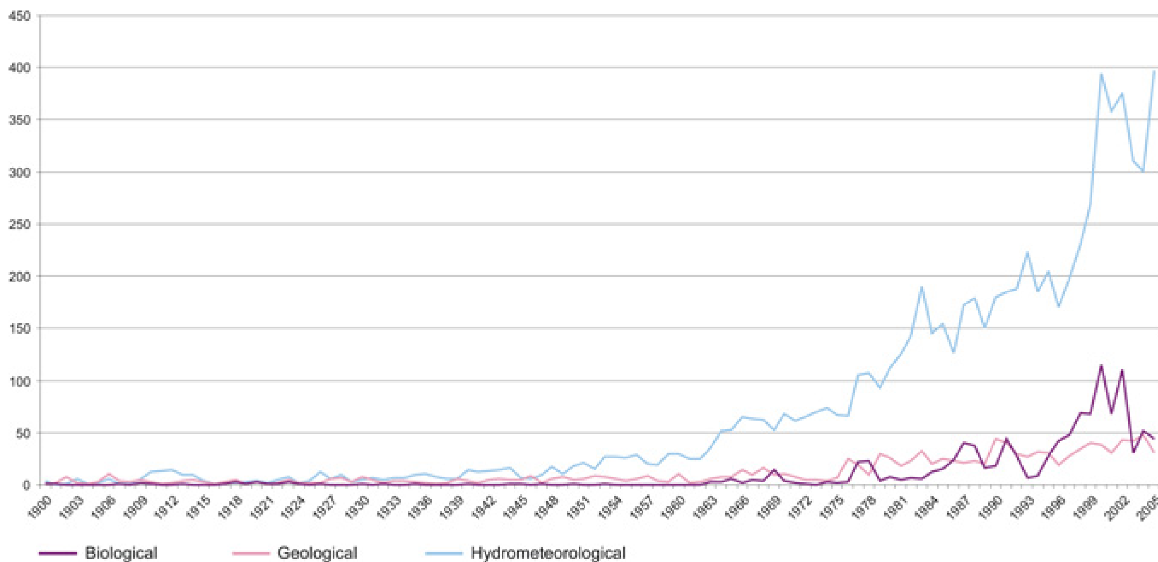
Part 1. Global ageing and emergencies: the convergence of two trends.

The world is rapidly ageing: the number of people aged 60 and over as a proportion of the global population will double from 11% in 2006 to 22% by 2050. By then, there will be more older people than children (aged 0-14 years) in the population for the first time in human history. Developing countries are ageing at a much faster rate than developed countries: within five decades, just over 80% of the world's older people will be living in developing countries compared with 60% in 2005. *(1)* South East Asia is one such region where the population is ageing rapidly. 8% of the population was 60 years or older in 2006, but this number is expected to rise to 23% by 2050. (UN - World Population Ageing)

Crises caused by natural disasters and armed conflict have been a constant part of human history. Yet in recent years, the world has seen an unprecedented number of natural disasters. This increase is due to human-induced changes to the global climate such as the recent rapid increase in population size, energy consumption, and natural resource depletion. According to the International Panel on Climate Change, global warming has been linked to more extreme weather conditions such as intense floods and droughts, heavier and more frequent storms, and fatal heat waves. *(2)*

Fig. 1. Number of Natural Disasters Registered in EMDAT 1900-2005



Source: EM-DAT : The OFDA/CRED International Disaster Database. http://www.em-dat.net, UCL - Brussels, Belgium

