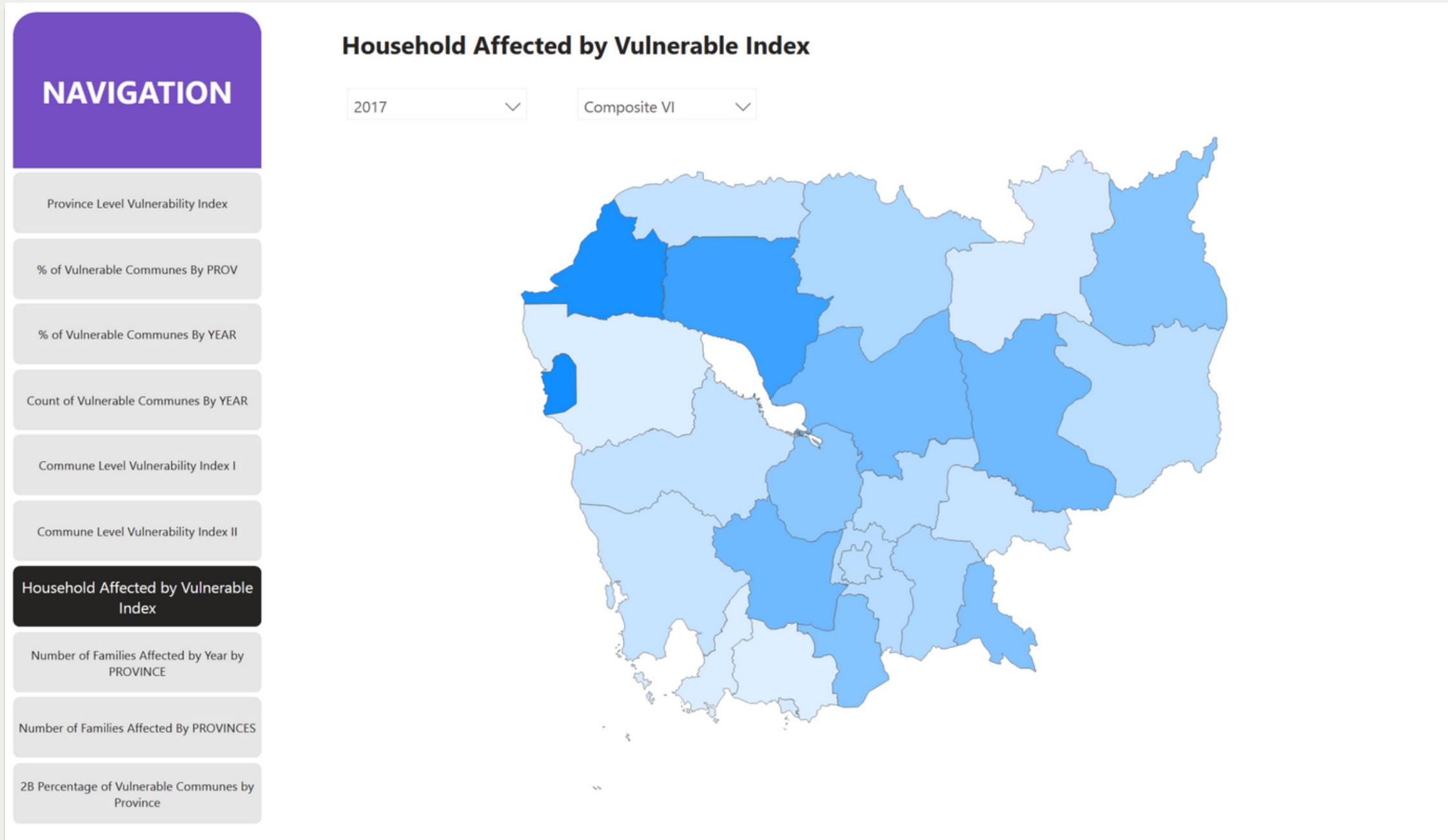
Province	District	Commune	Storm VI	Rank	FLOOD VI	Rank	Drought VI	Rank	Composite VI	Rank
Banteay Meanchey	Malai	Boeng Beng	-0.1978	818	2.4545	93	-1.9740	1316	1.8165	89
Banteay Meanchey	Malai	Malai	-0.1943	788	1.5838	140	-2.0752	1349	1.0694	144
Banteay Meanchey	Malai	Ou Sampoar	-0.1648	546	0.8246	190	-1.3297	1067	0.9262	155
Banteay Meanchey	Malai	Ou Sralau	-0.2128	935	-0.3987	688	-2.0317	1333	-0.3460	683
Banteay Meanchey	Malai	Ta Kong	-0.1006	150	0.4137	237	-0.2404	183	0.4036	227
Banteay Meanchey	Malai	Tuol Pongro	-0.1170	216	0.2393	273	-0.5017	407	0.2700	257
Banteay Meanchey	Mongkol Borei	Banteay Neang	-0.1444	365	-0.2514	563	-0.9817	839	-0.2393	601
Banteay Meanchey	Mongkol Borei	Bat Trang	-0.1678	568	0.0027	352	-0.5250	434	0.1246	303
Banteay Meanchey	Mongkol Borei	Chamnaom	-0.1573	468	0.2863	259	-1.0846	913	0.0202	361
Banteay Meanchey	Mongkol Borei	Kouk Ballangk	-0.1491	394	0.0174	343	-0.2029	157	0.1341	295
