# Strengthening Disaster Resilience through Community Participation (CBDRM) : Lessons for India


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Japan, as one of the most disaster-prone countries in the world, has become a global model for disaster preparedness and management. The country’s emphasis on community-based disaster risk reduction (CBDRR) has been a particularly enlightening aspect of my research. The active involvement of local communities, who are often the first responders in times of disaster, has been key to Japan's resilience. Through continuous awareness programs, education, and preparedness strategies, the communities are well-equipped to handle natural hazards. This commitment to building resilience at the community level has provided invaluable lessons that I will apply to my work in disaster management, particularly in the context of my home state of Himachal Pradesh.

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I sincerely hope that the findings from this research will contribute meaningfully to my work as a **disaster manager** and to the ongoing disaster risk reduction efforts of the **Government of Himachal Pradesh**, the **Government of India**.

# Contents

# CHAPTER- 1 INTRODUCTION

## 1.1 Background:

India, with its vast geographical diversity and climatic variations, is highly susceptible to a wide range of natural hazards, including floods, cyclones, earthquakes, droughts, and landslides. The country's exposure to these recurrent disasters poses significant challenges to the safety, well-being, and sustainable development of its population. Traditionally, disaster management in India focused on reactive, top-down approaches centered around emergency response and relief. However, the increasing frequency and intensity of disasters, coupled with the complex socio-economic vulnerabilities of communities, have highlighted the need for a more proactive, inclusive, and sustainable strategy.

Community-Based Disaster Risk Reduction (CBDRR) has emerged as a critical framework in addressing these challenges. CBDRR emphasizes the active participation of local communities in all phases of disaster management—from risk assessment and preparedness to response, recovery, and mitigation. By leveraging local knowledge, capacities, and resources, CBDRR fosters community ownership of disaster risk reduction (DRR) initiatives, making them more context-specific, culturally relevant, and sustainable in the long term.

In the Indian context, the implementation of CBDRR has gained momentum through government policies, non-governmental organizations (NGOs), and community-driven programs. Initiatives such as the National Policy on Disaster Management (2009) have recognized the importance of community participation in building resilience. Despite these efforts, challenges persist due to factors like socio-economic inequalities, lack of awareness, inadequate infrastructure, and limited coordination among stakeholders.

## 1.2 Hazard Landscape in India

i. **Earthquakes**: India is located in a seismically active zone, with large portions of the country falling within seismic zones III to V, which are highly vulnerable to earthquakes. Notable recent examples include the devastating **2001 Gujarat Earthquake** and the **2015 Nepal Earthquake**, which also affected India. These events exposed the inadequacy of building codes and highlighted the urgent need for earthquake-resistant infrastructure.

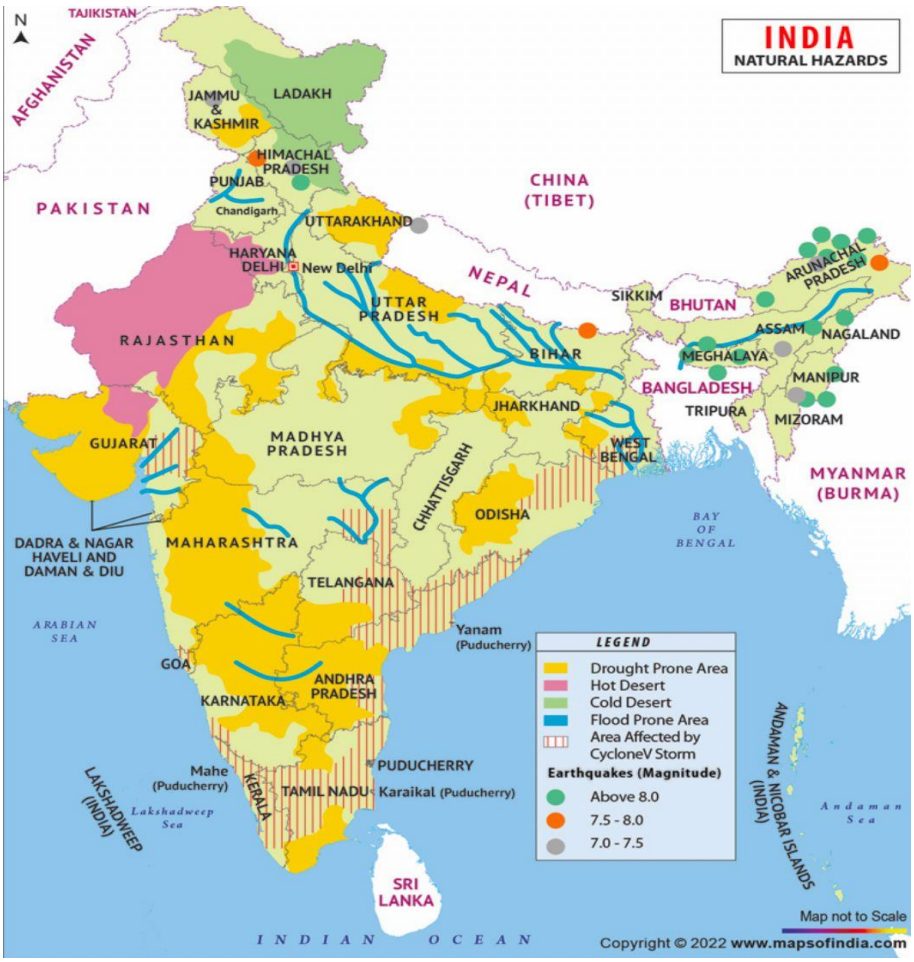


*Figure 1Multi- Hazard Map of India*

ii. **Cyclones**: Coastal areas of India, including **Odisha**, **West Bengal**, **Andhra Pradesh**, and **Tamil Nadu**, are frequently affected by cyclones, particularly during the monsoon season. **Cyclone Fani (2019)**, which hit Odisha, demonstrated how vulnerable coastal communities are, despite the presence of early warning systems and disaster preparedness protocols.

iii. **Floods**: A substantial portion of India's population is situated in flood-prone regions, particularly in the **Ganga-Brahmaputra-Meghna river basin**. **Uttarakhand floods (2013)** and **Kerala floods (2018)** have demonstrated the immense human and economic toll floods can take, especially in terms of displacement and loss of agricultural land. Despite India's focus on flood control infrastructure, improper drainage systems, urban sprawl, and deforestation contribute to the aggravation of the flood risk.

iv. **Droughts**: **Water scarcity** and **drought** are persistent concerns, particularly in the western and southern states like **Maharashtra**, **Karnataka**, **Tamil Nadu**, and **Rajasthan**. In recent years, the failure of monsoon rains and reduced river flow have exacerbated drought conditions, leading to water shortages, crop failures, and migration.

v. **Landslides**: In the **Himalayan and Western Ghats** regions, landslides are a major concern, especially during the monsoon season. These events often result in infrastructure damage, loss of life, and disruption to livelihoods in these hilly regions.