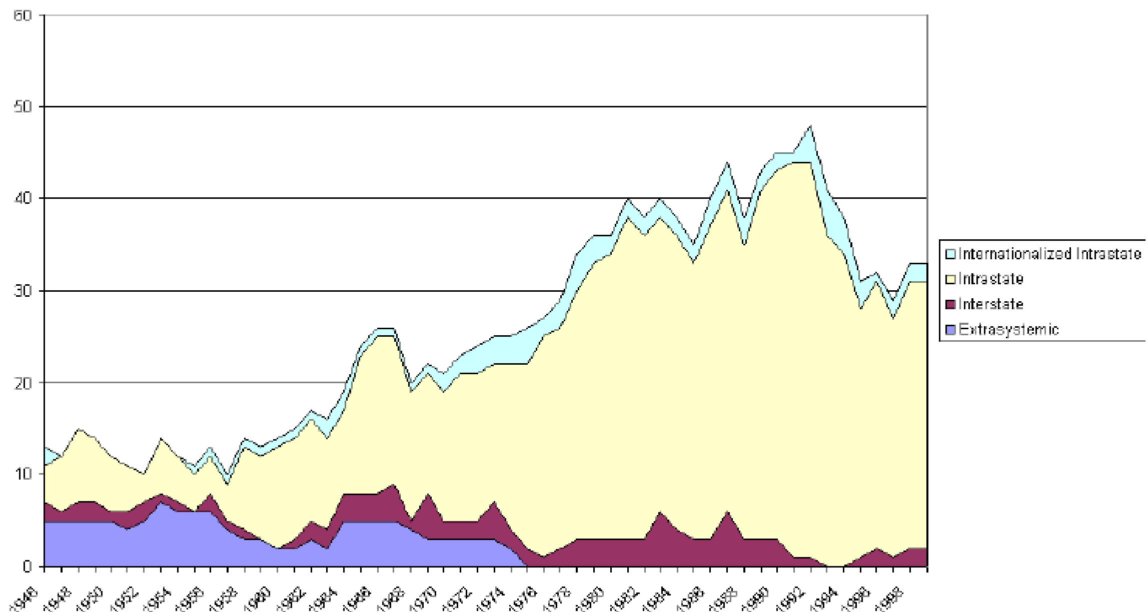
Between 1994 and 2003, over 225 million people were affected by natural disasters globally each year. During the same period, these disasters claimed an average of 58,000 lives annually. (Guha-Sapir et al, 2004). From International Workshop on Emergency Preparedness for Seniors

Fig. 2. Number or People Reported Killed by Natural Disasters
1991-2005

Source: EM-DAT : The OFDA/CRED International Disaster Database.
http://www.em-dat.net, UCL - Brussels, Belgium

The man-made crises of armed conflict, civil unrest and refugee movement are also taking an increasing toll on the population. Apart from direct deaths on the battlefield, man-made crises also pose health threats by disrupting health and social service systems, displacing people from their homes and increasing disease risk. However, recent trends in conflict can be characterized by two major developments. The first is the trend away from well-structured conflicts between States and towards chaotic violence within the territory of the classic State entity. The second is the growing tendency to target civilians. The result is an increase in suffering and casualties among the civilian population. (3). Fig. 3. illustrates the shifts in conflict types.

Fig. 3. Number of Armed Conflicts, All levels, by Type 1946-1999



Source: Armed Conflict 1946-2001: A New Dataset
GLEDITSCH et al. Journal of Peace Research.2002; 39: 615-637 *(4)*

The convergence of crises and natural disasters with global population ageing means that more older persons will be affected by emergencies than ever before. South East Asia is a key region to be alerted to because its rapidly ageing population and its susceptibility to natural disaster. Older persons may be particularly vulnerable during emergency situations: when their normal supports are disrupted, mild impairments and chronic diseases can become severe illness and disability.

Until recently, the needs and priorities of older persons in disasters and conflicts were encompassed within broader adult emergency health management *(5)*. However, recent emergencies have highlighted the vulnerability of older persons and a need for focused emergency management. Of the 14,800 deaths in France during the 2003 heat wave, 70% were of people over 75 years. Of the 1,330 people killed during Hurricane Katrina, the vast majority were older persons: in the state of Louisiana, 71% of the persons killed as a result of the hurricane were over 60 years.

Other crises such as environmental emergencies or man-made crises such as violent conflict, civil unrest and refugee movements also differentially affect older persons. As armed conflict increasingly affects civilian populations, older persons may be displaced from their homes, be disconnected from health care and livelihood and lose their family supports and livelihoods. In 2005, approximately 2.7 million people over 60 years were living as refugees or internally displaced persons.

However older persons should also be acknowledged as resources and contributors during times of crisis. Their years of experience often make them examples of resilience. They often rise to provide voluntary services of aid, care for grandchildren or neighbors, and participate in support or recovery initiatives. Consulting older persons will be valuable in planning for emergencies.

The challenge will be to minimize the damage suffered by older persons and to help them maintain or recover the highest possible level of health and functional capacity. This challenge requires emergency management measures that will include older persons as both contributors and benefactors.

References.

1. Global Age-friendly Cities: A Guide. WHO
2. Campbell-Lendrum D, Corvalán C, Neira M. Global climate change: implications for international public health policy. *Bulletin of the World Health Organization,* 2007, 85 (3).
3. Domestici-Met M. One hundred years after The Hague, 50 years after Geneva - international humanitarian law in an age of civil war. *International Review of the Red Cross*, 1999, 834:277-301.
4. GLEDITSCH et al. Armed Conflict 1946-2001: A New Dataset. *Journal of Peace Research,* 2002, 39: 615-637
5. Hutton, D. *Older People in Emergencies: A Framing Document for Policy and Program Development*. Public Health Agency of Canada, 2006.