Banteay Meanchey	Mongkol Borei	Koy Maeng	-0.1988	829	-0.0229	371	-0.9637	823	-0.0576	421
Banteay Meanchey	Mongkol Borei	Ou Prasat	-0.1579	471	-0.4296	709	-0.8927	762	-0.4239	744
Banteay Meanchey	Mongkol Borei	Phnum Touch	-0.2044	872	-1.7668	1362	-2.8400	1500	-1.7477	1372
Banteay Meanchey	Mongkol Borei	Rohat Tuek	-0.1117	188	-0.0034	358	-0.8635	739	0.0009	376
Banteay Meanchey	Mongkol Borei	Ruessei Kraok	-0.2417	1125	-1.6256	1324	-2.3713	1422	-1.4956	1314
Banteay Meanchey	Mongkol Borei	Sambuor	-0.1432	358	0.1366	295	-0.3645	286	0.1146	307
Banteay Meanchey	Mongkol Borei	Soea	-0.0913	118	0.5220	223	-0.2866	221	0.5624	200
Banteay Meanchey	Mongkol Borei	Srah Reang	-0.0972	134	0.4621	228	-0.3166	239	0.5724	199
Banteay Meanchey	Mongkol Borei	Ta Lam	-0.1103	181	0.3730	241	-0.5128	423	0.4832	215
Banteay Meanchey	Ou Chrov	Changha	-0.1061	166	0.0745	320	-0.5607	468	0.0593	333
Banteay Meanchey	Ou Chrov	Koub	-0.1524	426	-0.0426	384	-0.5897	497	-0.0695	433
Banteay Meanchey	Ou Chrov	Kuttasat	-0.2341	1073	0.1293	300	-0.7202	606	0.1117	308