## 1.3 Economic and Social Impacts of Disasters

India's disaster vulnerability is further compounded by its socio-economic landscape. With a population of over 1.4 billion, more than 70% of India's population lives in rural areas, where resources for disaster preparedness are often limited. Vulnerable populations, particularly the poor, marginalized communities, women, children, and the elderly, are disproportionately affected by disasters. These groups often lack access to **early warning systems**, **safe shelters**, **healthcare**, and **livelihood protection** mechanisms.

The economic impact of disasters on India is immense. According to the **National Disaster Management Authority (NDMA)**, India loses approximately **2-3% of its GDP annually** due to natural disasters, with the **floods** alone costing the country about **$1.2 billion** each year. Beyond the immediate loss of life and property, disasters further deepen poverty, destroy critical infrastructure, disrupt supply chains, and severely impact the agricultural sector, a vital source of income for a large portion of the rural population

Japan has emerged as a global leader in disaster management due to its **participatory disaster risk management** approach and **resilient infrastructure models**. By applying the lessons learned from Japan's extensive disaster management experience, India can effectively mitigate disaster risks while fostering community resilience.

### 1.4 Research Objective:

The objective of this study is to develop a comprehensive strategy that enhances India's resilience through community-driven DRR frameworks. The research will:

- Develop community-based resilience frameworks using Japan's participatory approaches tailored to India's socio-cultural diversity.

### 1.5 Scope of Study:

This research will primarily focus on rural and peri-urban areas in India, where the population is highly vulnerable to natural disasters but lacks access to resources for adequate disaster preparedness. The study will also examine successful community-based DRR models from Japan.

# CHAPTER-2 METHODOLOGY

## 2.1 Data Collection

Data Collection process involves both primary and secondary data collection process. However secondary data has been collected from books, reports, brochures, online portals etc. Whereas, primary data collection is more qualitative than quantitative. Qualitative data collection methods include discussions, interviews, open-ended questions, observation, case studies etc. The data for the research is collected from research reports mentioned under the references. Few data and reports were collected from books and journals available at ADRC, Japan during the program and few others have been collected from the internet. And mostly primary data is collected from site visits to relevant areas of study and also from attending lectures of different experts in the relevant field, interaction with experts etc.

## 2.2 Data Analysis

Data analysis is mostly based on literature survey, summary of lectures from the experts, field visits, interaction with experts etc. Data has been analyzed qualitatively and mostly is opinion based. No quantitative method of analysis is applied during the research since the time was limited.

## 2.3 Study Area

Study areas in Japan, relevant to the research topic were selected by ADRC. Special visits to those areas were conducted.

## 2.4 Limitation of the Study

Each of the sites in the study area had so much of DRR information, but to collect all the information in this limited period of 3 months is not possible. Therefore, the research can be considered as a preliminary report of a reconnaissance survey of the study area.

# CHAPTER -3 :- Community-Based Resilience: Conceptual Framework

## 3.1 Definition of Community-Based Disaster Risk Reduction (CBDRR)

Community-Based Disaster Risk Reduction (CBDRR) is an approach to disaster management that places local communities at the centre of disaster risk reduction (DRR) processes. It emphasizes the active involvement of community members in every aspect of disaster risk management, from risk identification to response and recovery. Rather than being a top-down, government-driven process, CBDRR is a bottom-up strategy that recognizes the critical role of local knowledge, resources, and capacity in managing disaster risks effectively.

CBDRR is based on the understanding that communities, particularly those living in high-risk areas, have an intimate understanding of their vulnerabilities, needs, and strengths. They are often the first responders during disasters and possess critical knowledge about local hazards, seasonal patterns, and coping mechanisms. As a result, they are best positioned to contribute to identifying risks, developing mitigation strategies, and participating in disaster response and recovery.

This approach goes beyond simply delivering disaster relief, it focuses on **empowering communities** to take proactive steps toward reducing vulnerabilities and building resilience to future hazards. By prioritizing community involvement, CBDRR can lead to more sustainable and context-specific disaster management practices.

**Key Components of CBDRR**

1. **Risk Assessment and Mapping**: Community members are involved in identifying and assessing local risks, which include environmental, social, and economic vulnerabilities. Local knowledge, including traditional coping strategies, is leveraged to create a detailed map of risks, hazards, and resources.
2. **Capacity Building and Education**: Training community members in disaster preparedness, first aid, evacuation procedures, and safe construction techniques is a key aspect of CBDRR. Education empowers individuals to not only protect themselves but also assist their neighbors in times of crisis.
3. **Disaster Response and Recovery**: In CBDRR, communities play an active role in the response and recovery process. This includes mobilizing local resources, such as shelters and food supplies, and participating in recovery efforts to rebuild homes and infrastructure.

Community-Based Disaster Risk Reduction (CBDRR) is a people-centered approach to disaster management that involves the community in identifying risks, developing strategies for mitigation, and implementing disaster response and recovery efforts. This approach recognizes that local communities have critical knowledge about their risks and should therefore play an active role in DRR efforts.

## 3.2 Developing Community-Based Resilience Frameworks Using Japan's Participatory Approaches

Japan is one of the disaster-prone countries that has keenly promoted community-based DRR. The 2013 revised Disaster Countermeasures Basic Act introduced a new system of Community Disaster Management Plans. Every community is encouraged to create a plan. Japan has a policy framework of public help [kojo], self-help [jijo] and collaborative help [kyojo], which emphasises the importance of balancing the three.


*Figure 2 " Three Interconnected elements : Jijo, Kojo and Kyojo"*

Since the devastating experience of the 2011 Great East Japan Earthquake and Tsunami, policymakers and experts have stressed the tripartite framework even more in preparing for forthcoming disasters . One of the key measures has been the system of Community Disaster Management Plans. Aiming for a collaborative model for DRR, the system enables community residents to participate in the process of developing a plan, together with the municipal government disaster management council. The government has offered subsidies and expertise to support communities in creating plans .

Japan has long been at the forefront of disaster risk reduction (DRR), owing much of its success to a robust, **participatory disaster risk management (PDRM)** approach. This framework emphasizes the importance of **community involvement**, where local populations are not just passive recipients of aid but active participants in the planning, implementation, and evaluation of disaster risk reduction activities. The participatory approach has been instrumental in Japan's ability to recover quickly from disasters and build resilience in the face of frequent natural hazards such as earthquakes, tsunamis, and typhoons.