Part 2. Basic elements of emergency management and the Active Ageing guide

The magnitude of human suffering caused by major emergencies, disasters and other crises is staggering. People's health, security, livelihood, housing, and access to food and water can all be affected. Though many emergency events are unpredictable, in their timing if not their likelihood, much can be done to prevent and minimize their effects through preparedness. By having an emergency management plan, communities at risk can strengthen their response capacity thus saving lives and reducing suffering.

Emergency management can be divided into three phases: Preparedness, Response and Recovery.

Preparedness:
Preparedness refers to those policies, strategies and programmes developed and implemented to prevent or minimize the adverse affects of a disaster. In general this includes locating human settlements away from areas of high risk, building more resistant structures, identifying the populations and areas most at risk in the community, developing and sharing warning and response plans involving government and non government services and the community, different sectors, storing aid supplies and identifying, constructing and equipping safe shelters. Training health care providers, emergency workers and volunteers is also an essential element to preparation. Emergency response personnel must be able to assess and prioritize needs and take appropriate measures when disaster strikes. In the case of older persons, preparedness includes such measures as promoting visibility and awareness of their needs and developing guidelines, tools and practices to ensure appropriate and equitable health care and access to humanitarian relief programs.

Response:
The response phase includes those activities and procedures designed to minimize the immediate impacts of a disaster or humanitarian crisis. Typically, the immediate focus after a crisis is on evacuation; treatment of injuries; providing shelter, food and water, and preventing of infectious disease. This should include the implementation of procedures developed during the emergency preparedness phase which aim to protect the health and safety of older people.

Recovery:
Recovery focuses on the development of mid and long-term post-emergency plans, structures and policies. This may be directed at meeting continuing health care needs of older people, restoring housing, re-settling and re-establishing their roles in society.

The three phases of emergency management are interrelated such as each phase contributes to the next. Good preparation leads to effective response and recovery. Good recovery leaves individuals and societies better prepared for future events.

Strengthening emergency preparedness for older persons involves the application of WHO's Active Ageing framework as the guiding policy lens for the management of

crises through all phases. WHO defines active ageing as ***the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.***

A life course perspective on ageing recognizes that older people are not one homogeneous group and that individual diversity tends to increase with age. Functional capacity (such as muscular strength and cardiovascular output) increases in childhood, peaks in early adulthood and eventually declines. The rate of decline is largely determined by factors related to lifestyle, as well as external social, environmental and economic factors. This introduces the idea of a disability threshold: individuals have a range of functioning capacities, but below a certain point, they experience disability and cannot maintain independence. (Fig. A) For example, the loss of normal supports in disaster situations can cause a sharp decline below the disability threshold. The idea with active ageing is to create supportive environments at all stages of life and for the wide diversity of functional capacities. This support is designed to enhance resilience and maintain the highest possible level of functioning such that people can enjoy independence and avoid disability as they age. Emergency management for older persons supports active ageing by supporting older persons above the disability threshold while acknowledging the diversity of their capacities.

Fig. A. Maintaining functional capacity over the life course.

Over the life course, active ageing depends on a variety of influences or determinants that surround individuals, families and nations. They include material conditions as well as social factors that affect individual types of behaviour. All of these factors, and the interplay between them, play an important role in affecting how individuals age. Disaster situations can put stresses on these determinants and can negatively impact health and functional capacity. Emergency management that is inclusive of older persons and addresses the determinants of active ageing protect health and functional capacity. The result is an older population with reduced vulnerability and an increased capacity to contribute to their communities. Fig. (B)

Fig (B). The determinants of active ageing.

Part 3. Case Study Summaries

Methodology

Case studies of disasters from all over the world were analysed to develop a series of recommendations for emergency management of older persons. The cases represent a wide range of developed and developing countries as well as a range of disaster and conflict types. In each case, emergency preparedness and response were evaluated for gaps, strengths and best practices. The impact on the older population as well as the contributions of the older population was noted. Finally, recommendations were drawn from each case.

Table of Cases.

