

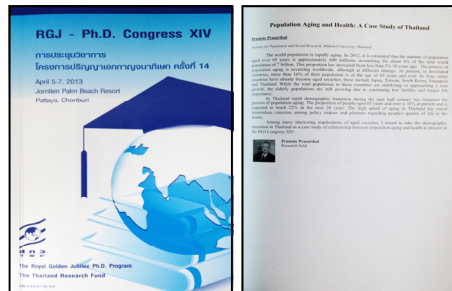
Population Aging and Health: A Case Study of Thailand



Pramote Prasartkul

**Keynote lecture presented at the RGJ-PhD Congress XIV
5th April 2013**

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The world population is rapidly aging. In 2012, it is estimated that the number of population aged over 65 years is approximately 600 millions, accounting for about 8% of the total world population of 7 billion. This proportion has increased from less than 5% 30 years ago. The process of population aging is occurring worldwide, although at different timings. At present, in developed countries, more than 16% of their population is of the age of 65 years and over. In Asia, many countries have already become aged societies; these include Japan, Taiwan, South Korea, Singapore and Thailand. While the total population in these countries are stabilizing or approaching a zero growth, the elderly populations are still growing due to continuing low fertility and longer life expectancy.

In Thailand rapid demographic transition during the past half century has triggered the process of population aging. The proportion of people aged 65 years and over is 10% at present and is expected to reach 22% in the next 20 years. The high speed of aging in Thailand has raised tremendous concerns among policy makers and planners regarding people's quality of life in the future.

Among many interesting implications of aged societies, I intend to take the demographic transition in Thailand as a case study of relationship between population aging and health to present at the RGJ Congress XIV.

RGJ-Ph.D. Congress XIV
Basic Research for Sustainable Development
“Population Aging and Health:
A Case Study of Thailand”

Pramote Prasartkul
April 5th, 2013
Jomtien Palm Beach Hotel & Resort, Pattaya, Chonburi, Thailand

Professor Kraisd Tontisirin, Professor Sawasd Tantaratana,
Professor Vichai Reutrakul, Professor Amaret Bhumiratana,
Associate Professor Kosan Koosamran, distinguished participants,
ladies and gentlemen¹.

First of all, I would like to thank the organizers of RGJ Congress for inviting me to address to all the participants in the first session of this year conference, of which I am particularly honored. As equally honored, I have been tasked today to speak to you about aging and health, the topic of which I am specifically interested in and find it relevant to the present society at large.

RGJ-Ph.D. Congress XIV
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This similar lecture was also presented at the Queen Sri Savarindira and Prince Mahidol Commemorative Conference: MU Research to ASEAN under the title "Aging and Health" on 1st November 2012 at Mahidol Learning Center, Mahidol University at Salaya.

¹ Professor Kraisid Tontisirin: Chairman of the Policy Board, The Thailand Research Fund.

Professor Sawasd Tantaratana : President of the Thailand Research Fund.

Professor Vichai Reutrakul, Senior Advisor on International Cooperation and Academic Affairs.

Professor Amaret Bhumiratana, Director, The Royal Golden Jubilee Ph.D. Program.

Associate Professor Kosan Koosamran, Deputy Director, The Royal Golden Jubilee Ph.D. Program.

(As of 5th April 2013)

Outline of Presentation

- **Demographic transition in Thailand**
 - Mortality decline
 - Fertility decline
- **Population forecast for Thailand**
 - Stabilization of population size
 - Population ageing in the future
- **Increasing demand of health services due to population ageing**

My presentation today will follow this outline.

First, I will walk with you reviewing the aging of the Thai population by using "Demographic Transition" as the conceptual framework.

Second, we will look into a population forecast of Thailand in order to understand aging in the future.