In Japan, community-based disaster risk reduction (CBDRR) is not merely a theoretical concept but a well-established practice embedded in local and national disaster management strategies. The **Disaster Prevention Leaders** initiative, **local volunteer organizations**, and **community-level disaster preparedness drills** serve as prime examples of the participatory

approach in action. This framework can provide valuable lessons for other disaster-prone country, like India, where localized resilience building is a critical need.

## 3.3 Disaster Reduction Activities of Citizens

### 3.3. a Awareness Raising and Knowledge Promotion on Disaster Reduction

Promotion of Efforts for Disaster Reduction :- In order to improve the disaster resilience of the community and to reduce disaster damages, there must be close cooperation among individuals, families, local community, businesses and relevant entities, to build momentum for a nationwide movement. The Government has designated the 1st day of September as the "Disaster Preparedness Day" and the week including this day as the Disaster Preparedness Week and carries out various events to raise awareness and readiness about the disaster. Disaster drills and promoting events are held in various parts of Japan.

In 2011, the Act on Promotion of Tsunami Countermeasures was enacted, and November 5th was designated as the "Tsunami Preparedness Day." In the 70th UN General Assembly, November 5th was designated to be the "World Tsunami Awareness Day."


*Figure 3:November 5th is the Tsunamii Preparedness Day*

### 3.3. b Education about Disaster Reduction: -

Education for disaster risk reduction is quite important for enabling individuals to have correct understanding about natural disasters and be able to act on their discretion to prevent and reduce damages from a disaster. In the Great East Japan Earthquake, a case of an elementary school was reported to have safely evacuated based on their daily education of the past disasters and training about evacuation. Thus, it is important to enhance education for disaster risk reduction at schools and in local communities so that people are nurtured to be equipped with correct understanding about disaster awareness. The Cabinet Office implements "Disaster Reduction Education Challenge Plan" to nurture a positive environment for more proactive disaster reduction education by picking up active local groups, schools and individuals who demonstrated better disaster reduction plans and actions, give support to them, and publicize their achievements, through the web site, intending that such plans and programs be widely recognized and utilized throughout the nation. Also, the Cabinet Office and the Council for Promoting Disaster Risk Reduction implement the award for posters with the aim of further raising awareness of disaster prevention and reducing disaster damage by soliciting poster designs related to disaster prevention from the general public. In addition, the Ministry of

Education, Culture, Sports, Science and Technology has enhanced contents regarding disaster reduction in the new Curriculum Guidelines announced in 2017/2018. For example, during social studies for fourth grade in elementary schools, local natural disasters that happened in the past are introduced, and students learn to think about what they should do and what items should be prepared by imagining about a disaster that could happen locally. Further improvement with disaster management education is promoted through development of materials such as "Guide to Make a Disaster Reduction Manual for Schools (Earthquake and Tsunami)," and "Development of a Disaster Reduction Education to Nurture Power to Live On," providing guidance for disaster reduction at schools. Moreover, Fire and Disaster Management Agency offers an online program called "Disaster Reduction / Crisis Management e-College" on the web, directed to local residents, professional / voluntary firefighters and local government employees, to enhance community disaster resilience. Also, a textbook for school teachers and leaders "Challenge! Disaster Prevention 48" has been compiled in order for school children to be able to learn and acquire knowledge and practical skills about disaster reduction. In these ways, An environment is being created to independently engage in disaster reduction education in each region and school

**3.3. c Transmission of the lessons learned from generation to generation** :-

In the Great East Japan Earthquake, a case of a village resident who escaped the tsunami disaster as the house was built in the area higher than a stone monument on which the inscription read "Do not build a house lower than this point". With such lesson in mind, the Basic Act on Disaster Management was revised to make it an obligation of local residents to record and transcend lessons from disasters experience. Further, in Kobe City, Hyogo Prefecture, "Disaster Reduction and Human Renovation Institution" was established in memory of the Great Hanshin-Awaji Earthquake, and is engaged in activities to pass the lessons from the Earthquake disaster on to the younger generations through reproduction of the big Earthquake by audio-visual and model construction.

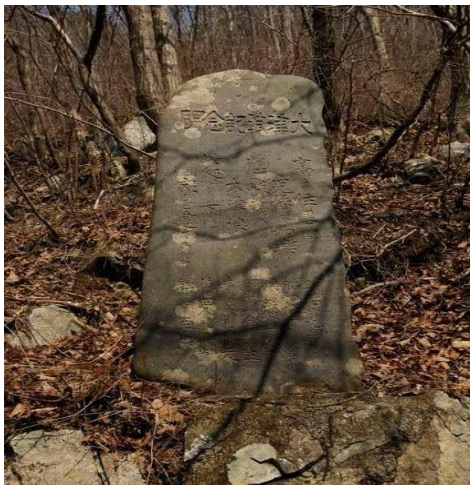

*Figure 4Tsunami Stone" are ancient warnings written on stone tablets, some over 600 years old, that lie along the northeast coast of japan. After a tsunami struck Aneyoshi in 1933, residents moved uphill of a stone they placed that reads " Do not build your home"*

*Figure 5 "Monument of Showa-sanriku earthquake in 1933" it shows - Need caution when you feel earthquake, Need to escape to height place when tsunami coming, Do not construct house in low place.*

### 3.3. d Community Involvement in Risk Identification and Assessment :-

One of the pillars of Japan's participatory approach is the active involvement of local communities in **risk identification** and **assessment**. In disaster-prone areas across Japan, communities are empowered to identify hazards, assess vulnerabilities, and pinpoint resources and strategies for risk reduction. This process often involves collaborative **community mapping** of local hazards such as flood zones, earthquake-prone areas, or areas vulnerable to landslides. The **"hazard maps"** developed through these community efforts provide an essential tool for understanding local risks and form the basis for disaster preparedness plans. These maps are accessible to the general public and are used in training sessions, evacuation drills, and disaster simulations. By involving local communities in these processes, Japan ensures that disaster management strategies are **tailored to local needs**, reflecting the unique characteristics of each area.