Case number	Location	Event	Time scale
1	Indonesia	Tsunami	2004
2	Chernobyl	Nuclear Power Plant Accident	1986
3	Cuba	Hurricanes	Past 155 years
4	Europe: France	Heat Wave	2003
5	Japan: Hanshin-Awaji	Earthquake	1995
6	Jamaica	Hurricanes	2004-2005
7	Kashmir	Earthquake	2005
8	U.S.: Louisiana	Hurricane Katrina	2005
9	Mozambique	Floods	2000
10	Turkey	Earthquake	1992, 1999
11	South Africa: Bophirima	Drought	2002-2005
12	Lebanon	War	2006
13	Canada: Quebec	Flood - Saguenay	1996
14	Canada: Manitoba	Flood - Red River	1997
15	Canada: Quebec	Ice Storm	1998
16	Canada: British Columbia	Firestorm	2003

1. Indonesia Tsunami 2004

Tsunamis are tidal waves that arise suddenly and without warning. The 2004 Indian Ocean earthquake resulted in a series of very destructive tsunamis hitting the coasts of

Indonesia, Sri Lanka, India, Thailand and other countries in South and Southeast Asia. Among the affected areas, Indonesia was the worst hit with 200,000 deaths. No special measures were taken for older persons, and the lack of data on the number and location of older survivors resulted in the exclusion of this population from recovery and rehabilitation plans. In a region where older persons were already highly dependent on family for support and care, the widespread loss of family, economic livelihood and shelter magnified their vulnerability and further exacerbated problems created by years of civil conflict and poverty.

2. Chernobyl Nuclear Power Plant Accident 1986
The unexpected explosion of a nuclear power plant lead to long-term contamination of a large area of Russia, Belarus and Ukraine. Radiation contamination resulted in a massive population evacuation (estimates in the hundreds of thousands) and permanent resettlement. An estimated 90,000 older persons were relocated, and many had difficulty finding alternative housing. Official exclusion zones are still off-limits by the government, but a small number of older people defied these rules to return to their homes. Health consequences mainly resulted from long term effects of radiation to those exposed. This accident highlights lessons about evacuation as a relief measure as well as the issues that come from a disaster with a long legacy of health effects.

3. Hurricanes in Cuba (155 years)
Cuba has a long history of hurricanes, and they have been occurring more frequently since the 1990s. After the 1963 hurricane devastation, a preparation and response strategy that includes older persons was created. The country has been able to identify vulnerable populations and implement many effective preparations for mass evacuations and the timely provision of aid. Cuba has the most aged population of Latin America with at least one older person in 44% of homes. Though the hurricanes resulted in few deaths, older persons were particularly affected by the damage to more than 700,000 homes.

4. Europe Heat Wave (2003)
10 days of unprecedented and unexpected extreme high temperatures in Europe result in 34,800 excess deaths predominantly among persons over 70. France suffered the most with an estimated 14,800 deaths in August 2003. The case study focuses on France and the damage of the heat wave in one of the best-funded health and social systems in the world. Though death from heat-wave is considered entirely preventable, lack of preparation among individuals, hospitals, primary care clinics and nursing homes contributed to the high death toll. Many of those who died lived alone, but there were also many deaths in nursing homes and hospitals. Older persons were more vulnerable because of fragile cardiovascular health, decreased capacity to prevent dehydration, pre-existing disease, use of drugs that interfere with thermoregulation and social isolation.

5. Hanshin-Awaji Earthquake (1995)
A major and unexpected earthquake in a heavily urbanized area of Kobe. A large area was affected resulting in widespread damage and mass evacuations. Of the 6,434 deaths, the majority were 60 and older. Older persons also experienced major health problems

related to evacuation and relocation such as overcrowded and inadequate shelter conditions and lack of food and water. Temporary and long-term resettlement provisions were also inappropriate. Health care was not adequately provided due to facility shortages and access issues for isolated older persons. However, older persons were also a powerful source of aid during response and recovery phases.

6. Jamaica Hurricanes 2004-05
Active hurricanes occurred in the years 2004-2005. Because hurricanes are recurrent and highly predictable events in Jamaica, a National Disaster Plan has been in place since 1988. However the succession of hurricanes caused extensive housing and rural livelihood damage affecting 370,000 persons. 1,000 families were evacuated, health centres were damaged and water supplies were contaminated. Older persons were particularly affected by damage to their livelihoods and homes as well as to health care centres.

7. Kashmir Earthquake 2005
An earthquake measuring 7.6 on the Richter scale affected Pakistan mainly in hard to access mountainous rural areas of low income. Destruction of housing, social service delivery, governance structures, commerce and communication left 2.8 million persons without shelter. There were 74,000 total deaths and no specific data on older persons. Though many older people did not need outside support, a large proportion of those in displacement camps were older people. Their needs were neglected by health clinics, government organizations and communities.