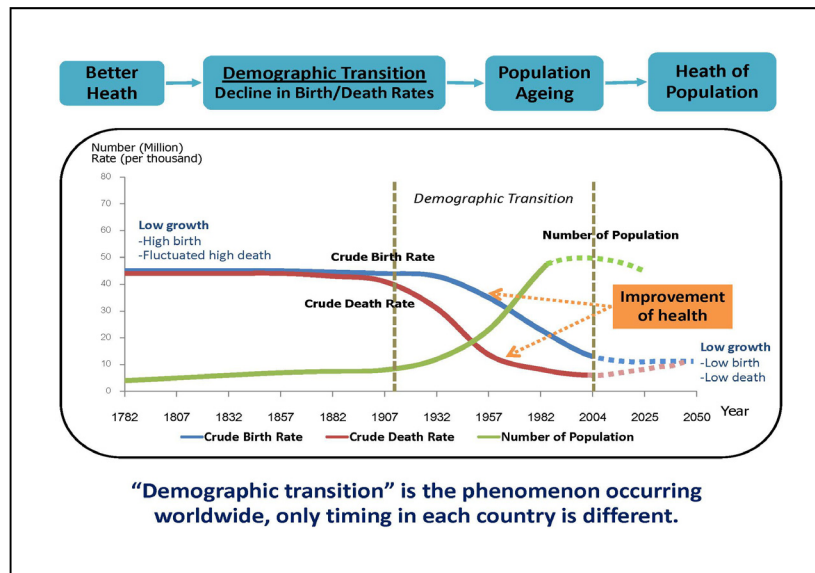
Third, I will look at some aspects of relationship between population aging and health.

Outline of Presentation

- Demographic transition in Thailand
 - Mortality decline
 - Fertility decline
- Population forecast for Thailand
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 - Population ageing in the future
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Outline of Presentation

-- Population Aging and Health: A Case Study of Thailand -- Outline of Presentation -- Demographic Transition as the Conceptual Framework -- Population Growth in Thailand -- Better Health of the Thai Population -- Longer Life Expectancies of the Thai Population -- Population Explosion in Thailand -- Million Birth Cohort or the Baby Boomers of Thailand -- The National Population Policy of Thailand -- The Success of the National Family Planning Program -- Rapid Fertility Decline -- The Change in Age Structure of the Thai Population -- Population Projection, 2010-2040 -- Trend of Population Growth in Thailand, 1782-2040 -- The Aging Population Structures -- Population Tsunami -- Rapid Population Aging in Thailand -- Comparison the Speed of Aging to Some Other Countries -- Degree of Population Aging in ASEAN -- Feminization of the Thai Aged Society -- Summary of Population Situation in Thailand -- From Quantity to Quality of Population -- Quality of Aged Society -- Demand and Supply of Health Services in the Aged Society

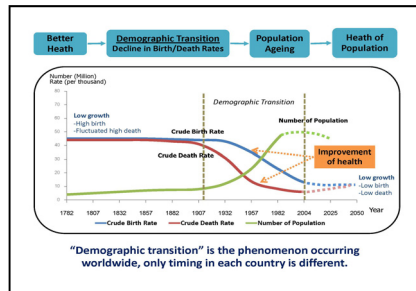


Actually the two terms, population aging and health, are closely related. The improvement of health leads to population aging, through the phenomena called "demographic transition"¹².

The demographic transition is the phenomena occurring worldwide during the past and present century.

The demographic transition is the transition of population from the stage of low growth rate due to high birth and high death rates to the stage of low growth rate due to low birth and low death rates.

And the declines in both death and birth rates have been contributed by the improvement of health.



²In the theory of demographic transition, any population would follow these 5 stages; Stage I High birth and death rates, resulting in low growth rate and stable population. Stage II Declining death rate while the birth rate is still high, resulting in high population growth rate, Stage III Low death rate and declining birth rate, resulting in declining growth rate, Stage IV Low death and birth rates, resulting in low growth rate and stable population. Stage V the birth rate is more or less than the death rate, resulting in near zero or negative growth rate. Population may be declining.

Reference: Pramote Prasartkul. (2002). *Demography: Substantive Study on Human Population (in Thai)*. Bangkok: Amarin Printing and Publishing.

The demographic transition in Thailand as a case study of relationship between population ageing and health.

Population Growth in Thailand

Census Year	Number (in Million)
1 st 1910:	8.3
2 nd 1919:	9.2
3 rd 1929:	11.5
4 th 1937:	14.5
5 th 1947:	17.4
6 th 1960:	26.3
7 th 1970:	34.4
8 th 1980:	44.8
9 th 1990:	54.5
10 th 2000:	60.9
11 st 2010:	65.9

Note: 1-5: Ministry of Interior
6-11: NSO

The population of Thailand has **increased 8 folds**, from 8 million as counted by the first census conducted in 1910 to 66 million as enumerated by the 11th census conducted in 2010.