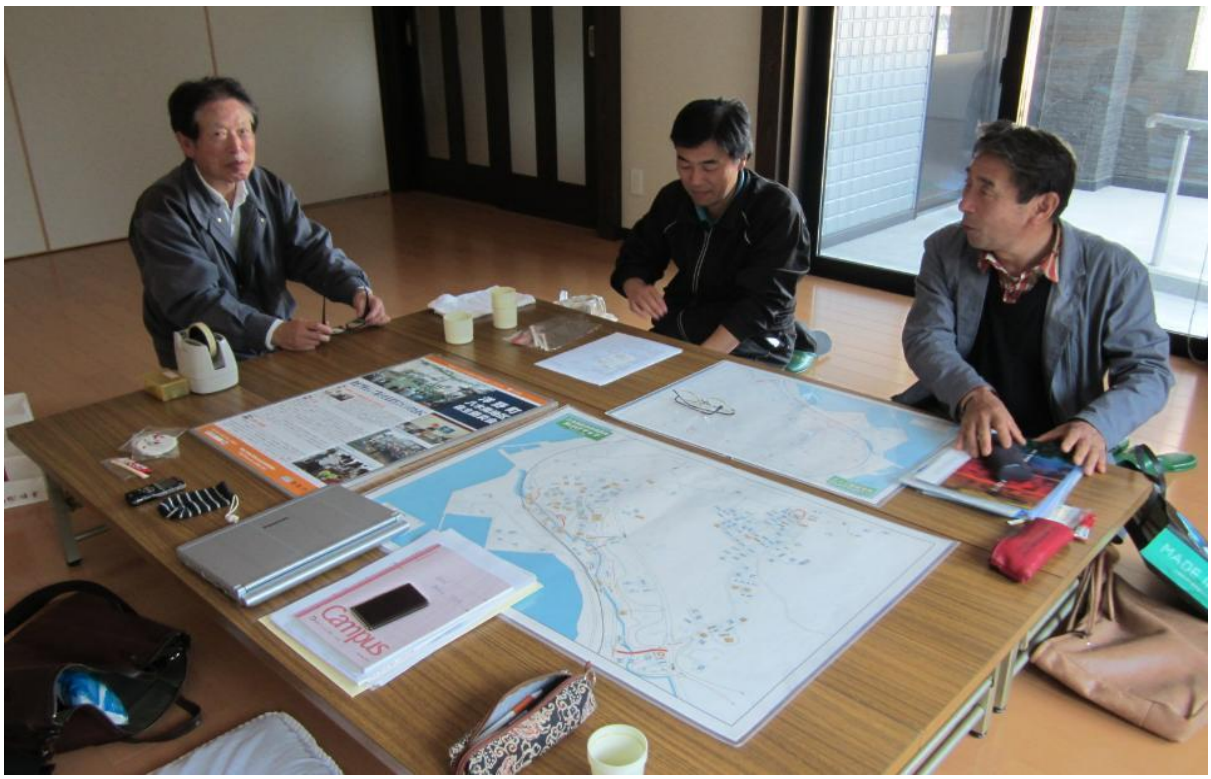


*Figure 6:Community leaders making disaster management plan*


*Figure 7 "Disaster Management Map"*

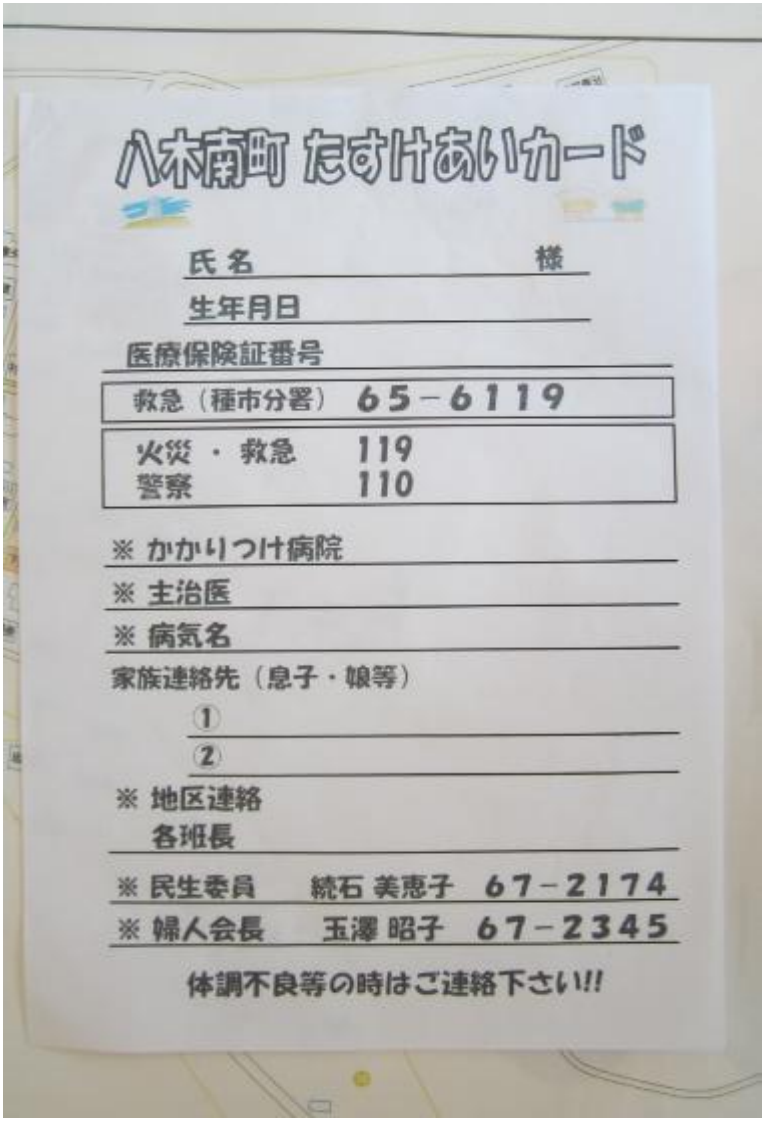


*Figure 8 "Mutual Aid Card"*

### 3.3. e Local Disaster Management Plan for elder people and persons with disabilities:-

Local governments in Japan are responsible for preparing and implementing disaster response plans, and they must tailor these plans to support elderly people and people with disabilities. Some key actions at the local level include:

- **Elderly and Disabled Person Registries**: Many local governments maintain registries of elderly people and individuals with disabilities to ensure they receive priority assistance during evacuations and other emergency responses. These registries are updated regularly and include information on the specific needs of individuals, such as mobility assistance, medical conditions, or specialized care requirements.