## DESCRIPTION:

- Rows are listed by communes within various districts of the province.
- Columns provide indices and ranks for different types of vulnerabilities: Storm VI, Flood VI, Drought VI, and a Composite VI.
- Each commune has corresponding index values and ranks, indicating its relative vulnerability to each hazard type.
- The table serves as a comprehensive tool for analyzing the vulnerability of individual communes across multiple hazard types.

## #7 VISUALIZATION

# HOUSEHOLD AFFECTED VULNERABLE INDEX - MAP

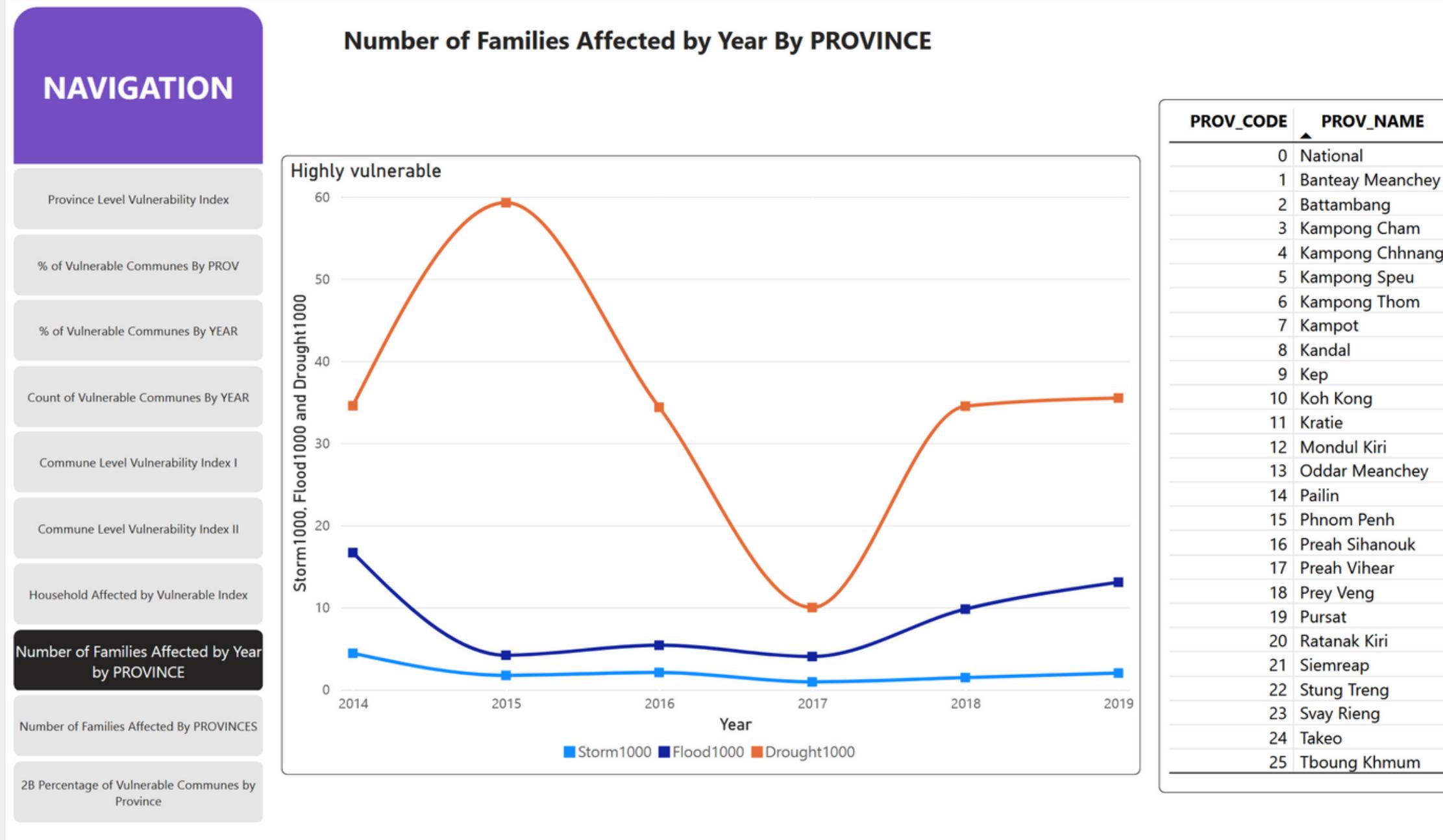


## DESCRIPTION:

- A geographical representation of the impact levels on households across various provinces, measured by a general Composite Vulnerability Index.
- The intensity of the blue color across the map indicates relative levels of household affection, with a range of shades suggesting different degrees of vulnerability.
- This serves as an analytical tool to visually assess and compare the distribution of vulnerability impact on households in different areas.

