**Overview of Disaster Damage and Response Estimation Process**

This analysis estimates cyclone-related damage and response needs across Vanuatu's area councils, focusing on the education sector. It integrates baseline indicators, impact estimation, resource requirements, and financial cost assessments. The outputs will inform rapid deployment of response assets and guide resource allocation strategies at the national and provincial levels.

***Initial Step: Cyclone Impact Classification***

Identify the area councils affected by cyclones and assign them a severity category:

* Category 5 → Multiplying factor: 0.8
* Category 4 → Multiplying factor: 0.5
* Category 3 → Multiplying factor: 0.2

This multiplier will be applied across all subsequent damage and response calculations.

Only affected area councils will appear in output tables.

***1. Baseline Education Indicators***

**Objective:** Tabulate the number of schools, students, and teachers by school level (ECCE, Primary, Secondary) and area council.

Source data from the cleaned Excel education baseline.

Required table format:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Region | ECCE | | | Primary | | | Secondary | | |
|  | School | Student | Teacher | Schools | Student | Teacher | School | Student | Teachers |
| **Vanuatu** |  |  |  |  |  |  |  |  |  |
| **Torba** |  |  |  |  |  |  |  |  |  |
| torres |  |  |  |  |  |  |  |  |  |
| ureparapara |  |  |  |  |  |  |  |  |  |
| motalava |  |  |  |  |  |  |  |  |  |
| west vanualava |  |  |  |  |  |  |  |  |  |
| east vanualava |  |  |  |  |  |  |  |  |  |
| mota |  |  |  |  |  |  |  |  |  |
| east gaua |  |  |  |  |  |  |  |  |  |
| west gaua |  |  |  |  |  |  |  |  |  |
| merelava |  |  |  |  |  |  |  |  |  |
| **Sanma** |  |  |  |  |  |  |  |  |  |
| luganville |  |  |  |  |  |  |  |  |  |
| north west santo |  |  |  |  |  |  |  |  |  |
| big bay coast |  |  |  |  |  |  |  |  |  |
| big bay inland |  |  |  |  |  |  |  |  |  |
| west santo |  |  |  |  |  |  |  |  |  |
| south santo 1 |  |  |  |  |  |  |  |  |  |
| south santo 2 |  |  |  |  |  |  |  |  |  |
| east santo |  |  |  |  |  |  |  |  |  |
| south east santo |  |  |  |  |  |  |  |  |  |
| canal - fanafo |  |  |  |  |  |  |  |  |  |
| west malo |  |  |  |  |  |  |  |  |  |
| east malo |  |  |  |  |  |  |  |  |  |
| **Penama** |  |  |  |  |  |  |  |  |  |
| west ambae |  |  |  |  |  |  |  |  |  |
| north ambae |  |  |  |  |  |  |  |  |  |
| east ambae |  |  |  |  |  |  |  |  |  |
| south ambae |  |  |  |  |  |  |  |  |  |
| north maewo |  |  |  |  |  |  |  |  |  |
| south maewo |  |  |  |  |  |  |  |  |  |
| north pentecost |  |  |  |  |  |  |  |  |  |
| central pentecost 1 |  |  |  |  |  |  |  |  |  |
| central pentecost 2 |  |  |  |  |  |  |  |  |  |
| south pentecost |  |  |  |  |  |  |  |  |  |
| **Malampa** |  |  |  |  |  |  |  |  |  |
| north west malekula |  |  |  |  |  |  |  |  |  |
| north east malekula |  |  |  |  |  |  |  |  |  |
| central malekula |  |  |  |  |  |  |  |  |  |
| south west malekula |  |  |  |  |  |  |  |  |  |
| south east malekula |  |  |  |  |  |  |  |  |  |
| south malekula |  |  |  |  |  |  |  |  |  |
| north ambrym |  |  |  |  |  |  |  |  |  |
| west ambrym |  |  |  |  |  |  |  |  |  |
| south east ambrym |  |  |  |  |  |  |  |  |  |
| paama |  |  |  |  |  |  |  |  |  |
| **Shefa** |  |  |  |  |  |  |  |  |  |
| port vila |  |  |  |  |  |  |  |  |  |
| vermali |  |  |  |  |  |  |  |  |  |
| vermaul |  |  |  |  |  |  |  |  |  |
| varisu |  |  |  |  |  |  |  |  |  |
| south epi |  |  |  |  |  |  |  |  |  |
| north tongoa |  |  |  |  |  |  |  |  |  |
| tongariki |  |  |  |  |  |  |  |  |  |
| makimae |  |  |  |  |  |  |  |  |  |
| nguna |  |  |  |  |  |  |  |  |  |
| emau |  |  |  |  |  |  |  |  |  |
| malorua |  |  |  |  |  |  |  |  |  |
| north efate |  |  |  |  |  |  |  |  |  |
| mele |  |  |  |  |  |  |  |  |  |
| tanvasoko |  |  |  |  |  |  |  |  |  |
| ifira |  |  |  |  |  |  |  |  |  |
| pango |  |  |  |  |  |  |  |  |  |
| erakor |  |  |  |  |  |  |  |  |  |
| eratap |  |  |  |  |  |  |  |  |  |
| eton |  |  |  |  |  |  |  |  |  |
| **Tafea** |  |  |  |  |  |  |  |  |  |
| north erromango |  |  |  |  |  |  |  |  |  |
| south erromango |  |  |  |  |  |  |  |  |  |
| aniwa |  |  |  |  |  |  |  |  |  |
| north tanna |  |  |  |  |  |  |  |  |  |
| west tanna |  |  |  |  |  |  |  |  |  |
| middle bush tanna |  |  |  |  |  |  |  |  |  |
| south west tanna |  |  |  |  |  |  |  |  |  |
| whitesands |  |  |  |  |  |  |  |  |  |
| south tanna |  |  |  |  |  |  |  |  |  |
| futuna |  |  |  |  |  |  |  |  |  |
| aneityum |  |  |  |  |  |  |  |  |  |