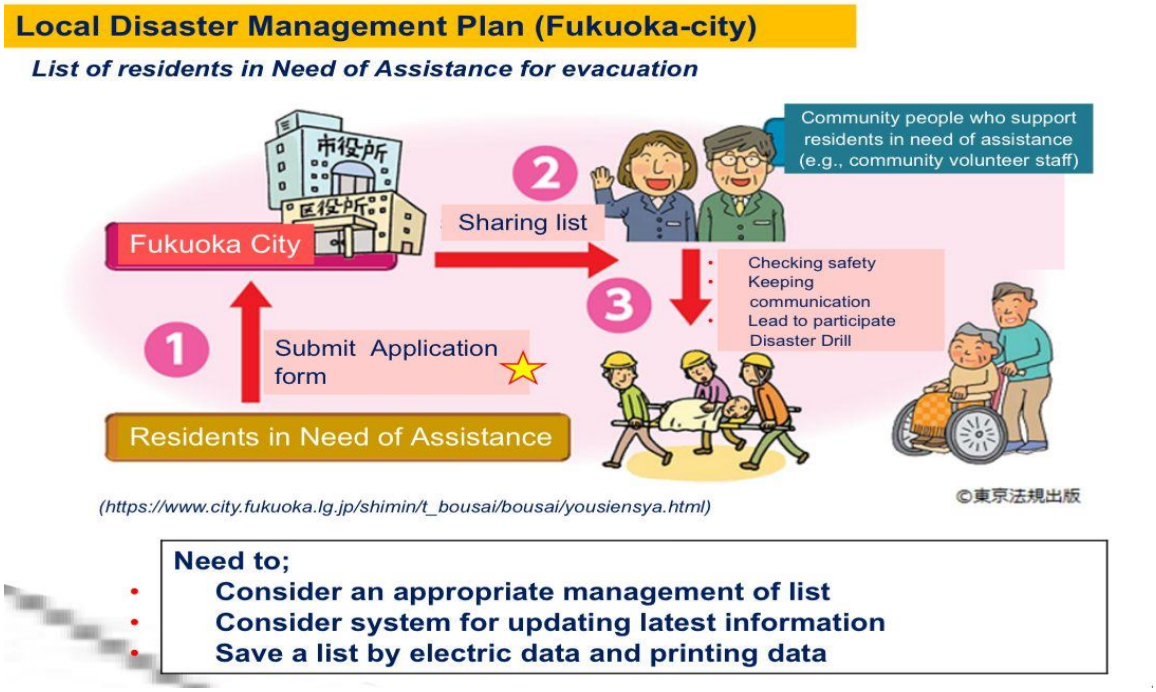


*Figure 9"Local Disaster Management Plan (Fukuoka- city)"*

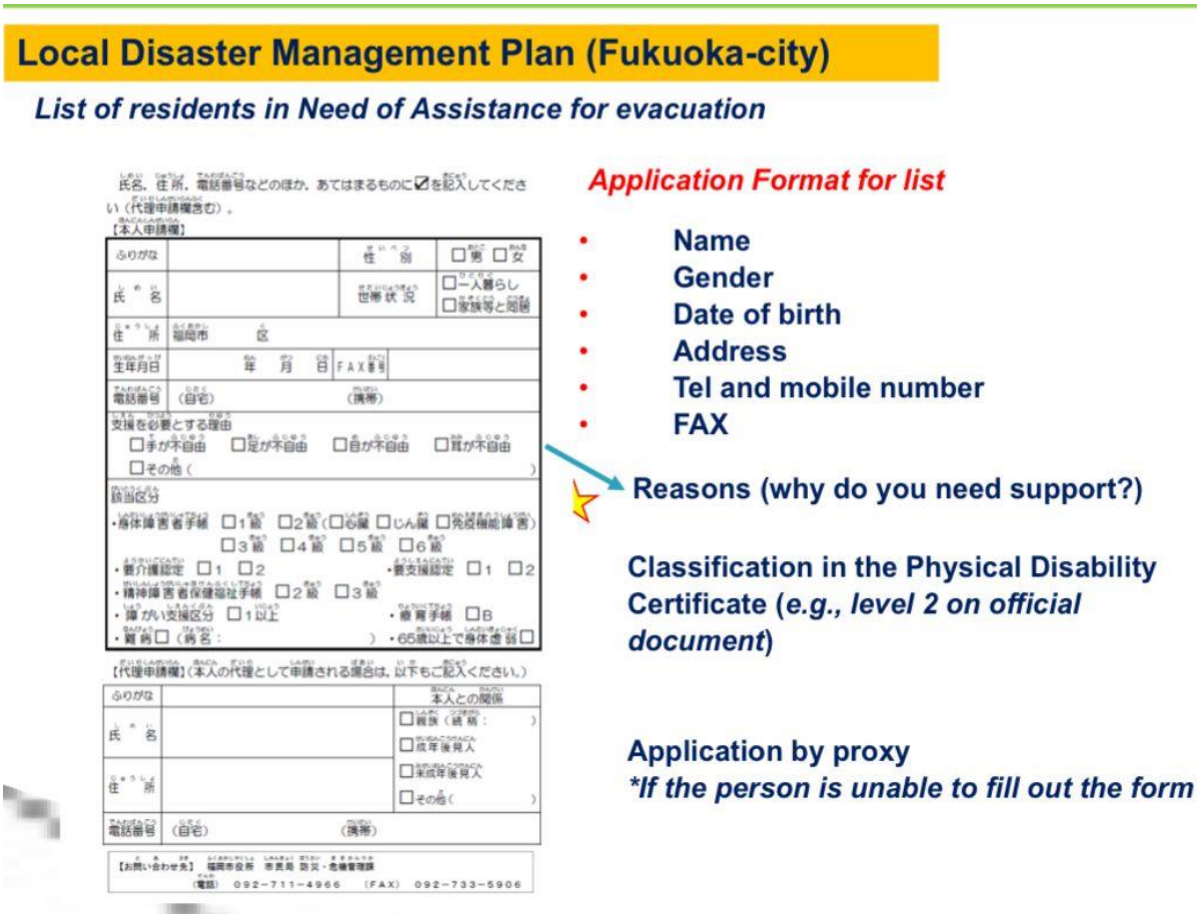


*Figure 10"Application Format for residents in need of assistance for evacuation"*


*Figure 11 "Disaster Drill with elderly peoples and persons with disabilities"*

- **Evacuation Support Centers**: These are designated shelters that provide extra support to vulnerable groups. They are equipped with accessible facilities, such as ramps, accessible toilets, and staff trained in supporting elderly and disabled individuals.
- **Disaster Shelters**: Shelters are adapted to accommodate people with disabilities. These shelters may offer specialized rooms, medical care, or extra assistance with mobility.
- **Community Volunteers**: Volunteer programs often mobilize trained citizens to assist elderly and disabled people during evacuations, and to provide aid in shelters. Volunteers receive specialized training on how to provide care and assistance during emergencies.

### 3.3. f Iza! Kaeru Caravan! :-

It is an innovative disaster prevention education event in Japan that combines local disaster drills with a unique toy exchange bazaar called **Kaekko Bazaar**, created by artist Hiroshi Fuji. Launched in 2005, the event aims to teach children about disaster preparedness in a fun and engaging way, making it a continuation of play rather than a formal lesson. Children participate in hands-on disaster drills, learning essential skills for responding to hazards like earthquakes and floods, while also exchanging toys in the Kaekko Bazaar, which promotes sharing and community-building. Held nationwide with the support of various enterprises and organizations, this event fosters **community awareness** and **engagement** by bringing together local residents, businesses, and organizations. It emphasizes the importance of **social cohesion** and collective action in disaster preparedness, ensuring that disaster risk reduction becomes a shared responsibility. Through interactive play and community participation, "Iza! Kaeru

Caravan!" helps instill a culture of **disaster preparedness** in the younger generation, making it an integral part of community life while reducing fear and fostering resilience.