## #8 VISUALIZATION

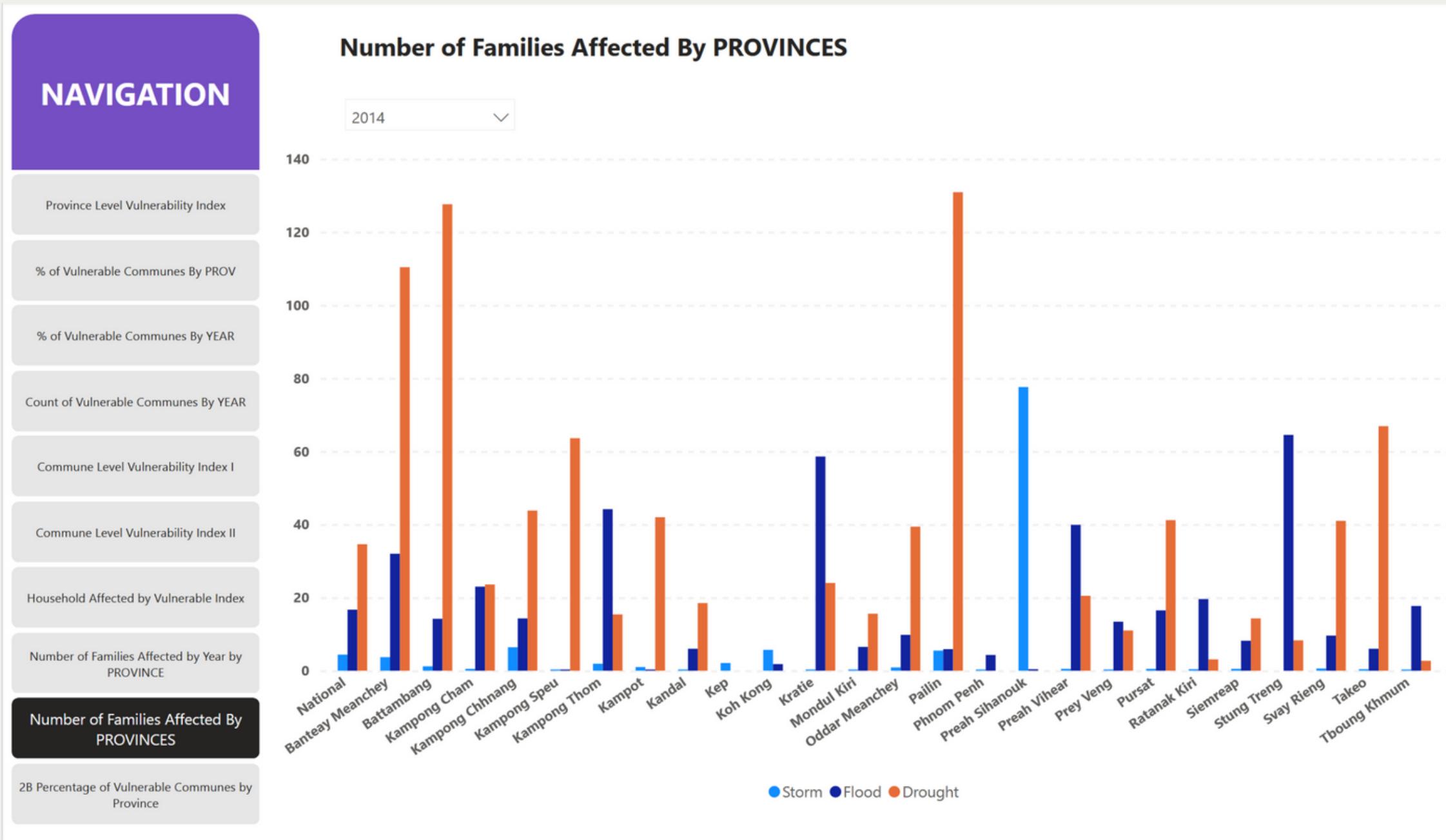
## # FAMILY AFFECTED - YEAR / PROVINCE

**DESCRIPTION:**

- A line graph tracking the number of families per 1000 affected by three types of events: Storm, Flood, and Drought, from 2014 to 2019.
- Each event type is represented by a different color-coded line, with markers indicating data points for each year.
- The graph depicts a distinct peak in one event type, suggesting a significant increase in affected families in a particular year.
- The visualization allows for the analysis of trends in the impact of different natural events on families across various provinces over the given years.