***2. Estimated Damage to Schools and Students***

Formulas:

* Damaged Schools = # of Schools × Cyclone Multiplier
* Students Affected = # of Students × Cyclone Multiplier

Example Calculation (for Category 5 in Torres):

* ECCE Schools Damaged = 2 × 0.8 = 1.6
* ECCE Students Affected = 12 × 0.8 = 9.6

This is repeated by school level and area council.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ECCE | | Primary | | Secondary | |
|  | Schools | Students affected | Schools | Students affected | Schools | Students affected |
| **Vanuatu** |  |  |  |  |  |  |
| **Torba** |  |  |  |  |  |  |
| torres |  |  |  |  |  |  |
| ureparapara |  |  |  |  |  |  |
| motalava |  |  |  |  |  |  |
| west vanualava |  |  |  |  |  |  |
| east vanualava |  |  |  |  |  |  |
| mota |  |  |  |  |  |  |
| east gaua |  |  |  |  |  |  |
| west gaua |  |  |  |  |  |  |
| merelava |  |  |  |  |  |  |
| **Sanma** |  |  |  |  |  |  |
| luganville |  |  |  |  |  |  |
| north west santo |  |  |  |  |  |  |
| big bay coast |  |  |  |  |  |  |
| big bay inland |  |  |  |  |  |  |
| west santo |  |  |  |  |  |  |
| south santo 1 |  |  |  |  |  |  |
| south santo 2 |  |  |  |  |  |  |
| east santo |  |  |  |  |  |  |
| south east santo |  |  |  |  |  |  |
| canal - fanafo |  |  |  |  |  |  |
| west malo |  |  |  |  |  |  |
| east malo |  |  |  |  |  |  |
| **Penama** |  |  |  |  |  |  |
| west ambae |  |  |  |  |  |  |
| north ambae |  |  |  |  |  |  |
| east ambae |  |  |  |  |  |  |
| south ambae |  |  |  |  |  |  |
| north maewo |  |  |  |  |  |  |
| south maewo |  |  |  |  |  |  |
| north pentecost |  |  |  |  |  |  |
| central pentecost 1 |  |  |  |  |  |  |
| central pentecost 2 |  |  |  |  |  |  |
| south pentecost |  |  |  |  |  |  |
| **Malampa** |  |  |  |  |  |  |
| north west malekula |  |  |  |  |  |  |
| north east malekula |  |  |  |  |  |  |
| central malekula |  |  |  |  |  |  |
| south west malekula |  |  |  |  |  |  |
| south east malekula |  |  |  |  |  |  |
| south malekula |  |  |  |  |  |  |
| north ambrym |  |  |  |  |  |  |
| west ambrym |  |  |  |  |  |  |
| south east ambrym |  |  |  |  |  |  |
| paama |  |  |  |  |  |  |
| **Shefa** |  |  |  |  |  |  |
| port vila |  |  |  |  |  |  |
| vermali |  |  |  |  |  |  |
| vermaul |  |  |  |  |  |  |
| varisu |  |  |  |  |  |  |
| south epi |  |  |  |  |  |  |
| north tongoa |  |  |  |  |  |  |
| tongariki |  |  |  |  |  |  |
| makimae |  |  |  |  |  |  |
| nguna |  |  |  |  |  |  |
| emau |  |  |  |  |  |  |
| malorua |  |  |  |  |  |  |
| north efate |  |  |  |  |  |  |
| mele |  |  |  |  |  |  |
| tanvasoko |  |  |  |  |  |  |
| ifira |  |  |  |  |  |  |
| pango |  |  |  |  |  |  |
| erakor |  |  |  |  |  |  |
| eratap |  |  |  |  |  |  |
| eton |  |  |  |  |  |  |
| **Tafea** |  |  |  |  |  |  |
| north erromango |  |  |  |  |  |  |
| south erromango |  |  |  |  |  |  |
| aniwa |  |  |  |  |  |  |
| north tanna |  |  |  |  |  |  |
| west tanna |  |  |  |  |  |  |
| middle bush tanna |  |  |  |  |  |  |
| south west tanna |  |  |  |  |  |  |
| whitesands |  |  |  |  |  |  |
| south tanna |  |  |  |  |  |  |
| futuna |  |  |  |  |  |  |
| aneityum |  |  |  |  |  |  |

3. Emergency Response Resources Required

Formulas:

* Tents = # of Schools × Multiplier × 1
* Solar Lamps = # of Schools × Multiplier × 10
* Water = # of Students × Multiplier × Litres per person × Days
* Rice = # of Students × Multiplier × 200g × Days
* Tuna = # of Students × Multiplier × 1 tin × Days

Specify Litres per person and Days as parameters in your Quarto code chunk.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ECCE | | | | | Primary | | | | | Secondary | | | | |
|  | Tents | Solar Lamp | Water | Rice | Tin | Tents | Solar Lamp | Water | Rice | Tin | Tents | Solar Lamp | Water | Rice | Tin |
| **Vanuatu** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Torba** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| torres |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ureparapara |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| motalava |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west vanualava |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| east vanualava |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| mota |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| east gaua |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west gaua |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| merelava |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Sanma** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| luganville |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north west santo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| big bay coast |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| big bay inland |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west santo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south santo 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south santo 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| east santo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south east santo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| canal - fanafo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west malo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| east malo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Penama** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west ambae |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north ambae |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| east ambae |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south ambae |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north maewo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south maewo |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north pentecost |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| central pentecost 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| central pentecost 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south pentecost |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Malampa** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north west malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north east malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| central malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south west malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south east malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south malekula |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north ambrym |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west ambrym |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south east ambrym |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| paama |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Shefa** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| port vila |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| vermali |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| vermaul |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| varisu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south epi |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north tongoa |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| tongariki |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| makimae |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| nguna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| emau |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| malorua |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north efate |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| mele |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| tanvasoko |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ifira |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| pango |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| erakor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| eratap |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| eton |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Tafea** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north erromango |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south erromango |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| aniwa |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| north tanna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| west tanna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| middle bush tanna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south west tanna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| whitesands |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| south tanna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| futuna |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| aneityum |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