*Figure 12"Children using virtual reality to enhance their understanding of disaster risks."*

*Figure 13" Children learning how to properly use a fire extinguisher as part of a disaster safety training"*

*preparedness"*

### 3.3. g A Study of Museums and Educational Spaces in Japan :-

In Japan, museums dedicated to disaster prevention and education serve as vital spaces for the public to understand the impact of disasters and how to respond. Here are some notable disaster-related museums:

**Kobe Earthquake Memorial Museum (Hyogo Prefecture)**

Located in Kobe, this museum is dedicated to the Great Hanshin-Awaji Earthquake that struck in 1995. The museum showcases the impact of the disaster on the city and its people. It offers detailed exhibits on the event, including survivor testimonies, photographs, and artifacts. There is also an earthquake simulator that allows visitors to experience the tremors of a major earthquake, helping to raise awareness about earthquake preparedness.

**The Tōhoku Earthquake and Tsunami Memorial Museum (Miyagi Prefecture)**

This museum in Ishinomaki, Miyagi Prefecture, was created to commemorate the 2011 Tōhoku Earthquake and tsunami. It educates visitors about the devastation caused by the disaster, focusing on the resilience of the community. The museum features powerful exhibits, including photos and videos of the tsunami, the personal experiences of survivors, and the ongoing recovery efforts. It also provides a space for reflection on disaster prevention.

**Disaster Reduction and Human Renovation Institute (Kobe)**

While not a traditional museum, this facility, located in Kobe, serves as a major center for disaster education. It was established after the 1995 Great Hanshin-Awaji Earthquake and focuses on the lessons learned from the disaster. The museum includes exhibits about seismic activity, earthquake engineering, and disaster recovery. It also has a life-sized earthquake simulator to demonstrate the effects of seismic shaking.

**The Great East Japan Earthquake Memorial Museum (Fukushima Prefecture)**

This museum, located in the city of Fukushima, focuses on the aftermath of the 2011 Great East Japan Earthquake and the associated nuclear disaster at Fukushima Daiichi. It offers educational displays about the earthquake, tsunami, and the nuclear crisis, and includes survivor stories and testimonies. The museum also offers resources about disaster preparedness and the importance of building resilience in communities.

**Tokyo Rinkai Disaster Prevention Park**

Although not a traditional museum, this facility in Tokyo has a museum-like experience dedicated to disaster prevention and preparedness. It includes exhibitions on earthquake risk and tsunami, as well as interactive learning tools, such as earthquake simulators and evacuation drills. The park is designed to raise awareness of disaster risk reduction and train people on how to prepare for natural disasters.

These museums and institutions play an important role in educating the public about the realities of disaster risks, survival strategies, and the importance of preparedness. They offer immersive experiences that help visitors understand the science behind natural disasters and the human response, ensuring that lessons from past events are not forgotten.

## 3.4 Improvement of Environment for Disaster Volunteer Activities :-

With the Great Hanshin-Awaji Earthquake, there was an outpouring of 1.37 million volunteers for assistance activities, from both within and outside the afflicted areas. Lots of volunteers have rushed to aid and comfort the victims and assist in the recovery and reconstruction of disaster-stricken regions. However, in recent years, disasters are becoming larger in scale and wider in area, and various actors such as NPOs and businesses are participating in the support. This has made apparent the difficulty of coordination and adjustment between different actors. In light of this, in the Torrential Rain of September 2015 in the Kanto and Tohoku Regions, the necessity for an intermediary organization that coordinates volunteer activities of groups such as NPOs were emphasized.

In 2016, the Japan Voluntary Organizations Active in Disaster (JVOAD) was founded as the nationwide intermediary organization that coordinates and supports the activities of varying actors such as NPOs and volunteers. In the 2016 Kumamoto Earthquake, to facilitate support measures with good coordination among the supporting actors for affected people including governmental bodies, volunteers and NPOs, an information meeting was held to share information such as location where support activities are operating and the type of support provided. It is now becoming the norm to coordinate between the various supporting actors. The government has encouraged this through improving the infrastructure for smooth support activities for the affected by volunteers. For example, a workshop promoting the collaboration between the government, volunteers and NPOs for the support activities was hosted. Also, expertise has been shared with local governments and disaster volunteer centers were provided with financial assistance

### 3.4 a BOKOMI

BOKOMI short for Bōsai Community (防災コミュニティ), refers to community-based disaster prevention organizations in Kobe, Japan that play a vital role in Community-Based Disaster Risk Reduction (CBDRR) efforts. These organizations are typically formed at the neighborhood or district level, involving residents, local leaders, and sometimes businesses to enhance preparedness, response, and recovery during disasters such as earthquakes, tsunamis, typhoons, and floods. BOKOMI's key functions include conducting regular disaster preparedness training, such as evacuation drills and first aid workshops, coordinating emergency response activities, managing temporary shelters, and developing community-specific disaster management plans through risk assessments and hazard mapping. They also focus on fostering strong community ties, which are crucial for mutual aid during emergencies, and work closely with municipal governments, fire departments, and the Japan Self-Defense Forces (JSDF) in large-scale disasters. The importance of BOKOMI was especially evident during the Great Hanshin-Awaji Earthquake (1995) and the Great East Japan Earthquake (2011) when immediate rescue efforts were often carried out by neighbors. However, BOKOMI faces challenges such as an aging population, sustaining long-term community engagement, and integrating modern technologies like early warning systems and GIS mapping. Despite these challenges, BOKOMI exemplifies Japan's disaster management

philosophy of “self-help, mutual help, and public help” (自助・共助・公助), making it a critical component of national resilience and a model for CBDRR globally.

