lessons to less developed societies, like Kenya.

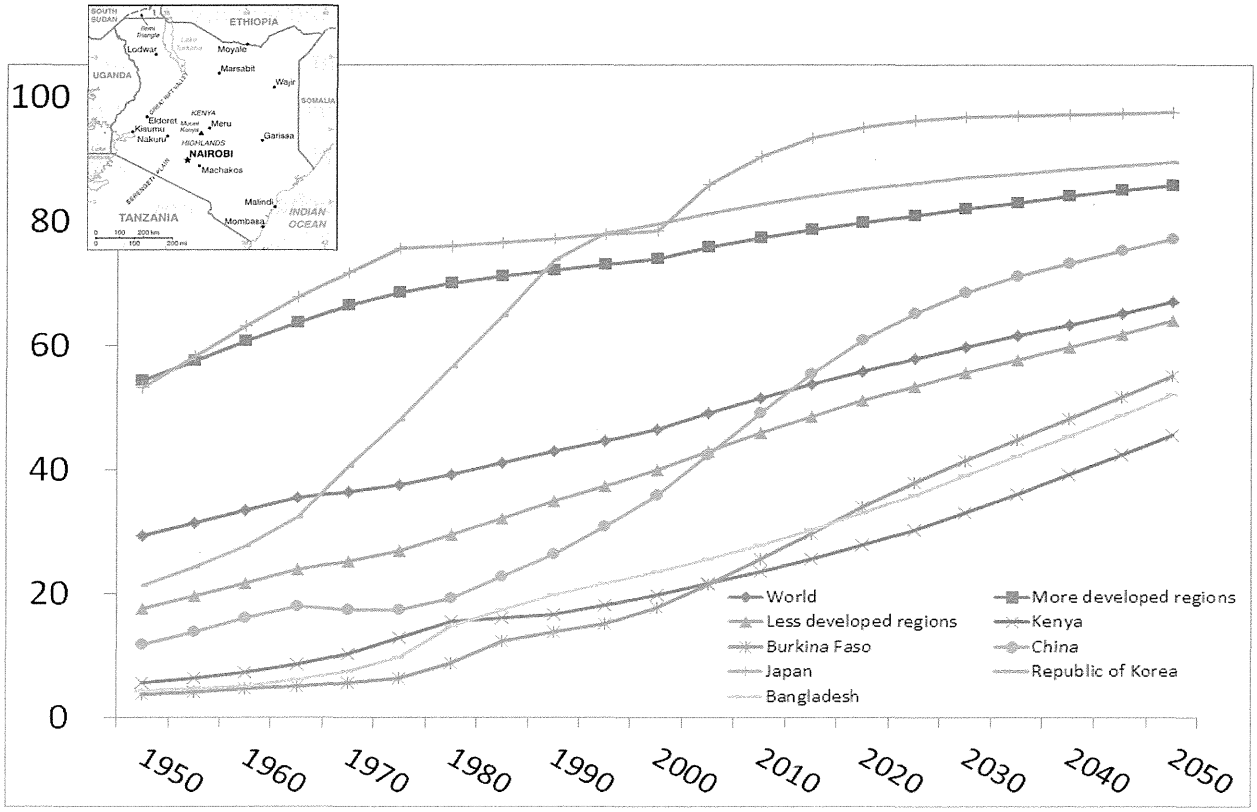


Figure 2: World Urbanization Prospects
Source: United Nations (2011) "World Urbanization Prospects", http://esa.un.org/unup/CD-ROM/Urban-Rural-Population.htm

Third, the results in Figure 3 show that the incidence of recent sickness and chronic illness increases with age. About half of those aged 70 years and above reported a recent sickness compared to one-fifth of those aged 20 – 29 years. At the same time about 6 percent of those in the 20-29 years age cohort reported having a chronic disease while among those aged 70 years and above the proportion was 29 percent[1]. Conquest of major communicative diseases like tuberculosis and a venereal diseases would largely contribute a decrease in mortality and an increase in longevity, while population aging causes the prevalence of non-communicative chronic diseases. Therefore, there is a time-lag between the conquest of major communicative diseases and the prevalence of non-communicative diseases in most developed society. However, Kenyan society has suffered from a simultaneous prevalence of communicative and non-communicative (or

[1]National Council For Population, Development and Division of Reproductive Health, and Ministry of Gender and Social Services (2012/June). "Policy Brief" No.25. Also, the statement is based on the presentation by Dr. Muthoni Gichu (Head of Health and Aging Unit, Ministry of Health, Kenya), at 1st International Workshop on Aging in Africa and Asia: Perspective and Prospective from Public Health and Ethnography, which was held at Shimba Hills Lodge and National Research in Kenya on March/6/2014 (PI: Dr. Ken Masuda at Nagasaki University).

chronic) diseases, which is a similar phenomenon with south-east Asian countries like Bangladesh. According to Dr. Muthoni Gichu (Head of Health and Aging Unit, Ministry of Health, Kenya), HIV/AIDS has still remains one of the most serious communicative diseases in African society.

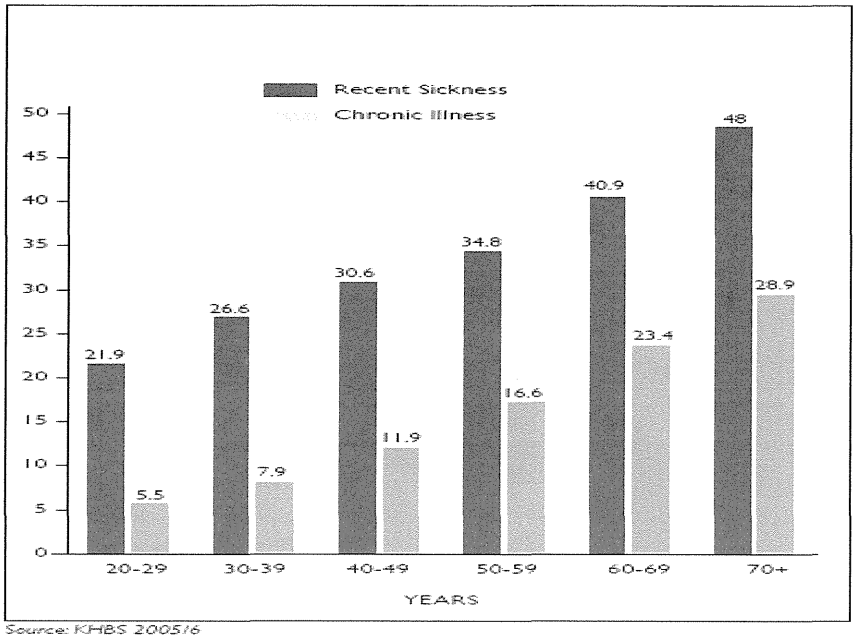


Figure 3: Percent Reporting Recent Sickness and Chronic Illness by Age
Source: National Council For Population, Development and Division of Reproductive Health, and Ministry of Gender and Social Services (2012/June). "Policy Brief" No.25