4. Estimated Financial Damage

Formula:

* Cost of Damaged Schools = # of Schools × Cyclone Multiplier × Unit Cost
* Unit costs for each school type should be sourced from a financial cost lookup table in Excel.

Example:

* If ECCE school unit cost = 1,000,000 VT, and Torres had 2 schools under a Category 5 cyclone (0.8 multiplier):
* → 2 × 0.8 × 1,000,000 = 1,600,000 VT

|  |  |  |  |
| --- | --- | --- | --- |
| Vanuatu | ECCE | Primary | Secondary |
| **Torba** |  |  |  |
| torres |  |  |  |
| ureparapara |  |  |  |
| motalava |  |  |  |
| west vanualava |  |  |  |
| east vanualava |  |  |  |
| mota |  |  |  |
| east gaua |  |  |  |
| west gaua |  |  |  |
| merelava |  |  |  |
| **Sanma** |  |  |  |
| luganville |  |  |  |
| north west santo |  |  |  |
| big bay coast |  |  |  |
| big bay inland |  |  |  |
| west santo |  |  |  |
| south santo 1 |  |  |  |
| south santo 2 |  |  |  |
| east santo |  |  |  |
| south east santo |  |  |  |
| canal - fanafo |  |  |  |
| west malo |  |  |  |
| east malo |  |  |  |
| **Penama** |  |  |  |
| west ambae |  |  |  |
| north ambae |  |  |  |
| east ambae |  |  |  |
| south ambae |  |  |  |
| north maewo |  |  |  |
| south maewo |  |  |  |
| north pentecost |  |  |  |
| central pentecost 1 |  |  |  |
| central pentecost 2 |  |  |  |
| south pentecost |  |  |  |
| **Malampa** |  |  |  |
| north west malekula |  |  |  |
| north east malekula |  |  |  |
| central malekula |  |  |  |
| south west malekula |  |  |  |
| south east malekula |  |  |  |
| south malekula |  |  |  |
| north ambrym |  |  |  |
| west ambrym |  |  |  |
| south east ambrym |  |  |  |
| paama |  |  |  |
| **Shefa** |  |  |  |
| port vila |  |  |  |
| vermali |  |  |  |
| vermaul |  |  |  |
| varisu |  |  |  |
| south epi |  |  |  |
| north tongoa |  |  |  |
| tongariki |  |  |  |
| makimae |  |  |  |
| nguna |  |  |  |
| emau |  |  |  |
| malorua |  |  |  |
| north efate |  |  |  |
| mele |  |  |  |
| tanvasoko |  |  |  |
| ifira |  |  |  |
| pango |  |  |  |
| erakor |  |  |  |
| eratap |  |  |  |
| eton |  |  |  |
| **Tafea** |  |  |  |
| north erromango |  |  |  |
| south erromango |  |  |  |
| aniwa |  |  |  |
| north tanna |  |  |  |
| west tanna |  |  |  |
| middle bush tanna |  |  |  |
| south west tanna |  |  |  |
| whitesands |  |  |  |
| south tanna |  |  |  |
| futuna |  |  |  |
| aneityum |  |  |  |

**Outputs**

* The outputs should include the following structured tables:
* Baseline Education Indicators Table
* Damaged Schools and Students Table
* Resource Needs Table (Tents, Lamps, Food, Water)
* Financial Damage Table