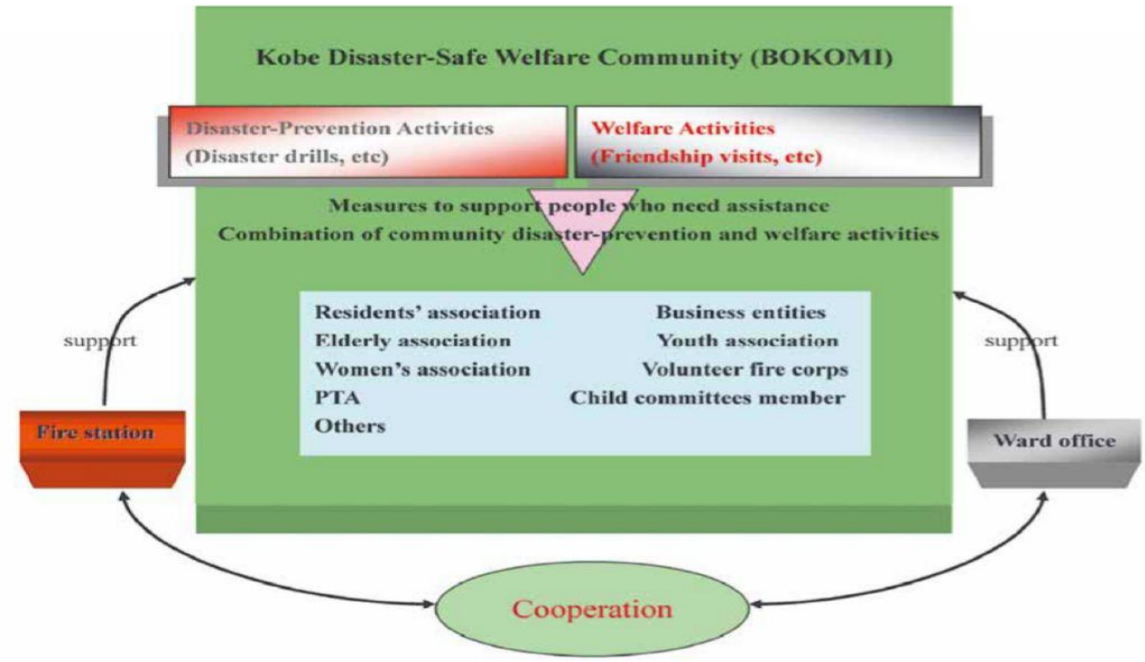


*Figure 14Kobe Disaster- safe Welfare Community (BOKOMI)*

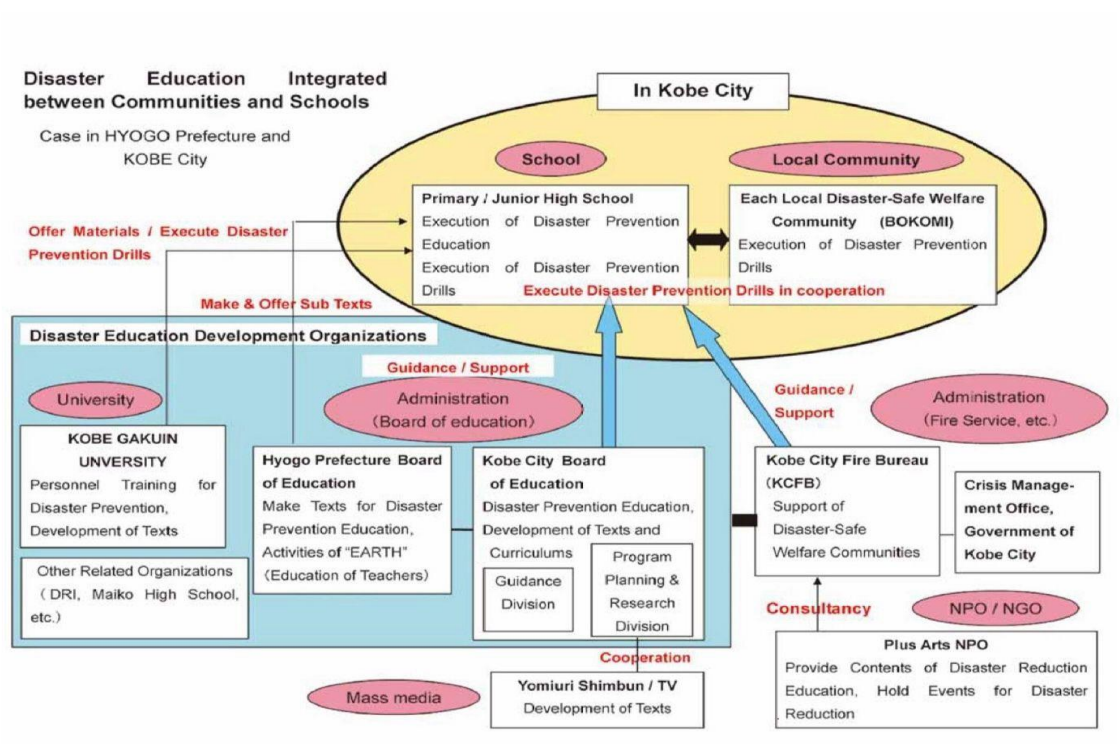


*Figure 15"Disaster Education Integrated between Communities and Schools"*

### 3.5. a Promotion of Business Continuity Plans (BCP) :-

The Business Continuity Plan of Central Government (Measures against Tokyo Inland Earthquake) stipulates the executive systems and work environment essential to continue the governmental services smoothly in the event of the Tokyo Inland Earthquake occurring and in case the political, administrative and economic core functions may be seriously affected by the Earthquake. Regarding the executive system, the Plan stipulates that, upon the Tokyo Inland Earthquake occurring, government staff including those in charge of the administrative management gather at the central government buildings and stay there for a week to continue the emergency priority operations in rotation, so that such emergency priority operations will be smoothly carried out. With regard to the work environment, it stipulates that the government buildings be constructed to be earthquake resistant with a work environment to continue the emergency priority services and administrative work in case of emergency. Based on this Plan, central government ministries and agencies shall revise the business continuity plans of each ministry and agency, identify services that need to be continued under their responsibility in case of emergency as the emergency priority operations, and they work out a system and environment necessary to carry those out. It is planned that those business continuity plans developed by respective ministries and agencies be reviewed and evaluated by experts, and that these plans as well as the Plan itself be revised based on the result of such evaluation. In the same manner, the systems for business continuity of local governments in the event of a large- scale disaster are being developed and the Government is to give support to them by way of formulating guidelines.