In sum, some issues are common and comparable between developing countries like Kenya and Bangladesh and more developed countries like Japan, while others could be not be simply comparable and it would be difficult to apply lessons from experiences by developed world to developing world. To our major goals-an international evidence-based comparisons of health and welfare of elderly population, collective deliberation over public choices, and construction of partnership-, we plan to utilize the framework of the Health and Demographic Surveillance System (HDSS) conducted by NUITM and KEMRI.

3. Data Source

We plan to involve into the Health and Demographic Surveillance System (HDSS) conducted by NUITM and KEMRI. HDSS has been collecting process that follows population dynamics systematically and continuously for a specified population in a couple of geographically defined areas, Mbita (as of August 1, 2006) and Kwale (as of July 2010) (Figure 4). Main objective of the HDSS is to provide a platform for

population-based research for disease control in Kenya. Also, its specific objectives are to: establish baseline data on demographic, socio-economic, environmental, and health characteristics; to investigate and evaluate interrelationships between health, interventions, and their impacts on morbidity and mortality; to provide a platform for scientific studies in prevention and control of diseases; and to provide a platform for education and research for researchers and students[2].

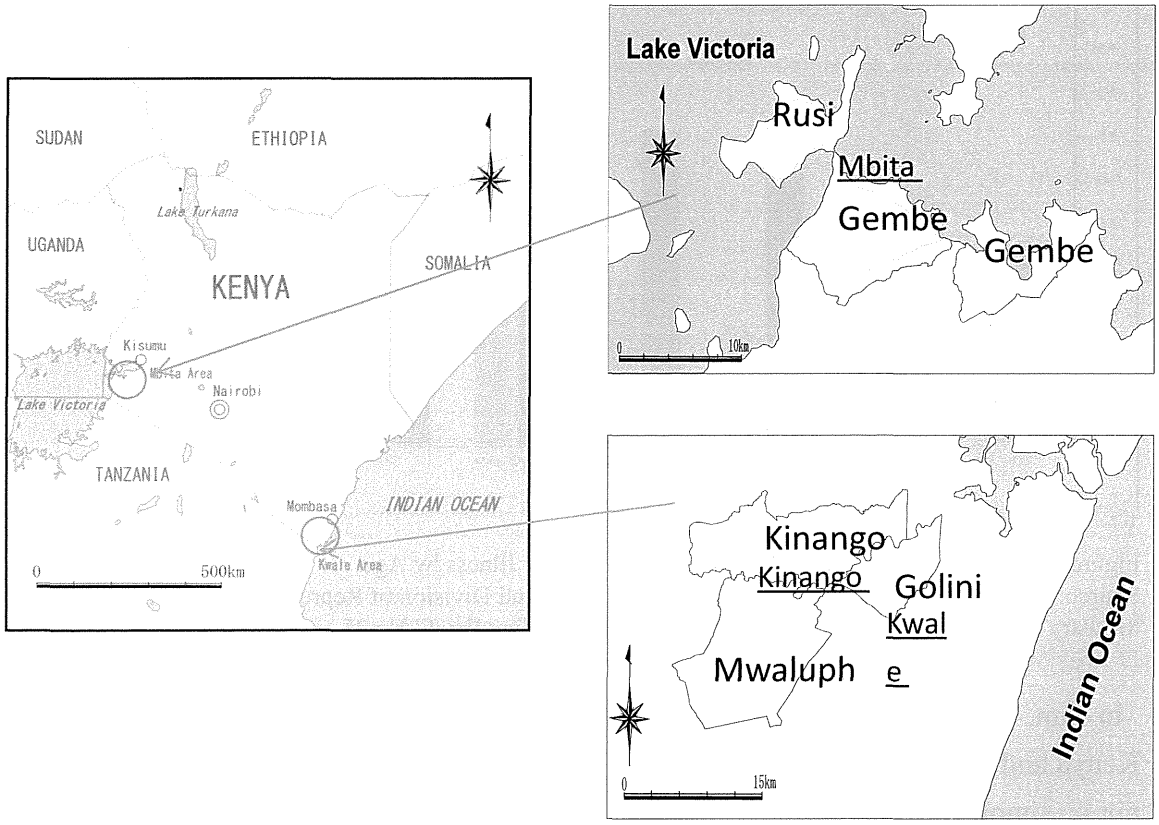


Figure 4: Current Study Area of HDSS
Source: Sheru Wanyua (2014) Health and Demographic Surveillance System (HDSS), PPT

The HDSS includes major four factors; (1) vital events: birth, death, migration; (2) Population characteristics: (2-1) demographic-name, dates of birth, gender; (2-2) socio-economic- household items, employment; (2-3) environmental-house structure, waste treatment; (2-4) health data- pregnancy, jigger, nutrition; (3) additional data: for other research projects- dental, school, hand-washing utilities, bed net use; and verbal autopsy – to infer cause of death[3]. The following Appendix tables show major variables of HDSS.

[2] Sheru Wanyua (2014) Health and Demographic Surveillance System (HDSS), PPT.
[3] Sheru Wanyua (2014) Health and Demographic Surveillance System (HDSS), PPT.

