# Stakeholder Identification

Stakeholders are individuals that have an interest, involvement, or concern in the project's success or failure. For our system, we had four main stakeholders as listed below. Identifying these stakeholders helped know the target audience for our requirement s gathering. Here’s a breakdown of key stakeholder groups for our disaster management system:

1. Citizens
2. Emergency Responders (Firefighters, Police, Medical Personnel, Search and Rescue Teams)
3. Government Agencies (National Disaster Management Agency (NDMA), Ministry of Public Health, Local authorities)
4. Non-Governmental Organizations (NGOs) (Red Cross/Crescent Society, International aid organizations)
5. Media (News outlets, radio stations)

# Methods:

We employed 4 main methods for our requirements gathering as listed below:

# Web-Based Survey: this involved passing out a form for various individuals to fill.

1. **Survey Design**:

The survey consisted of a mix of question types:

* **Multiple Choice, Likert Scale** (Gauging agreement levels on preparedness statements (e.g., importance of disaster preparedness)), and **Open Ended (** Allowing for detailed responses and capturing specific concerns or suggestions (e.g., preferred information sources, ideas for community preparedness efforts))

1. **Data Collection Process**:

The survey was disseminated through various online channels to reach a broad audience:

* Social media platforms (e.g., Facebook, Twitter, WhatsApp etc.) relevant to the community

1. **Data Security and Confidentiality:**

The survey was designed anonymously, and no personal identifying information was collected. All responses will be kept confidential and used solely for the purpose of improving community disaster preparedness resources.

# Document Review and Research

This process involved reviewing documentation published by NGO’s, government agencies and other big bodies, to get insights on what they expect such a system to have, how we effectively manage such systems and other relevant info.

Here are some of our document sources:

* **Local emergency response plans:**

<https://floodready.vermont.gov/update_plans/local_emergency_operations>

<https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/local-government/em_planning_guide_for_la_fn.pdf>

<https://www.alertmedia.com/blog/emergency-response-plan/>

* **Incident reports from previous disasters:** <https://ourworldindata.org/grapher/natural-disasters-by-type>
* **Community risk assessments:**

<https://rb.gy/8gge9t>,<https://riskassessment.strategicfire.org/wp-content/uploads/2016/03/Community-Risk-Assessment-Guide-v1.5.pdf>, <https://dipecholac.net/docs/files/Community%20Risk%20Assessment%20Training%20Module%20Malawi.pdf>

* **Public awareness campaigns on disaster preparedness:** <https://rb.gy/r28tce>, <https://rb.gy/lt0s9y>

Below is a list of requirements gotten from the review of these documents;

**1. Data-Driven Decision Making:**

- Documents consistently emphasize the need for comprehensive data collection and monitoring of disaster occurrences. This includes gathering information on the frequency, duration, and intensity of disasters, encompassing various types relevant to the target region.

**2. Identifying Community Vulnerability:**

- Documents highlight the importance of identifying factors that make communities more susceptible to disasters. Examples include:

- The frequency of specific disaster types in an area.

- Waste management efficiency and sanitation facilities (impacting disease risks after disasters).

- Proximity to potential hazards like rivers, fault lines, or other danger zones.

- Justification: Understanding vulnerabilities enables targeted interventions and empowers communities to build resilience in the face of potential hazards.

**3. Early Warning Systems: Saving Lives and Property:**

- Documents underscore the critical role of early warning systems in alerting communities about potential disasters. These systems should leverage real-time data and forecasts to issue timely warnings through various communication channels (sirens, text messages, public announcements) for maximum effectiveness.

- Importance: Early warnings empower communities to take necessary precautions (evacuation, securing property) or prepare for immediate response, potentially saving lives and minimizing damage.

**4. Risk Assessment and Hazard Mapping: A Visual Guide for Mitigating Risks:**

- Documents suggest conducting risk assessments to identify areas prone to disasters based on historical data and geological factors. Additionally, they recommend assessing the vulnerability of communities within those areas. This information should be translated into disaster hazard maps, providing a clear visual representation of high-risk zones.

**5. Collaborative Response: Building Resilience Through Coordination:**

- Documents advocate for facilitating information dissemination and education about health risks associated with disasters. Additionally, they emphasize the necessity of establishing robust coordination among stakeholders, such as government agencies, healthcare providers, and NGOs. This collaboration should also enable resource sharing and the exchange of best practices to enhance disaster response capabilities.