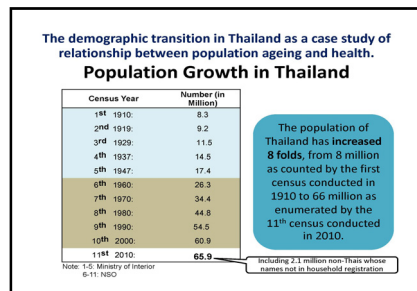
Including 2.1 million non-Thais whose names not in household registration

Let me take the demographic transition in Thailand as a case study of relationship between population aging and health. And let me start with the review of population growth in Thailand.

One hundred years ago when we had the first population census covering the whole Kingdom of Siam in 1910 during the reign of King Chulalongkorn, only 8 million population were counted. The last census conducted by the National Statistical Office, in 2010, 65.9 million population were enumerated³. I should note that this number includes 2.1 migrant workers from our neighboring countries. There are 63.8 million Thais and Non-Thais but whose names are in household registration system.

From these figures, we can see that the population in Thailand has been increasing more than 8 times, from 8 to 66 millions during the past century.

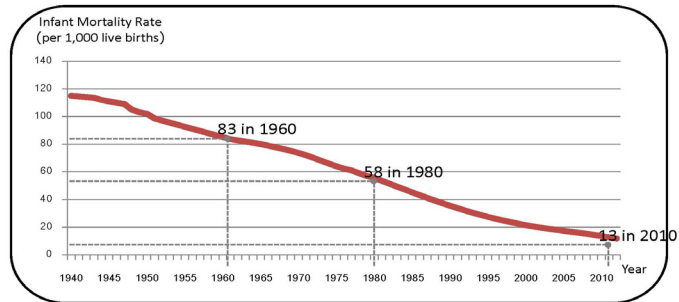
And from these census figures, we can see that the sharp increase in population totals was just occurring during the last 50 years, from 26



³* From the 1960 census on, the census enumerations of Thailand have been conducted by the National Statistical Office.

** The population of 65.9 million enumerated by the 2010 census includes 63.8 million Thais and non-Thais but whose names were in household registration and 2.1 million non-Thais whose names not in household registration.

Better health of the Thai population can be illustrated by the drop of infant mortality rate



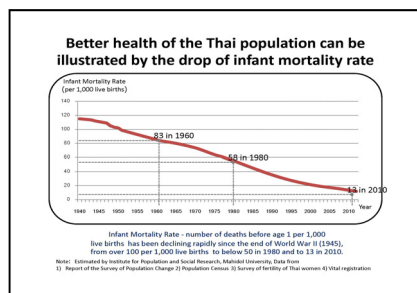
Infant Mortality Rate - number of deaths before age 1 per 1,000 live births has been declining rapidly since the end of World War II (1945), from over 100 per 1,000 live births to below 50 in 1980 and to 13 in 2010.

Note: Estimated by Institute for Population and Social Research, Mahidol University. Data from 1) Report of the Survey of Population Change 2) Population Census 3) Survey of fertility of Thai women 4) Vital registration

The demographic transition of Thailand started with the better health of the Thai people.

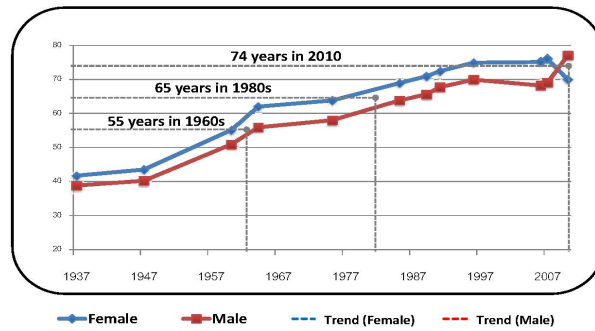
The better health can be illustrated by the drop of **infant mortality rate** or the IMR^4 , the number of deaths under one year of age per 1,000 live births in that year.

The IMR has been declining from over 100 per 1,000 live births before the World War II, to about 50 in 1980, and to only 13 in 2010.