8. Hurricane Katrina 2005
Though hurricanes are a regular and predictable event in the United States, Hurricane Katrina was the most devastating hurricane in the history of the nation. The storm hit Louisiana, Mississippi and Alabama, but the worst damage occurred after the levees in New Orleans were breached causing a flood to the city. 1.36 million persons were displaced and of the 1,464 deaths in Louisiana, 64% were over the age of 65. Many vulnerable population groups, including older persons, did not prepare in response to hurricane warnings either because they were not aware of emergency resources or dismissed the warnings. Poor coordination in disaster planning and unreliable communication lines prevented timely deployment of life-saving resources by first responder organizations. There was no system for identifying where older persons lived or for tracking their family members, and some nursing homes were abandoned leaving residents to fend for themselves. Without communication lines, older persons could not call for help, and there was not the capacity to evacuate those who could not do so themselves. Those that did escape, found shelters unequipped to handle such a large and highly vulnerable population.

9. Mozambique floods 2000
The worst flood in 50 years to hit this developing country. Prior development of a Flood Contingency Plan prevented a larger disaster. Although the poor communication and conditions of infrastructure exacerbated some of the damage, 500,000 evacuees were sheltered and there were no major outbreaks of disease or malnutrition in shelters. Older

persons have benefited from involvement in post-flood recovery and development initiatives.

10. Earthquakes in Turkey 1992, 1999
Turkey experiences earthquakes often, but a series of severe earthquakes in 1992 and 1999 resulted in significant mortality, disability, psychosocial problems and homelessness. 600,000 people were left homeless after the earthquake, and the provision of shelter proved to be a challenge. Though housing needs for children and older persons was a focus of the government, makeshift tent communities and permanent housing failed to meet the needs of older persons. Another weakness in this case was that international volunteer groups were underutilized and not well coordinated. Local governments did not have information on vulnerable populations in emergencies, and age disaggregated data on the impact of the disaster was unavailable.

11. South Africa Drought 2002-2005
Drought is a slow onset hazard that has a profound effect on a community even years after its initial impact. As a result, determining when to provide relief has been challenging. The Bophirima district in South Africa experienced acute periods of drought from 2002-2005 with longer reaching economic effects. With the trend in climate change, rain seems to be increasingly unpredictable. The majority of the population make their livelihood off farming and many in the Bophirima district are over 60. Older people in the drought-stricken areas are often responsible for the care of children or grandchildren as well putting further strain on this population.

12. Lebanon War 2006
Lebanon has been ravaged by wars and invasions since 1975, and there is a long history of deaths, disability, displacement, and impairments to physical and mental health as a result of conflict. In June 2006 there were 33 days of air raids and land incursion conflict in South Lebanon. There were 1,183 deaths (mostly civilian), significant damage to infrastructure and 1.1 million people forced to leave their homes. Many older persons endured displacement and even multiple displacements to the homes of relatives or to Internally Displaced Persons centres. This disaster situation is unique because it presents different challenges in planning and there are significant psychosocial issues to deal with. However many of the health vulnerabilities of older persons remain similar concerns in times of conflict as in other emergencies.

There are four case studies done in Canada because the Canadian government was an important partner for this project.

13. Saguenay Flood - Quebec, Canada 1996
A destructive flood in terms of property and infrastructure damage. 16,000 people were evacuated, at least 2,000 of which were older persons. No deaths due to flooding were reported for older persons. Negative effects experienced by older people included: new health problems (e.g. high blood pressure, physical exhaustion, stomach and respiratory problems), mental health problems, financial burden and changes in life events (e.g. delaying retirement). A two-year follow up study showed victims who did not feel they

had sufficient help during the flood were more susceptible to mental health conditions and had negative perceptions of their physical health. Overall Saguenay region's municipalities were generally well-prepared for emergency response due to earlier natural disasters.

14. Red River Flood - Manitoba, Canada 1997
In April and May of 1997, the Red River flooded a very large area in Manitoba primarily south of Winnipeg city. Due to past flood experiences, the Red River flood was anticipated and prepared for well in advance. Floodways and a system of riverbank dykes in addition to extensive temporary sandbag upgrades protected the City of Winnipeg. 28,000 people were evacuated. No apparent death or injuries to seniors are directly attributable to the flood. Though the City of Winnipeg issued that "Consideration should be given to early evacuation of people with special needs," there was little evidence of any special attention given to older persons in regards to accommodation provisions. Emotional stress was the major health effect described as a result of the disaster, and it was perceived to have mainly short-term effects.