Appendix Table 1: Major variables of HDSS[4]

Name of variables	DEFINITIONS
1. MEMBER TABLE	
id	
memid	Unique identification number assigned by program to each member
famid	Unique identification number assigned by program to each family
houseid	Unique identification number assigned by program to each house
status	shows whether or not a member is present in the HDSS
statdesc	describe reason for absence in HDSS
memstatus	status of the existing members
visitdate	date and time when the person was first visited
fname	first name
sname	second name
other	other (surname)
sex	gender
dob	date of birth
falive	is the father alive
father	memid of the father
fatherarea	area where father lives
malive	is the mother alive
mother	memid of the mother
motherarea	area where mother lives
fi	Field Interviewer identification
fiarea	Area covered by field interviewer
edittime	date and time when any editing was last done to the data
area	
location	
migother	
sublocation	
clan	
migreason	
migdate	
registered	
flag	whether or not member has been followed up
migration	whether or not member has migrated
pregnancy	whether or not member is pregnant
death	whether or not member is dead
events	
link	
mig seq	number of times the person has migrated
preg seq	
child seq	
popflag	whether or not member has been followed up
round	number of data collection survey
2. HOUSEHOLD TABLE	
hhid	
houseid	Unique identification number assigned by program to each house
temphouseid	
famid	Unique identification number assigned by program to each family
visit	date and time when the person was first visited
head	name of household head
consent	whether or not the consent form was signed
status	the situation the house is in

[4] Appendix Table is created by Sheru Wanyua at NUITM.

Appendix Table 2: Major variables of HDSS (to be continued)

Name of variables	DEFINITIONS
closedate	date when house was closed
fi	Field Interviewer
fiarea	Area covered by field interviewer
edittime	date and time when any editing was last done to the data
flag	
location	administrative location in which the house is located
sublocation	administrative sublocation in which the house is located
village	administrative village in which the house is located
longitude	longitude of the house
latitude	latitude
grid	grid in which house is located
subgrid	subgrid in which house is located
popflag	whether or not popup questionnaire for the house has been completed
finishdate	
Houseflag	
dflag	whether or not the house has been followed up
updatetime	
round	number of data collection survey
famid	Unique identification number assigned by program to each family
famname	family name that is common to the area given by the field interviewer
owner	head of the family
famstatus	whether or not family is present in the HDSS
updatetime	
closedate	
edittime	date and time when any editing was last done to the data
delreq	delete request: to request data manager to delete family record
delreason	reason for request to delete
delother	other reason for request to delete
location	administrative location in which the family lives
sublocation	administrative sublocation in which the family lives
clan	administrative village in which the family lives
grid	grid in which house is located
subgrid	subgrid in which house is located
longitude	longitude of the house
latitude	latitude
fi	Field Interviewer
fiarea	Area covered by field interviewer
flag	
sched_num	
round	number of data collection survey
3. DEATH TABLE	
id	
memid	Unique identification number assigned by program to each member
famid	Unique identification number assigned by program to each family
visitdate	date and time when the person was first visited
round	number of data collection survey
deathdate	date and time when the person died
edittime	date and time when any editing was last done to the data
fi	Field Interviewer
fiarea	Area covered by field interviewer
flag	
place	place where person died

Appendix Table 2: Major variables of HDSS (to be continued)

Name of variables	DEFINITIONS
hospital	hospital where person died
fname	first name
sname	second name
other	other (surname)
4. MIGRATION TABLE	
id	
memid	Unique identification number assigned by program to each member
famid	Unique identification number assigned by program to each family
round	number of data collection survey
edittime	date and time when any editing was last done to the data
seqno	number of migration times
type	type of migration
reason	reason for migration
schooling	where children go to school
schoolname	name of school
migother	other reason for migration
migdate	date and time for migration
migindate	date and time for out migration
migoutdate	date for in migration
fname	first name
sname	second name
other	other (surname)
visitdate	date and time when the person was first visited
area	area where person has migrated from/to
location	administrative location where person has migrated from/to
sublocation	administrative sublocation where person has migrated from/to
clan	village where person has migrated from/to
fi	Field Interviewer
fiarea	Area covered by field interviewer
flag	status of migration
previd	previous id
5. PREGNANCY TABLE	
id	
memid	Unique identification number assigned by program to each member
pregid	number of times woman has been pregnant
famid	Unique identification number assigned by program to each family
round	number of data collection survey
outcome	outcome of pregnancy
monthd	month of delivery
yeard	year of delivery
visitdate	date and time when the person was first visited
edittime	date and time when any editing was last done to the data
tba	whether or not TBA was visited
hospital	whether or not hospital was visited
clinic	whether or not clinic was visited
antinatal	whether or not woman received antenatal care
herbalist	whether or not herbalist was visited
witch	whether or not witch was visited
pastor	whether or not clinic was visited
pregfacility	health facility visited during pregnancy
doe	date of event/birth
fi	Field Interviewer identification
fiarea	Area covered by field interviewer

Appendix Table 2: Major variables of HDSS (to be continued)

Name of variables	DEFINITIONS
flag	if pregancy has been followed up
place	place of delivery
fname	first name
sname	second name
other	other (surname)
6.POPUP TABLE	
Id	
round	number of data collection survey
qno	questionnaire
type	questionnaire type eg individual level, household level
famid	Unique identification number assigned by program to each family
memid	Unique identification number assigned by program to each member
fname	first name
sname	second name
other	other (surname)
dob	date of birth
house	Unique identification number assigned by program to each house
q1	question 1
q2	question 2
q3	question 3
q4	question 4
q5	question 5
q6	question 6
q7	question 7
q8	question 8
q9	question 9
q10	question 10
fi	Field Interviewer identification
fiarea	Area covered by field interviewer
starttime	start of interview
endtime	end of interview
edittime	date and time when any editing was last done to the data

4. Target Population of This Study

We focus on population aged 50 and older. Since life expectancy at birth are 61 years and 57.5 years for females and males of HDSS population, respectively, the ordinal definition of old population (65+) in developed countries would not be appropriate for target population for ageing study in Kenya (Figure 5).