⁴ **Infant Mortality Rate (IMR)** is defined as the number of infant (under 1 year of age) deaths in a year per 1,000 live births in that year. The IMR of the Thai population is estimated to be 11.2 per 1,000 in 2013 (Mahidol Population Gazette, 2013)

Better health of the Thai Population can also be demonstrated by the longer life expectancies



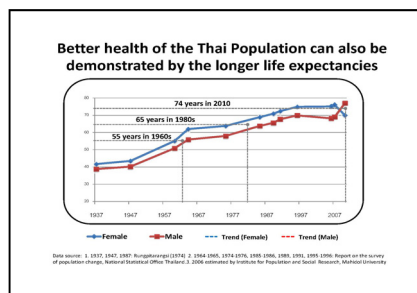
Data source: 1. 1937, 1947, 1987: Rungtitarangsi (1974) 2. 1964-1965, 1974-1976, 1985-1986, 1989, 1991, 1995-1996: Report on the survey of population change, National Statistical Office Thailand.3. 2006 estimated by Institute for Population and Social Research, Mahidol University

Better health of Thai population can also be demonstrated by the longer life expectancies⁵.

The average life expectancy of the Thai people hundred years ago was so short, at about 40 years only.

The life expectancy increased to about 55 years in 1960s, and to 65 years in 1980s.

Now the life expectancy of the Thai population is about 74 years, 70 years for males and 77 years for females.

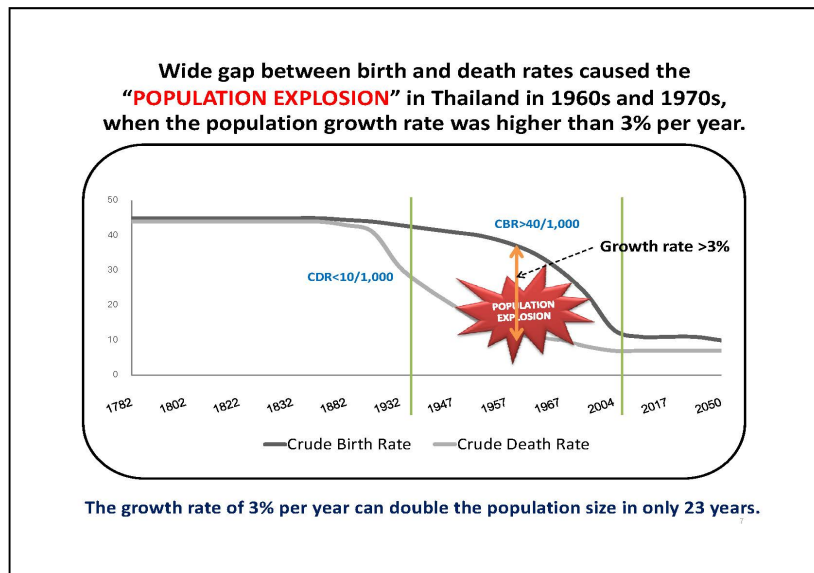


⁵ **Life Expectancy** is defined as the number of years a person expected to live. The term “life expectancy” is usually used to mean “life expectancy at birth” or the average length of life from birth to death. Other terms, such as “life expectancy at age x” mean the average number of years a person expected to live from that age x to death. For example, life expectancy at 60 means the average length of life from age 60 to death.

Life expectancy at birth in Thailand

Year	Male	Female
1929	31.6	37.5
1937	36.7	43.3
1947	48.5	51.4
1959-1961	53.6	58.7
1964-1965	55.2	61.2
1969-1971	57.7	61.4
1974-1976	58.0	63.8
1980-1981	58.6	65.5
1985-1990	61.8	67.5
1995-1996	70.0	75.0
2005-2006	69.9	77.7
2006	75.1	68.2
2007	76.0	69.0
2010	70.0	77.0
2013	71.1	78.1

Sources: 1929 Bangkok Registration Area Only; 1937 Bangkok and Thonburi Municipal Area Only; 1947, 1959-1961 Whole Kingdom; 1969-1971 The report of Office of the National Economic and Development Board; 1974 - 1976 The Survey of Population Change, National Statistical Office; 1980 - 1981 The report of Working Group on Population Projections, Office of the National Economic and Social Development Board, 1985; 1985 - 1990 The report of Working Group on Population Projections, Office of the National Economic and Social Development Board 1985, and Expected life at other ages are interpolated from life table west model level; 1995-1996, 2005 - 2006 The Survey of Population Change, National Statistical Office; 2006-2013 Estimated by Institute for Population and Social Research, Mahidol University