15. Ice Storm - Quebec, Canada 1998
Major ice storm followed by a power blackout which lasted from days to almost a month. The blackout affected a population of 4.8 million, almost 10% of which was over 60 years old. The event was one of the most costly in terms of insured losses in property and home damage and days of lost work. There were 30 deaths directly due to the ice storm in Quebec (50% of which were persons over 65). The power blackout meant people could not keep warm, and a subsequent increase in hospitalizations and mortality was also seen due to infectious disease, respiratory problems and traumatic injuries. While some fled to relief centres (140,000 people), others stayed in their own homes using devices such as liquid-fuel-fired heaters which pose a carbon monoxide threat. Inadequate records for locating vulnerable individuals made it difficult to reach people who needed home support. Municipalities lacked preparation and a number of communities could not provide basic food, water, electricity and heating for their citizens.

16. Firestorm - British Columbia, Canada 2003
In the summer of 2003, British Columbia, Canada was swept with a record-breaking forest fire season. Wildfires and interface fires (i.e. fires that occurred at the boundaries between wilderness and human settlements) caused massive disruption that included property loss, economic loss, livestock loss and the destruction of large tracts if range and wilderness land. The fast-moving and violent fires called for sudden large-scale and repeated evacuations. This case study compared the impact of the 2003 forest fires on older adults living in both rural and urban communities. Rural communities lost much of their economic livelihood to the firestorm's destruction of mills, forest land and range land. In an urban setting with a fast-growing retirement population, evacuating older persons in residential care facilities proved to be an issue.

Part 4. Recommendations

Recommendations from all 16 case studies were compiled under the topics of

- Emergency management phases:
  - Planning
  - Response
  - Recovery
- Accessibility
- Visibility
- Health protection and care
- Psychosocial support
- Communication
- Accommodation
- Government
- Community
- Education

*See Excel file: Recommendationsv2.xls

Planning

- Older people should be recognized as a special needs-vulnerable group in disaster risk assessments. (1, 10, 14)
- Develop concrete evaluation plans for bedridden elderly and those dependent on equipment (have backup systems) (10, 11, 16)
- Pre-position aid and medical supplies for rapid assistance. (8)
- Rapid needs assessment system must be in place. (7)

Response

- Community based networks for immediate response should be in place. (6)
- There should be evacuation facilities specifically prepared for the needs of older persons. (6, 7, 8, 15)

"Older people received the same relief support [as] the overall population. However, no specific attention was given to older people as for other vulnerable groups such as women and children. Many older people with mobility problems did not receive relief. (Indonesia Tsunami HAI)

- Provide targeted aid to older persons with needs for medical care, transportation assistance or support for cognitive disabilities. (10, 11)

Recovery

- Assistance in applying for compensation (13)
- Financial or economic assistance (1, 6, 7,11, 14)
- Rebuilding social networks and community. (16)

Accessibility

- Older persons' access to health services and transportation should be specifically addressed. (1)
- Accommodations should make health services and transport accessible to older persons (6, 11, 12, 15, 16)
- Communities should be intergenerational for mutual assistance between generations. (6, 8, 11)
- Deliver aid to housebound or mobility-impaired persons (1, 7, 13)

Reduced mobility is a major issue for people in particular to access basic services. "It is hard for me to go to the health centre. I have to walk a distance, stand in a queue, wait a long time for my turn and carry my goods. Sometimes I get dizzy from standing in the heat." Umi, 70, female. (Indonesia Tsunami) HelpAge International Older People in Emergencies.

- Gender issues and inequalities: emergency planning should be sensitive to barriers women may face due to cultural traditions or an unequal burden in care-giving. (6, 7, 9, 12, 16)

In Pakistan-controlled Kashmir, women-headed households suffer additional vulnerability due to socio-cultural norms that impact their mobility, economic []security, access and rights. (Kashmir HAI) For example, women are not allowed to leave their homes unaccompanied by a male relative. This limits women's abilities to seek aid in times of need.

Visibility
Prior knowledge of persons at risk and their location are necessary to be able to target aid to them in a timely manner during disasters.

In Pakistan, for example, older people remained largely invisible during initial humanitarian health assessments and operations, in large part because organizations did not have information regarding the numbers and locations of vulnerable persons. (HelpAgeInternational 2006)

In Cuba, a long-standing history of hurricanes has lead to a high level of preparedness. All health personnel participate in the identification at risk and vulnerable persons in the community.

- Information on vulnerable populations (1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16)
- Risks of senior citizens should be periodically assessed. (1, 3)

Health Protection and Care
Research has shown that older persons are significantly more likely to sustain injuries in disasters because of functional limitations. (AARP 2006) They also have higher rates of chronic diseases such as coronary heart disease and diabetes that require ongoing treatment. Thus providing health care is essential in emergency situations when many supports may be absent.