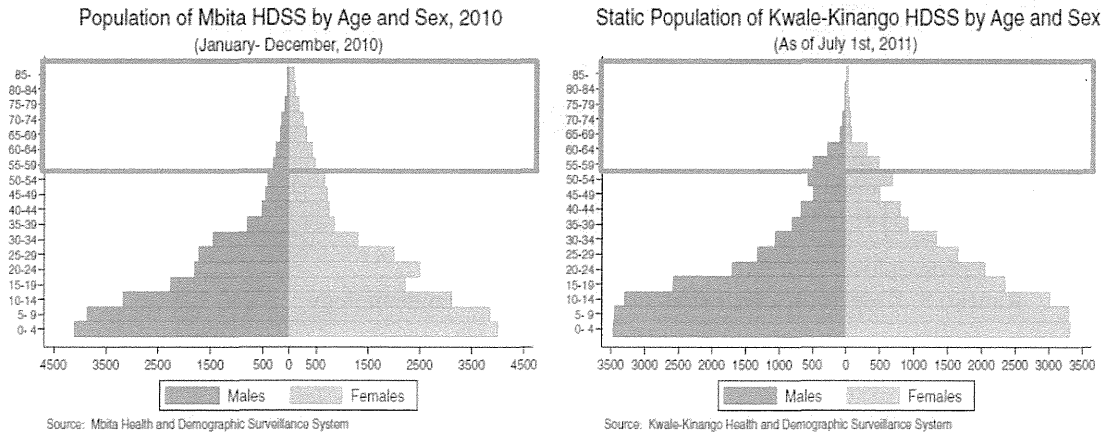


Figure 5: Population of Mbita and Kwale-Kinango HDSS by Age and Sex
Source: Kaneko S, K'opiyo, Kiche, I et al. (2012) "Health and demographic surveillance system in the western and coastal areas of Kenya: an infrastructure for epidemiological studies in Africa", Journal of Epidemiology (JE20110078)

5. Research Plan

PHASE 1

・Create Baseline Data and Mesh Data: Using the available data of current version of HDSS, we identify the number (ratio) of old population (50+) and their socio-economic and other characteristics by sex, 5-year age group, and geographic cite. The above baseline information will be mapping into Grid Geographical Address System (GGAS) (Figure 6), such as hypothetical mesh for ratio of old population.

・Identify physical address: Based on HDSS, we identify exact physical addresses of households living with old people (50+).

・Conduct Inquiring pilot survey: We plan to conduct an inquiring survey from randomly selected households living with old people, as regards their socio-economic, health, and other status (including their needs for health and long-term care).

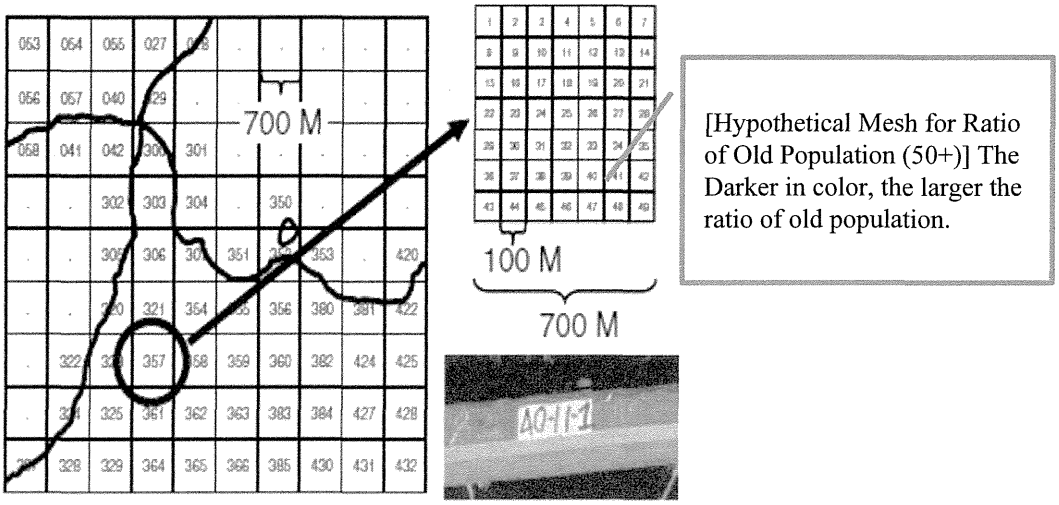


Figure 6: Grid geographical address system (GGAS)
Source: Kaneko S, K'opiyo, Kiche, I et al. (2012) Journal of Epidemiology

PHASE 2

・Create Questionnaire: Based on the inquiring pilot survey, we verify our survey design and create baseline questionnaire.

・Conduct Survey: For old people in HDSS cite, we conduct the survey, applying both self-administrating (subjective) method and objective measurements. The self-administrating questionnaire will include socio-economic status; human network (inside/outside of own household); self-rated physical and mental health status (such as ability of daily living (ADL), instrumental ability of daily living (IADL), Geriatric Depression Scale (GDS)/K6/K10); self-rated life satisfaction and quality of life; nutrition; clinical history records; utilization/needs of formal and informal health and long-term care, etc. Objective measurements will include height/weight (BMI), blood pressure, bio-marker, vaccine records, etc.

・Invite to International Conference held at Japan: We plan to invite a health related professional to speak about health and long-term care issues of Kenya to an international conference for the MHLW research project in 2014-2015.

PHASE 3

・For Evidence-Based Policy: Collaborating with researchers at NUITM and KEMRI, we will conduct empirical analysis of the survey conducted based on HDSS for establishing evidence-based policies regarding public health in Kenya.

・For Information Transmission of Collaborative works: We will submit our collaborative works to international peer-reviewed journals for sharing the information obtained from the survey.

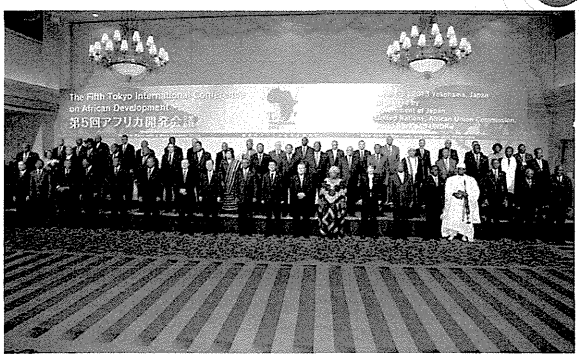
The Role of the Community for the Ageing Society – Experiences in Japan and Zambia

Hideki Yamamoto MD, MPH, PhD.
Professor,
School of Public Health
Teikyo University

Contents of the Presentations

- Japan commits for Africa
- Life expectancy in Japan
- The role of the community for public health
- Experiences in Zambia
- Education for Sustainable Development (ESD) and Community Learning Center (CLC)
- Challenge of Ageing society

TICAD5 (June 1-3, 2013)