**6. Long-Term Planning and Policy Development: Building a Safer Future:**

- Documents highlight the need for data and analysis to support long-term planning for improved disaster management and public health preparedness.

- This data should inform policy development aimed at reducing disaster risks and building community resilience.

# Citizen Interview

This process involved a one on one conversation (both in person and via social media platforms) with the project team and citizens. This provided an opportunity to gain detailed insights and personal perspectives from residents.

* **Interview Topics:** The interview guide covered topics such as:
  + Disaster awareness and concerns
  + Existing preparedness measures taken at home and within the community
  + Information sources and preferred communication channels during disasters
  + Perceptions of community preparedness efforts
  + Suggestions for improvement

**Requirements Gathered From the Citizens Interview**

1. **User Feedback and Support**: Users wanted a feature that enables them to provide feedback regarding the disaster management system, and, they expressed the need for support channels to address any concerns or worries they may have during system’s usage.
2. **Offline Functionality**: Users emphasized the necessity for the disaster management system to be accessible even in scenarios where internet connectivity is unavailable.
3. **Multi-language Support**: users requested support for multiple languages within the disaster management system.
4. **Report Disaster**: Users expressed the need for a feature that allows them to report the occurrence of a disaster promptly.
5. **Evacuation Routes**: Users emphasized the importance of having access to clear and up-to-date evacuation routes in the event of a disaster.
6. **Request Help**: Users desired a feature that enables them to request assistance or support from relevant authorities or community responders during emergencies.
7. **Alerts and Notifications**: Users expressed the need for timely alerts and notifications regarding potential or ongoing disaster situations.
8. **Receive Alerts Offline (SMS)**: users specifically requested the ability to receive alerts and notifications via SMS regardless of their online status.
9. **Usability**: Users highlighted the importance of a user-friendly interface and intuitive design in the disaster management system. This requirement emphasizes the need for a system that is easy to use, navigate, understand, and operate, especially during high-stress situations.

# Brainstorming

Brainstorming in a requirements gathering process is a technique used to generate ideas and solutions for the project requirements. It involves a group of stakeholders or team members coming together to share their thoughts, ideas, and suggestions related to the project requirements.

During this brainstorming session, our team pondered on how our system will support all stages of the disaster management lifecycle, including preparedness, response, recovery, and mitigation.

Below are the various requirements we gathered during our brainstorming session:

1. **Real-time Alerts and Notifications (Preparation, Response):**

* **Preparation:** By setting up real-time alert systems, individuals and authorities can prepare in advance for potential disasters, increasing overall readiness and resilience.
* **Response**: Alerts and notifications provide timely information to individuals and emergency responders, enabling swift and coordinated responses to mitigate the impact of disasters.

1. **Resource Management (Preparation, Recovery, Mitigation):**

* **Preparation**: Effective resource management involves pre-positioning essential supplies and equipment, ensuring readiness to respond promptly to disaster events.
* **Recovery**: Proper resource allocation facilitates the efficient distribution of aid and support to affected areas during the recovery phase, helping communities rebuild and restore normalcy.
* **Mitigation**: Strategic resource management contributes to long-term resilience by allocating resources towards mitigation efforts, such as infrastructure improvements and risk reduction measures.

1. **Communication (Response, Recovery, Mitigation):**

* **Response**: Clear communication channels enable rapid dissemination of information and instructions during emergency response operations, enhancing coordination and situational awareness.
* **Recovery**: Continuous communication facilitates ongoing updates and support services for affected communities during the recovery phase, fostering resilience and community engagement.
* **Mitigation**: Effective communication campaigns raise awareness about disaster risks and preparedness measures, empowering individuals and communities to take proactive steps to reduce vulnerabilities.

1. **Geospatial Data and Mapping (Response):**

* **Response**: Geospatial data and mapping technologies provide critical situational awareness for emergency responders, helping them identify impacted areas, assess damage, and prioritize response efforts.

1. **Incident Reporting (Response):**

* **Response**: Incident reporting mechanisms enable individuals to report emergencies and provide essential information to responders, facilitating rapid assessment and deployment of resources during the response phase.

1. **Damage Assessment (Response):**

* **Response**: Damage assessment tools and techniques support the evaluation of infrastructure damage and inform decision-making processes for resource allocation and emergency response efforts.

1. **Disaster Detection (Mitigation):**

* **Mitigation**: Early detection of potential disasters allows for timely intervention and mitigation measures to reduce the impact and severity of the event, ultimately enhancing community resilience and safety.