"For some, the loss of assistive devices like eye glasses and walking canes may mean that they are left wholly dependent on others for their sustenance and security." (Hutton)

- Ensure access to food, water, medication and aid devices (glasses etc.) (7, 8, 11, 11, 15, 16)
- Ensure sufficient personnel are available to provide care in an emergency event. (1, 4, 5, 15, 16)
- Train health care and emergency workers to manage older persons in disaster situations. (Including rehabilitation assessments) (1, 3, 4, 5, 6, 7, 9, 16)

Psychosocial Support

In times of disaster and conflict, high levels of stress can threaten well-being. The combination of losses and displacement, poor health and social exclusion may act as cumulative and interactive stressors that can lead to trauma-related syndromes, anxiety, depression and other forms of illness. (Havelka, 1995, Folnegovic-Smalc et al., 1997; Ingreja et al., 2006) PTSD and depression are common among victims of health emergencies, and mechanisms to help people cope should be included in emergency management.

"The Health Advisors System included….the formation of community activities to reduce older people's isolation. Resident social meetings, health consultation meetings, tea parties and memorial day services were important in helping older people re-establish networks of mutual support and assistance while enhance [sic] their overall quality of life and place in community." (Watanabe 2006)

- Accommodation should include support or family-like environment. (6, 5, 16)
- Help people cope with stress, depression and PTSD (1, 10, 12, 13, 14) - positive correlation with age.

Promote the contributions of older persons

In the vast majority of disasters, older persons contributed their time, efforts and knowledge in significant ways.

"In Africa, for example, the HIV/AIDS epidemic has meant that older persons have increasingly taken on the role of carers for orphaned children and grandchildren." (Hutton)

"While senior citizens were classified as vulnerable people at the time of the disaster, they also demonstrated a vigorous capability of continuing life in spite of drastic changes in their environment, as well as mutually supporting each other and solving problems independently in temporary and permanent housing." (Hanshin Earthquake)

- Include older people in planning, response and recovery efforts (1, 3, 5, 6, 7, 9, 11, 12, 13, 14, 15, 16)

- Support older people in re-establishing a livelihood and exercising personal initiative (1, 2, 9, 11)
- Build on their knowledge, skills and experience (1, 5, 7, 9, 10, 11, 12, 13, 15)
  - Older people can educate and care for younger generations
  - Older people may have survival experiences and knowledge of traditional skills.

Communication of emergency preparations must be improved. (2, 5, 6, 7, 8, 9, 11, 12, 14, 15)
Many of the cases recommended the need to improve communications to older persons with literacy or language barriers, or living in rural areas
.
"Nobody was believing the extent of the floods and, so, were not sure to follow the messages and orientations." (Mozambique)

"Many of the elderly victims had dismissed the multiple, highly-televised warnings about Hurricane Katrina as it passed through the Gulf of Mexico"

"Hurricane Katrina had revealed that older individuals were more likely to require emergency assistance due to a lack of communication regarding special emergency services specifically designed to accommodate special populations…for example, many of the elderly did not know where to take shelter before, during and after the storm." (Weston, Tokesky Katrina)

- Planning: education of older persons on preparedness and evacuation plans. Illiteracy, sensory loss or cognitive impairment can also be an obstacle to communicating information to older persons. (7)
- Response: warning and instructions should be targeted to senior and vulnerable populations
- Community centres might be a good way to facilitate dissemination of information.

Accommodation
"Many of the [study] participants live in shacks made of plastic sheeting and carton boxes … their houses were destroyed by the drought… They have no funds to rebuild proper houses and … local municipalities are [not] taking action to address the accommodation needs of the older people." (South Africa Drought)

"[Shelters had] no special arrangements for seniors and a number of problems were identified: …lack of cots, no care for the bedridden, hygiene problems, dietary problems and lack of medications." (Jamaica Hurricane 2004)

- Reduce number of moves required for older persons (12, 13, 14, 16). Evacuations are stressful experiences that are difficult for older persons with mobility or health issues.
- Place older persons in areas with access to transportation and medical services. (5, 6, 11, 12, 15, 16)

- Evacuation facilities should be equipped with resources for older persons. (5)
- Barriers to evacuation or seeking aid may exist due to cultural or social factors. For example, older people in Jamaica were unwilling to leave their homes for fear of thieves. They were also culturally averse to receiving aid because they associated it with welfare and shelters.(2, 6, 7, 12, 15)

Government (Local and National)

Governing entities play an indispensable role in protecting its people in times of crisis. From the local level to larger scale bodies, the roles and procedures for governmental action must be clearly established so that appropriate measures can be fluidly coordinated in disaster situations.