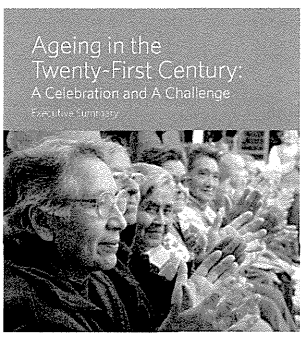


Major Agenda of TICAD5

- Post MDGs (2000-2015)
- Sustainable Development Goals (SDGs)
- Disaster Reduction

- Japan government commits for health sector
  - Health System Strengthen
  - Universal Health Coverage (UHC)
  - Non Communicable Diseases (NCD)
  - Ageing

Japan leads global ageing, collaborating with UNFPA



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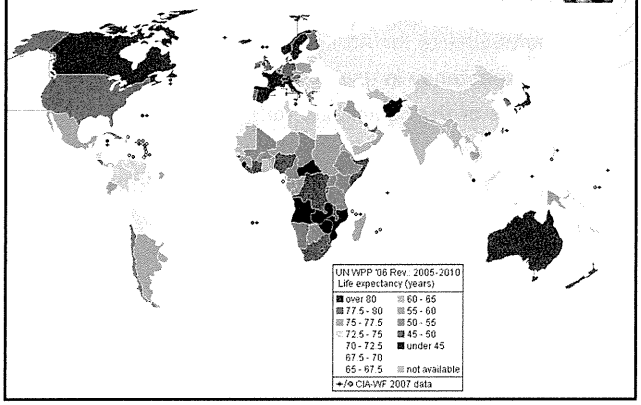
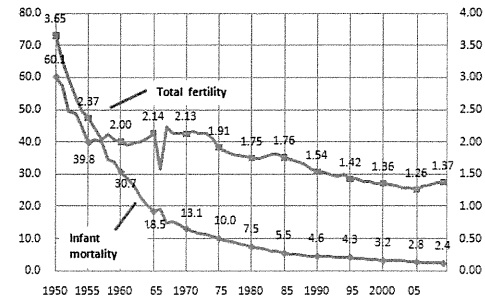
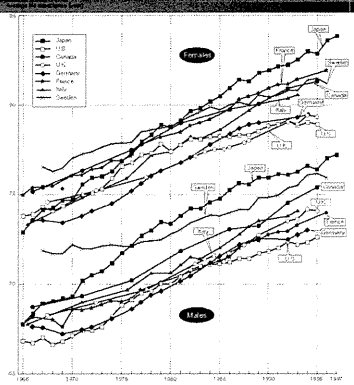
Life expectancy in the world



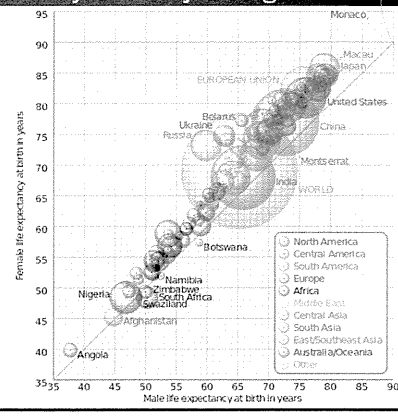
Trend of TFR and IMR in Japan



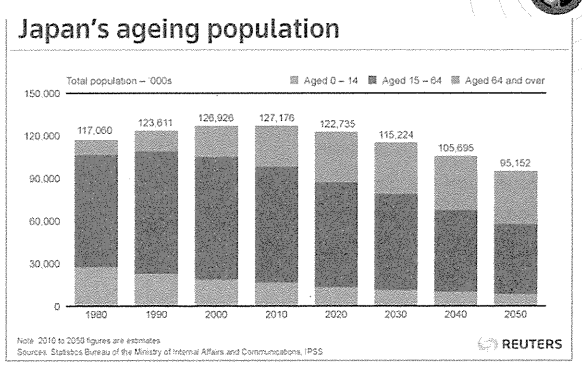
Trends of Longevity



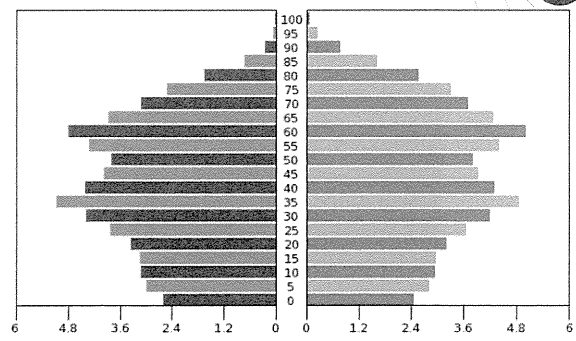
Comparison of life-expectancy by country and gender



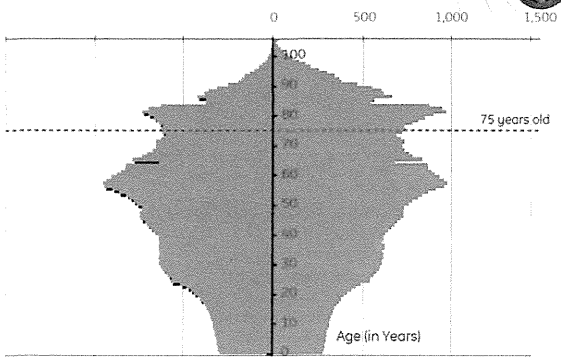
Proportion of ageing population



Population pyramid in japan (current)



Population pyramid in 2030



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Why community?

- **Definition of "Public Health" (Winslow 1920)**
  - Public health is "the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals."

Place of Longevity in Japan

Life expectancy of Japan by prefectures (2010)


男性80.88歳 女性87.18歳
長寿 [redacted]が日本一
女性、沖縄は3位に

- **Reported every 5 years on February, 28, 2013**
- **Male:**
  - Top: _____ (80.88 yr), 5th since 1990年
- **Female:**
  - Top: _____ (87.18 yr), first

Japan Times (March 1, 2013)

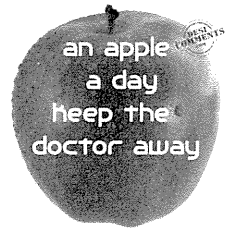
- Nagano ranks top in Japan's average life expectancy

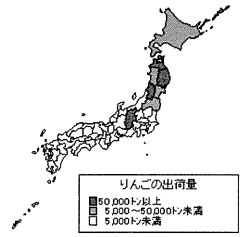
(Jiji Press -- Mar 01)

- The average life expectancy for Japanese men and women is highest in the central prefecture of Nagano, a health ministry survey showed Thursday.
- Of the country's 47 prefectures, Nagano ranked top at 80.88 years for men and 87.18 years for women, according to the survey based on the 2010 national census. The lowest figures were in (?) in northeastern Japan, with 77.28 years for men and 85.34 years for women.