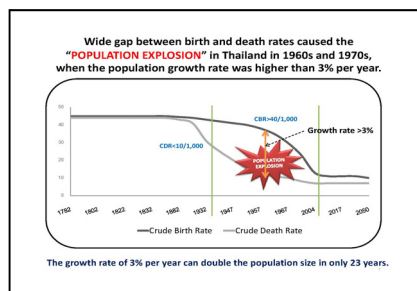


During 1960s, there occurred what can be called "Population Explosion" in Thailand.

This explosion was ignited by a wide gap between the birth and death rates⁶.

The death rate had been declining to stay at a low level, while the birth rate was still remaining high, resulting in a very high population growth rate⁷ of over 3 percent per year.

The growth rate of 3 percent per year can double the population size in only 23 years.



⁶**Crude Birth Rate (CBR)** is the annual number of births per 1,000 population.

Crude Death Rate (CDR) is the annual number of deaths per 1,000 population

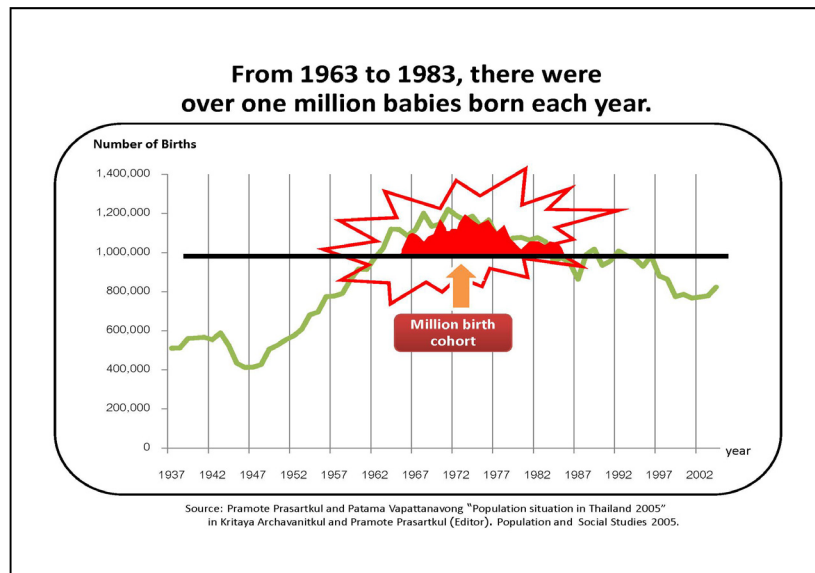
⁷**Growth Rate (GR) or Rate of Natural Increase** is the birth rate minus the death rate, implying the annual rate of population growth without regarding for migration.

CBR, CDR and GR in Thailand 1945-2010

Year	CBR	CDR	CBR-CDR	Year	CBR	CDR	CBR-CDR
1945	25.7	16.4	9.3	1980	23.2	5.3	17.9
1950	26.8	9.4	17.4	1985	18.8	4.4	14.4
1955	30.3	8.2	22.1	1990	17.0	4.5	12.5
1960	34.7	8.4	26.3	1995	16.2	5.5	10.7
1965	37.5	7.5	30.0	2000	12.5	5.9	6.6
1970	31.5	6.2	25.3	2005	13.0	6.4	6.6
1975	27.1	5.6	21.5	2010	12.0	6.5	5.5

Source: Ministry of Public Health, 1945-2010

Note: The fluctuation of these vital rates may also be due to the incompleteness of registration data.



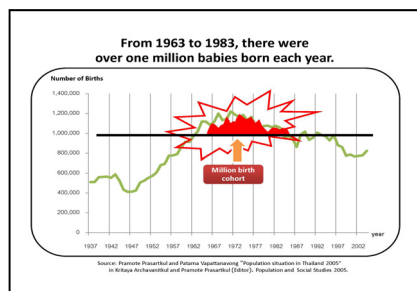
The evidences of high population growth rate at that time can be seen from an obviously large number of babies born each year⁸.