### 3.5. b Encouraging the Evaluation of Corporate Disaster Reduction Activities :-

For private enterprises, recognizing the role of companies in the event of a disaster (ensuring the safety and security of employees, preventing secondary disasters, maintaining business continuity, contributing to and living in harmony with local communities) and working to promote disaster management activities is of crucial importance. To encourage companies to engage in disaster management activities, markets and local communities must give appropriate recognition to enterprises that take an active part in these activities. The government is disseminating information for this purpose. It has prepared a self-evaluation table entitled “Business Measures for Disaster Management,” as well as “Disclosure on Disaster Management Measures: Explanations with Cases.” Using an evaluation system based on the items in the self-evaluation table, the Development Bank of Japan (DBJ) has developed a lending facility with a rating system for operations that promote disaster management. The DBJ is implementing this system as an incentive to encourage companies to conduct disaster management activities

# CHAPTER – 4 LESSONS LEARNED

Japan's experience in disaster recovery, particularly in the wake of the Kobe Earthquake (1995) and the Tohoku Earthquake and Tsunami (2011), offers critical lessons for India's disaster management framework. Given India's vulnerability to various natural disasters—earthquakes, cyclones, floods, and landslides—integrating community-based approaches into disaster risk reduction (DRR) is imperative. The following key lessons from Japan's experience can help India strengthen its CBDRR efforts:

1. **Strengthening Community Participation in Disaster Management**

Lesson from Japan:

Japan's community-based organizations, such as BOKOMI in Kobe, played a crucial role in immediate response and recovery after the Kobe Earthquake (1995). These groups, composed of local residents, were already trained in emergency response, first aid, and evacuation procedures, enabling them to act quickly before external help arrived.

Application for India:

India can institutionalize Community Disaster Management Committees (CDMCs) at the local level, similar to Japan's participatory model. These committees should include local volunteers, trained disaster response teams, and school-based disaster clubs to enhance preparedness at the grassroots level. Regular community drills and mock exercises should be promoted in disaster-prone areas to strengthen self-help and mutual aid capacities.

2. **Integrating Early Warning Systems and Community Preparedness**

Lesson from Japan:

Japan's advanced early warning systems and well-established evacuation plans significantly reduced casualties during the 2011 Tohoku Earthquake and Tsunami. The integration of real-time alerts with community-based evacuation plans ensured a rapid response.

Application for India:

India needs to enhance its early warning dissemination, especially for cyclones, floods, and tsunamis. The existing Early Warning Dissemination System (EWDS) in coastal states like Odisha and Andhra Pradesh should be expanded nationwide. Moreover, disaster-prone villages should develop localized evacuation plans and identify safe shelters to ensure swift community action when warnings are issued.

**3. Enhancing Infrastructure for Disaster Resilience**

Lesson from Japan:

Japan's investment in resilient infrastructure played a crucial role in mitigating the impact of disasters. For example, Japan's advanced seismic engineering in buildings and bridges, as well

as flood barriers in vulnerable areas, significantly reduced the damage caused by earthquakes and tsunamis.

Application for India

**India** should prioritize building disaster-resilient infrastructure, especially in earthquake-prone, coastal, and flood-prone regions. This includes strengthening buildings, roads, and bridges to withstand natural hazards, as well as implementing flood management systems and earthquake-resistant construction practices. Additionally, retrofitting older structures and promoting resilient urban planning can reduce vulnerability and ensure quicker recovery during disasters.

4. **Encouraging Local Knowledge and Traditional Practices for Risk Reduction**

Lesson from Japan:

In coastal areas of Japan, historical knowledge plays a key role in disaster preparedness. The presence of Tsunami Stones—ancient markers warning against building houses below certain points—has saved communities from destruction.

Application for India:

India has a wealth of indigenous knowledge in disaster preparedness. For example, traditional flood-resistant housing techniques in Assam (Chang Ghar) and coastal cyclone shelters in Odisha need to be preserved and integrated into modern planning. Documentation of traditional wisdom and its inclusion in local disaster management strategies can significantly enhance resilience.

5. **Enhancing Volunteer and NGO Coordination for Disaster Response**

Lesson from Japan:

After the Great Hanshin-Awaji Earthquake (1995), Japan saw the rise of volunteer networks that played a crucial role in relief and recovery efforts. The Japan Voluntary Organizations Active in Disaster (JVOAD) was later established to coordinate NGOs, volunteers, and government agencies effectively.

Application for India:

India should strengthen its volunteer coordination by formalizing a national platform similar to JVOAD. The National Disaster Response Force (NDRF) and State Disaster Response Forces (SDRFs) should collaborate more closely with local NGOs and self-help groups to streamline relief efforts and ensure efficient resource distribution during crises.

6. **Developing and Enforcing Business Continuity Plans (BCPs)**

Lesson from Japan:

Japanese businesses are required to develop Business Continuity Plans (BCPs) to ensure that critical services remain operational during disasters. The government also conducts evaluations and incentivizes companies that adopt disaster risk management measures.

Application for India:

India's corporate sector should be encouraged to develop BCPs, particularly in industries prone to disruptions from disasters (such as IT, manufacturing, and logistics). The government can introduce incentives for companies that implement DRR measures and conduct resilience training for employees.

7. **Fostering a Culture of Mutual Aid and Social Cohesion**

Lesson from Japan:

Japan's Kojo, Jijo, Kyojo framework—Public Help, Self-Help, and Mutual Help—has been instrumental in building resilience. It emphasizes that while government support (public help) is critical, individuals and communities must also take responsibility for their own preparedness.

Application for India:

India can integrate the Kojo, Jijo, Kyojo philosophy into national disaster policies by promoting self-sufficiency at the household level and encouraging neighborhoods to form mutual aid groups. Strengthening Panchayati Raj Institutions (PRIs) and local governance bodies in disaster planning can foster community-driven resilience

8. **Establishment of Registries for Vulnerable Groups**

Lesson from Japan:

In Japan, local governments maintain detailed **registries** of elderly people and individuals with disabilities to ensure they receive priority assistance during evacuations and emergency responses. These registries are regularly updated and include information on specific needs such as mobility assistance, medical conditions, and care requirements.

Application for India:

India should implement similar **local registries** to identify and track elderly and disabled individuals, particularly in disaster-prone areas. This will help local authorities prioritize their needs during emergencies, ensuring timely evacuation and assistance. Furthermore, these registries should be updated regularly to reflect any changes in individuals' circumstances and needs.

9. **Public Awareness Campaigns and Inclusive Drills**

Lesson from Japan:

Japan conducts regular **disaster preparedness drills** that involve vulnerable populations such as the elderly and persons with disabilities. These drills ensure that individuals know how to evacuate safely and understand the emergency procedures.

Application for India:

India should organize **inclusive disaster preparedness drills** involving elderly individuals, persons with disabilities, and their caregivers. These drills should teach them how to evacuate safely, use accessible shelters, and understand emergency procedures. Additionally, public awareness campaigns should be launched to educate elderly and disabled populations on basic disaster preparedness measures and what assistance is available to them during an emergency.

10. **Community Based Hazard Mapping**

Lesson from Japan:

Japan actively involves local communities in mapping disaster risks, creating hazard maps for floods, earthquakes, and landslides. These maps are publicly accessible and integrated into disaster preparedness plans.

Application for India:

India can adopt community-led hazard mapping in high-risk areas like Uttarakhand, Himachal Pradesh, Assam, and coastal regions, ensuring local participation in identifying vulnerabilities and strengthening disaster preparedness at the grassroots level.

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