What are the factors that affect longevity?

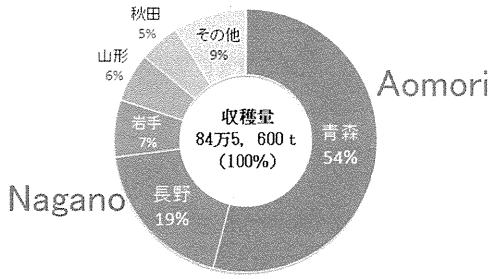
- Food
- Climate
- Society
- Others





- Production of Apple
(Ministry of Agriculture, Forest and Fishery)
  - 1st: Aomori Prefecture (54%)
  - 2nd: Nagano Prefecture (19%)
- Consumption of Apple (capital city)
  - 1st: Nagano City 35.1kg/household
  - 2nd: Aomori City 33.9kg/household
  (average of Japan: 13.3 kg/household)

Share of Production of Apple



Lowest life-expectancy

- Male:
  - 47th:_____ (77.28 yr)、
  8 times since 1975
- Female:
  - 47th:_____ (85.34 yr)
  3 times since 2000

喫煙率日本一＋飲酒率日本一＋食塩消費量日本一

＝死亡率日本一！

Why Nagano？-comments from Newspaper

- Community based prevention of disease？
- "Working rate of elderly people is high. Kominkan (CLC: Community Learning Center) and life-long learning activity is high." (Prof. Tanji Hoshi, Tokyo Metropolitan University, Asahi Newspaper on March 1, 2013)
- " Large attention has been paid to the life styles- food, exercise. Intervention based on the findings of Social factors (social capital) would be needed. (Prof. Katsunori Kondo, Nippon welfare university、Yomiuri Newspaper on March 1, 2013)

Kominkan (CLC in Japan)

- Kou(Public)-Min(Citizen)-Kan(Hall)
- Started in 1949, Act of social education
  - After the World War II
  - To promote adult education
  - To prevent war, and create peaceful civil society
  - Mission of Kominkan is similar to UNESCO
- 18,000 Kominkan in Japan

PPK(Pin Pin Korori) movement in Nagano

- Mr. Kitazawa, high-school teacher at Nagano (Graduate of Tsukuba University) initiated to promote the physical activity for the elderly people in 1980.
- Widely promoted at Kominkan.
- Concept of PPK is widely accepted in whole Nagano.
- Cost of elderly people is less
- Death at House (home based care) is common in Nagano

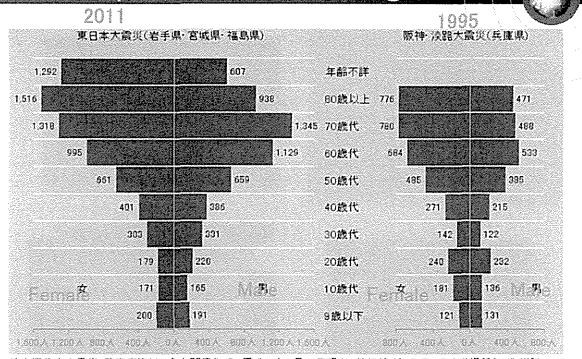
Number of Kominkans at Nagano

- Number in Nagano 1,852 (Japan:16,566) (MEXT:2008)
- Number of Kominkan is 63.2/100,000 (12.5)
- Number of Kominkan established by municipality government (Social education law ,act21)
- Number of branch-Kominkan, or autonomous Kominkan are large in Nagano

Challenge of the ageing society and community

- Mutual cooperation at the community is necessary for the Ageing society
- Strengthen the community capacity- social capital is necessary
- Community is the place where society and culture meet
- To reduce the vulnerability and build the resilience at the community level is important
  - Disasters

Victims of Great Earthquakes in Japan,(distribution of age, sex)



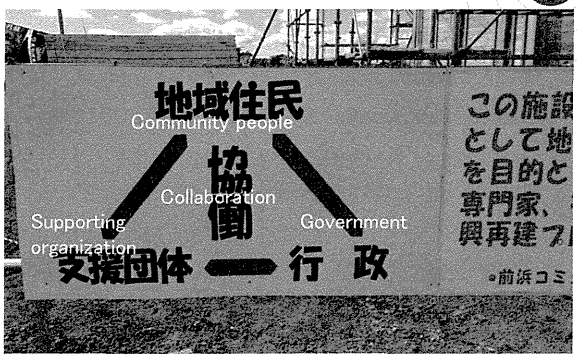
(注) 東日本大震災:警察庁資料から内閣府作成。平成23年4月11日現在。検視等を終えている者を掲載(性別不詳

Kominkan destroyed by Tsunami at Ishinomaki on 2011

picture on Jan 2012

Rebuiliding Kominan and community

Rebuilding community not for construction



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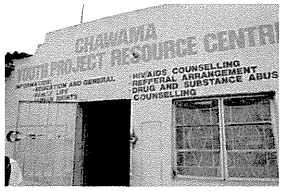
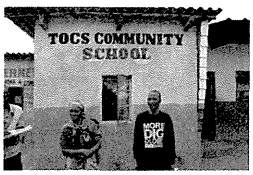
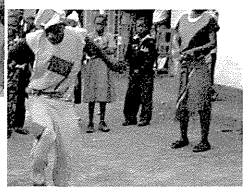
Learning centers were started by the community initiatives





Drama on ESD(Education for Sustainable Development) on food, nutrition and health would be developed