## #9 VISUALIZATION

# # FAMILY AFFECTED - PROVINCE (BARCHART)

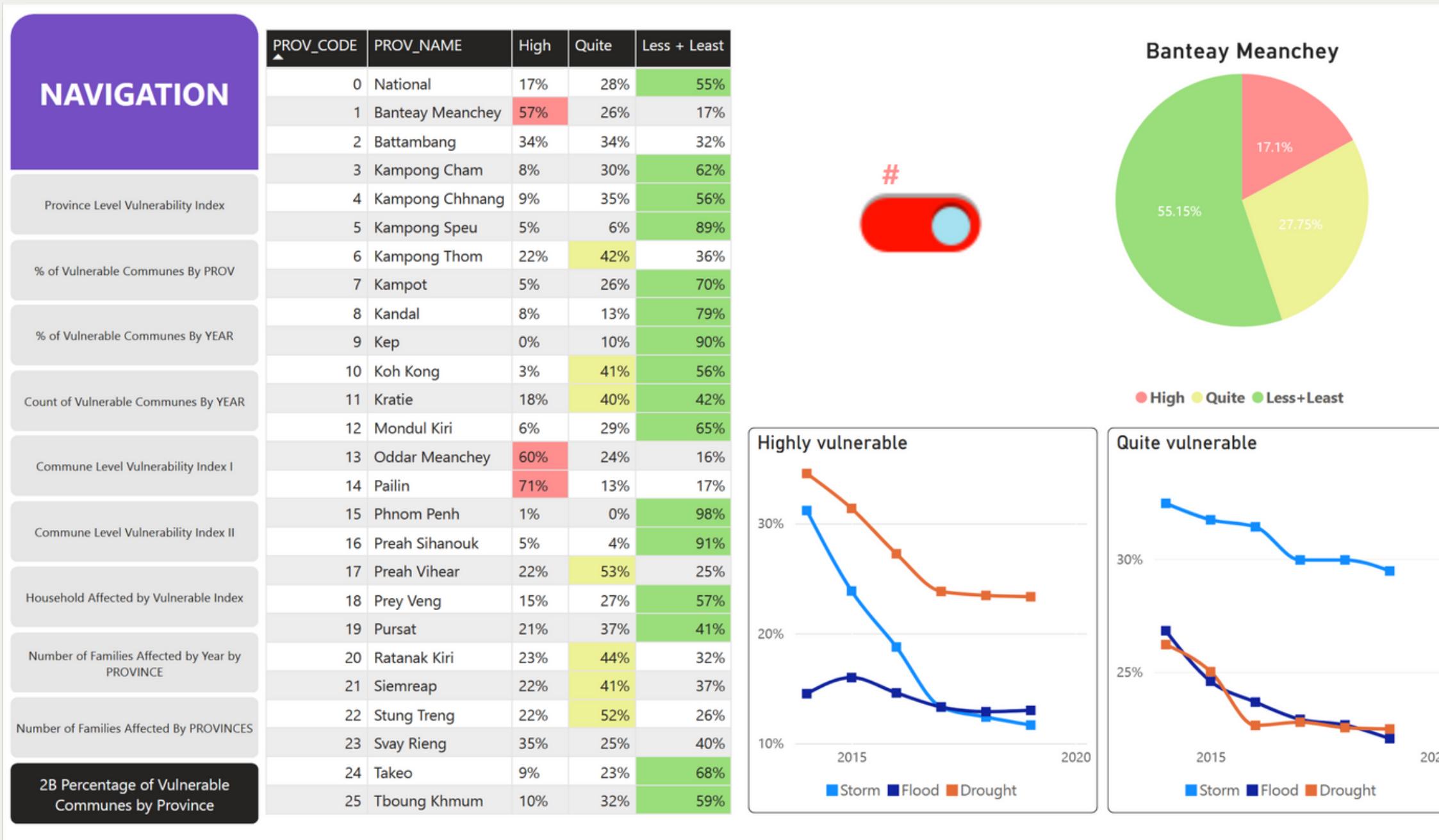


## DESCRIPTION:

- A bar chart showing the number of families affected by various natural disaster across multiple provinces.
- Each province is represented on the x-axis, with the y-axis quantifying the number of families affected.
- The chart allows for a visual comparison of the impact across provinces, highlighting those with the highest number of affected families for each event type.
- This visualization provides a clear comparison of regional impacts without specifying the nature of the events.

#10 VISUALIZATION

# [%,#] VULNERABLE COMMUNE - PROVINCE (LIST) (PIE) (LINE)



## DESCRIPTION:

- A table lists provinces by code and name, with corresponding percentages of areas classified as 'High', 'Quite', 'Less', and 'Least' vulnerable.
- The percentages are visually represented by color-coded bars, facilitating quick assessment of the vulnerability levels in each province.
- A pie chart highlights the vulnerability distribution for a selected province, Banteay Meanchey, with segments for 'High', 'Quite', and 'Less+Least' vulnerability.
- This integrated visualization allows for both snapshot and temporal analysis of vulnerability across different regions.



# Future Directions

 **Enhanced Community Engagement.**

Foster greater community involvement and empowerment by incorporating feedback mechanisms and participatory approaches into the dashboard.

 **Integration with External Datasets**

Expand the scope of the dashboard by integrating external datasets on socio-economic indicators, climate data, and infrastructure development to provide a more comprehensive understanding of vulnerability and resilience factors at all levels.

 **Predictive Analytics**

Develop predictive models to forecast future vulnerability scenarios based on historical data, enabling proactive risk management and adaptation planning.

# TEAM COLLABORATION



**SOMBRATHNA SOUT**

[LINKEDIN](#)  [TELEGRAM](#)



**VIBOLVATNAKPOCH**

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# CAMBODIA HAZARD VULNERABILITY ANALYSIS

THANK YOU!