- Establish clear procedures for coordination between ministries involved in crisis response (3, 4, 5, 8, 9, 11, 12, 14, 15)
- Establish a department responsible for planning and implementing evacuation for vulnerable people. (6, 13, 14, 15)
- Integrate geriatric programs with ministry of health and social welfare (7).
- Involve international NGOs in assessing and serving the needs of older people. (7, 11)
- Municipalities should be prepared with a local emergency management officer and a response plan. (11, 13)

Community

As the first line for response, a prepared community can best meet the immediate needs in emerging crises. Civil society, religious organizations and local NGOs are vital sources of aid and recovery because of their knowledge on the strengths and weaknesses of their community.

"Strong family support and community solidarity contributed to much of the initial rescue operations and spontaneous volunteer groups emerged to provide assistance. These informal ties were crucial when formal aid from government and NGOs was deficient" (Turkey Earthquakes case summary)

- Engage communities, including older persons, as active participants in disaster preparation, response and recovery. (3, 5)
- Support community care systems in providing alternate forms of assistance for older persons (1, 3, 4, 5, 7, 8, 10, 11, 13)
- The recovery process should engage the community, including older persons. The local community is best aware of its own needs whereas recovery initiated by non-residents may introduce a cultural disconnect. (3, 5, 9, 13, 16)
- Community centres and local organizations can be good sources to provide information, prevention and response education, continuity of health care and social supports. (3, 5)

Education

- Train health care and emergency workers to manage older persons in disaster situations. (Including rehabilitation assessments) (1, 3, 4, 5, 6, 7, 9, 13, 16)
- Educate older persons on emergency preparedness and evacuation plans. (3, 5, 6, 7, 8, 11, 15, 16)
- Alert the community to the potential vulnerabilities of older persons and ways to support them. (3, 4, 5, 9, 15, 16)
- Learn from the past experiences of older persons how to prepare for future emergencies. (1, 2, 3, 5, 7, 10, 11, 12)

Part 5. Active Ageing Determinants and Emergency Planning

Effective and inclusive emergency planning goes hand in hand with active ageing. Improving emergency planning on the fronts of

- accessibility
- visibility
- health protection and care
- psychosocial support
- communication
- accommodation
- government
- community and
- education

all contribute to the determinants of active ageing. These aspects of emergency planning interact and overlap with the active ageing determinants they contribute to. For example, visibility deals with both making older persons an acknowledged part of their social environment as well as ensuring their health needs are considered in relief services. A healthy **physical environment** is one of the most important goals of effective emergency planning. Communicating warnings and preparations, making health and transport services accessible, and providing appropriate accommodations all serve to build an environment that reduces vulnerability and fosters active ageing. **Health and social services** is another determinant of active ageing that is addressed by emergency management. Providing the specific health needs of older people and taking measures to ensure there are trained workers and facilities to provide such care is directly focused at maintaining the functional capacity of older persons. Finally various aspects of **social environment and personal determinants** are reflected in measures to build intergenerational communities, integrate older persons in emergency management, provide psychosocial support and encourage their contributions. A strong social network and mental wellbeing are strong supports for older persons to recover from disaster stressors and enjoy a high quality of life.

Other determinants such as economic determinants are involved in providing resources for preparations and recovery and allowing older persons to re-establish livelihoods. The cross-cutting active ageing determinants of culture and gender are represented in emergency management in that cultural norms and gender inequalities must be taken into account in identifying vulnerable populations and providing aid. Well-coordinated government planning facilitates a structure that protects the economic, physical, social, personal and environmental well-being of its citizens thus contributing to all the determinants of ageing. Inclusive emergency planning incorporates the determinants of active ageing and will serve to optimize health, maintain independence, restore function and maintain the quality of life of older persons in the face of disasters.

Determinants	Issues	Response
Physical environment	Communication Accessibility Accommodation	• Place older persons in the best possible physical environment by communicating warnings and resources of aid, enabling access to services and providing accommodations that will meet their needs.
Health and Social services	Health protection and care Continuity of care Education	• Ensure older persons have access to medications, food, water and assistive devices. • Recruit and train sufficient numbers of providers to care for older persons in emergencies.
Social environment and Personal determinants	Visibility Psychosocial support	• Build intergenerational communities. • Compile a community profile for data on vulnerable older persons. • Integrate older persons in emergency management. • Provide psychosocial support. • Encourage the contributions of older persons.
Economic determinants	Older persons are more likely to be poor	• Provide financial assistance or needed resources for preparations and recovery. • Aid older persons in re-establishing a livelihood after disasters.
Behavioural determinants	Some older persons resist responding to warnings and jeopardize their own safety. Education	• Encourage older persons to make emergency action plans. • Educate older persons on how to prepare for emergencies.