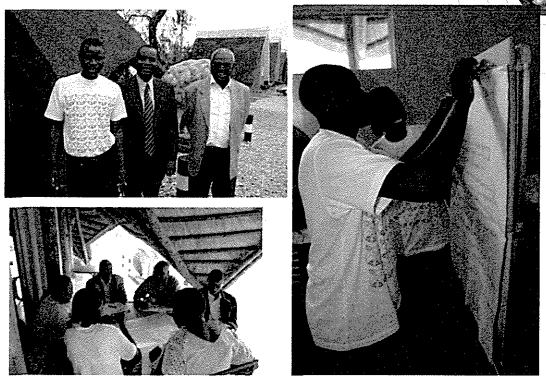
Traditional dance would be a nice media to deliver the idea or ESD



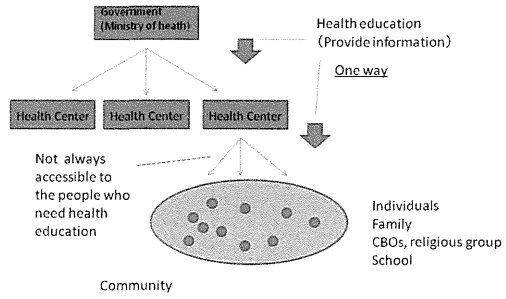
Tiyanjane Theatre group at Chawama

Workshop in Lusaka, Zambia(Feb 2009)

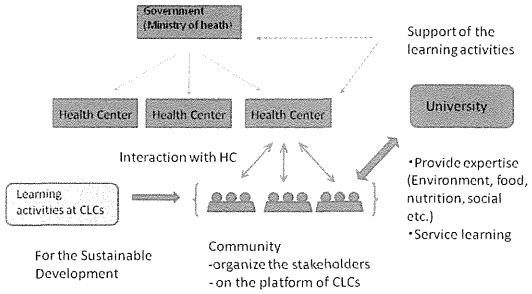
Active participation by the community people



Conventional model of Health Education



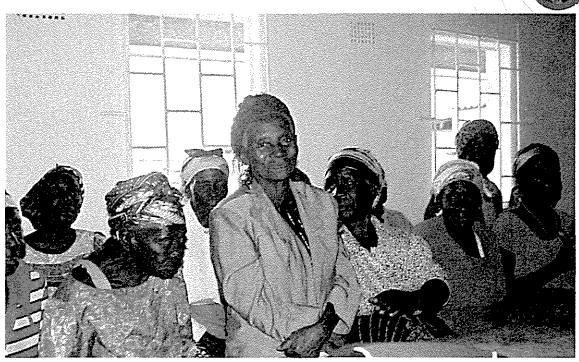
Community initiatives of ESD at CLCs on health



Contents of the Presentations

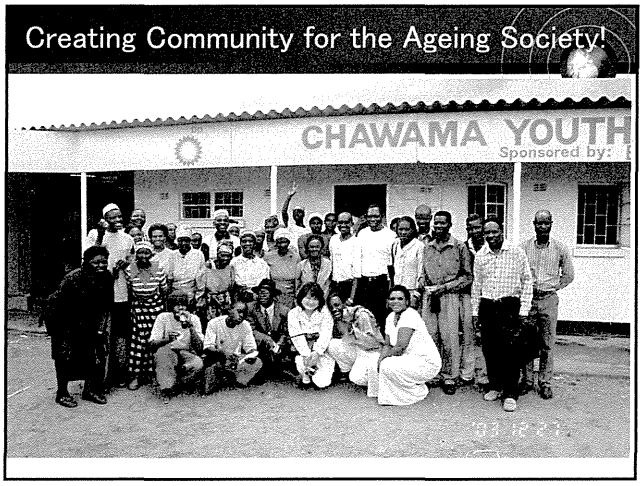
- Japan commit for Africa
- Life expectancy in Japan
- The role of the community for public health
- Experiences in Zambia
- Education for Sustainable Development (ESD) and Community Learning Center (CLC)
- Challenge of Ageing society

Elderly people in Lusaka, Zambia



Kominkan as the platform of the CBOs in the community

- CLCs (Kominkan) has potentials for promotion of the community based organization (CBOs)
- Community is the place to learn society, community and culture
- Social education has the function to promote the "community participation" and "Social capitals" for the public health


Creating Community for the Ageing Society!
CHAWAMA YOUTH
Sponsored by:

厚生労働科学研究費補助金（地球規模保健課題解決推進のための開発研究事業）
分担研究報告書

Population aging and care burden of the family in Asia

研究代表者　田宮菜奈子　筑波大学医学医療系　教授
研究協力者　宮下裕美子　筑波大学医学医療系　研究員

研究要旨Abstract

【背景】　アジアの多くの国々において、高齢者介護の主な担い手は家族である。しかし、急速な高齢化の進展や出生率の低下、都市化などの社会変化によって、家族による介護力は低下していくと考えられ、今後どのように介護を提供すべきか、再考する必要がある。

【目的】　そこで本研究は、介護負担とその要因に焦点を当て、アジアにおける家族による高齢者介護の現状を把握することを目的とした。

【方法】　東アジア、東南アジアにおける実証研究の系統的レビューを行った。Pubmedを用いて、”Caregivers”、”Burden”および各国・地域名 を検索語に、2000年以降に出版された、抄録付きの、英語論文を条件に設定し、検索を行った。包含基準は、原著論文、量的研究、観察研究、当該国・地域で調査が行われているもの、アウトカムとして家族の介護負担に焦点を当てているもの、被介護者が高齢者、認知症患者または脳卒中患者であるものとした。さらに、最も多く使われている介護負担尺度を用いた研究について、詳細を分析した。

【結果】　50の論文が上記基準に合致した。被介護者別の内訳は、高齢者(28)、認知症患者(26)、脳卒中患者(10)であった。 国・地域別の件数は、台湾(15)、韓国(10)、香港(8)，中国(8)、 シンガポール(4)、 マレーシア(3)、タイ(2) 、フィリピン(1) であった。最も多く使われていた介護負担尺度は Zarit Burden Interview であった。

【結論】　近年、アジアの高齢化の進んでいる国・地域において、高齢者、特に認知症患者の介護における家族の介護負担が、社会問題化しつつあることが示唆された。それぞれの国・地域の社会的背景を踏まえ、家族介護者をどのように支援していくか、早急に検討する必要があると考えられる。

A．研究目的　Objectives

Currently, the population is rapidly aging not only in the developed countries like Japan but also in many of the developing countries in Asia[1]. (Figure 1)

Aging is of course a success as a result of the effort of each country and international society on public health

policies and socio-economic development, but as we noticed, it is also a challenge for the society to adapt for the well-being of the elderly. One of the most serious problems is that the more the elder population, the more long-term care needs.

In most of the Asian countries, main provider of long-term care is a family member. However, due to the current social change, such as rapid aging, declining birth rate and urbanization, the capacity of family carers is expected to decline.

So, the study aims to grasp the current situation of the long-term care of the older adults by family, focusing on their care burden and its factors.

B．研究方法 Methods

Systematic review was conducted in July 2013 for empirical studies in 18 East and Southeast Asian countries shown in figure 1 except for Japan. Pubmed was searched with search terms: **Caregivers** ([MeSH Terms] or [Title/Abstract]) and **Burden** ([Title/Abstract]) and **Name of the each country/region,** with condition of in English with abstract and published after 2000. Inclusion criteria were, original article, quantitative observational studies, conducted in the country or region, focusing on care burden of family carers as an outcome, focusing on cases of the general older adults or patients of dementia or stroke survivors.

And we analyzed the articles with the most common scale of care burden for purpose of comparison.

C．研究結果 Results

With the search terms and conditions, in total 318 articles were searched. 113 articles were on the care of the patients of non-age-related illness such as psychiatric disorders and terminal cancers. 71 were not conducted in the country/region, and 50 didn't focus on care burden. Eventually, 50 articles matched the inclusion criteria.

The number of articles on care of older adults, dementia patients and stroke survivors were 28, 26 and 10 respectively.

Table1 shows the number of the articles by countries. The 50 articles were distributed in 8 countries: Taiwan(15), South Korea(10), Hong Kong(8), China(8), Singapore(4), Malaysia(3), Thailand(2) and Philippines (1).

The most common burden scale was Zarit Burden Inventory (ZBI)2[)], followed by Caregiver Burden Inventory (CBI)[3)] and Care Burden Scale (CBS)[4)]. Out of 17 articles using ZBI, 13 articles used the ZBI full version with 22 items (range 0-88 points) (Table 1).

Table 2 shows the number of the articles with ZBI full version by published year and by characteristics of care recipients. Out of 13 articles, 8 were published after 2010 and 10 were about the dementia patients.

The summary of the 13 articles with

ZBI full version[5)-17)] is shown in table 3. ZBI score of those who care for older adults with dementia were ranged from 18.9 (±16.5) in Singapore to 35.5(±14.4) in Taiwan, while that for general older adults were 10.8(±10.3) in Korea and 20.8(±11.3) in Thailand, and that for stroke survivor was 24.9(±20.2) and 21.1 (±17.9) in urban and rural China, respectively.

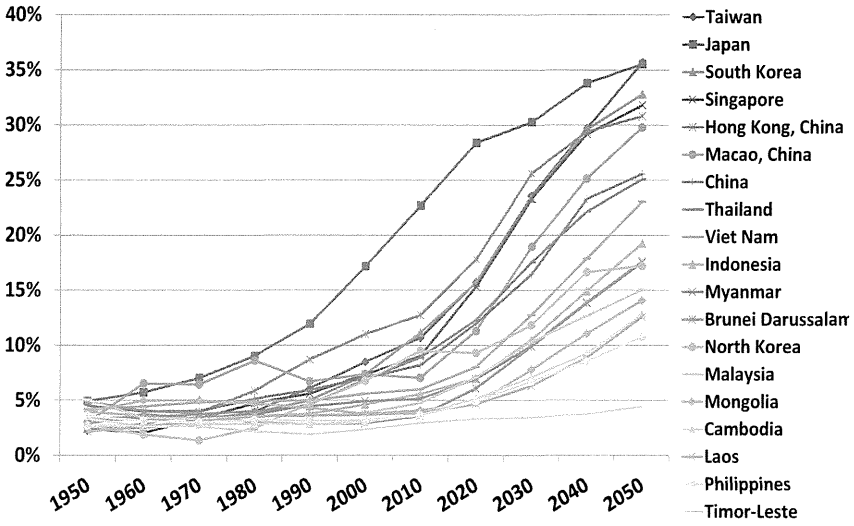


Figure 1. Transition of proportion of the older adults (≧ 65) in Asian countries and regions

(Ref: UN. World Population Prospects, the 2010 Rev. 2011)

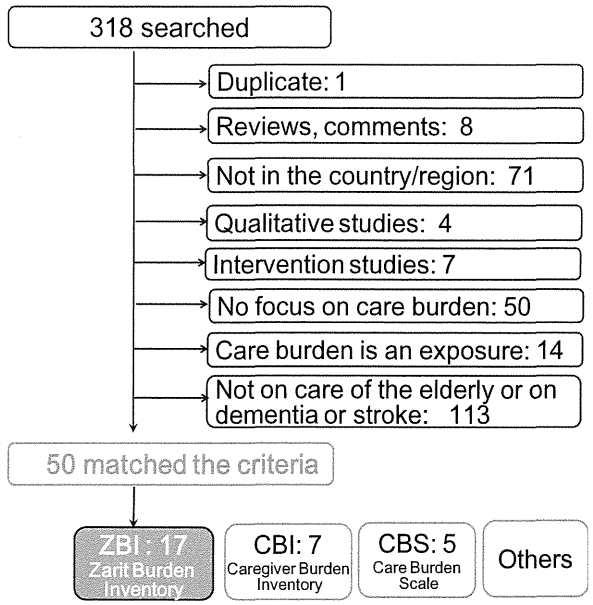


Figure 2: Flow of articles screening and selection

Table 1: The number of the articles matched the criteria and those utilizing Zarit Burden Inventory (ZBI) by country/region

Country / Region	Elderly ≥65 (2010)	Articles matched the criteria	Articles utilizing ZBI	Articles with ZBI-22 score
Hong Kong	12.7%	8	3	1
South Korea	11.1%	10	2	2
Taiwan	10.7%	15	2	2
Singapore	9.0%	4	3	3
Thailand	8.9%	2	1	1
China	8.2%	8	3	3
Malaysia	4.8%	3	3	1
Philippines	3.6%	1	0	0
Total	-	50*	17	13

Table 2: The number of articles with ZBI-22 score

Published year	2003: 1, 2006-2010: 4, 2010-2013: 8
Characteristics of care recipients	General older adults: 2 Dementia: 10, Stroke survivor: 1