During the period of 20 years from 1963 to 1983, there were more than one million births registered with the Ministry of Interior each year.

I call the population born during this period **"Million Birth Cohort"**, which may also be called **"Baby Boomers"** of Thailand.

After 1983, the number of births in our country has been declining. Last year, there were less than 800,000 babies born in Thailand.

The Million Birth Cohort are now 30 to 50 years old. They are a huge wave of population. I would like to call it the **"Population Tsunami"** which is moving to become elderly in the near future.



⁸ Number of registered births, 1937-2012

Year	Births	Year	Births	Year	Births	Year	Births
1937	509,906	1956	773,756	1975	1,132,416	1994	960,248
1938	511,855	1957	777,436	1976	1,166,292	1995	963,678
1939	559,798	1958	790,155	1977	1,079,331	1996	944,118
1940	405,564	1959	861,380	1978	1,040,218	1997	897,604
1941	565,895	1960	915,538	1979	1,073,436	1998	897,201
1942	554,018	1961	913,805	1980	1,077,300	1999	754,685
1943	588,870	1962	973,634	1981	1,062,238	2000	773,009
1944	525,446	1963	1,020,051	1982	1,075,632	2001	790,425
1945	433,261	1964	1,119,715	1983	1,055,802	2002	782,911
1946	411,835	1965	1,117,698	1984	956,680	2003	742,183
1947	413,430	1966	1,085,594	1985	973,624	2004	813,069
1948	426,054	1967	1,116,424	1986	945,827	2005	809,485
1949	504,682	1968	1,200,131	1987	884,043	2006	793,623
1950	525,080	1969	1,133,526	1988	873,842	2007	797,588
1951	552,742	1970	1,145,293	1989	905,837	2008	784,256
1952	573,460	1971	1,221,228	1990	956,237	2009	765,047
1953	607,118	1972	1,189,950	1991	960,556	2010	761,689
1954	681,192	1973	1,167,272	1992	964,557	2011	795,031
1955	694,985	1974	1,185,869	1993	957,832	2012	818,901

Source: Department of Provincial Government, Ministry of Interior

- During 1960s, the issue of rapid population growth rate was raised. There was a concern that high growth rate would be an obstacle to the government's effort to accelerate social and economic development.

- 17th March 1970, the Prime Minister Marshall Thanom Kittikhajorn's cabinet decided to have the national population policy.

"The government will support the family planning on the voluntary basis, to solve various problems concerning the very high growth rate of population, which is an important obstacle to the social and economic development of the country."

Anti-natalist policy to reduce population growth rate by means of family planning program.

The rapid population growth during 1960s became a critical debating issue among politicians, government officials and academics, whether Thailand should have pro- or anti-natalist population policy⁹.

Finally, the anti-natalist won. The cabinet of Prime Minister Marshall Thanom Kittikhajorn¹⁰ declared the national population policy on 17th March, 1970, aiming to slow down the population growth rate by means of family planning program.

• During 1960s, the issue of rapid population growth rate was raised. There was a concern that high growth rate would be an obstacle to the government's effort to accelerate social and economic development.

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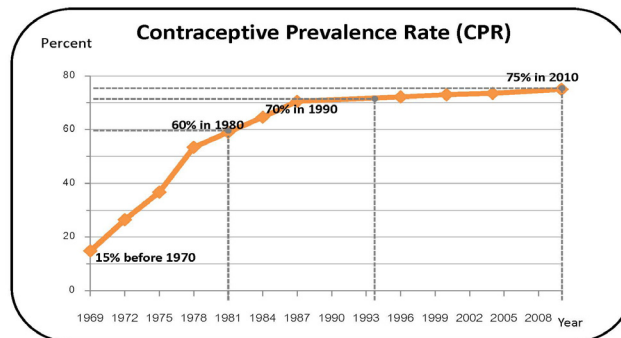
Anti-natalist policy to reduce population growth rate by means of family planning program.

⁹The National Research Council organized 2 conferences, in 1963 and 1968, to discuss on the social and economic impacts of high population growth rate. These conferences led to the recommendation of having a policy to slow down the population growth rate.

¹⁰ Marshall Thanom Kittikhajorn had been Prime Minister of Thailand from 1968 to 1971.

•After the declaration of national population policy, the National Family Planning Program was established in the Ministry of Public Health.

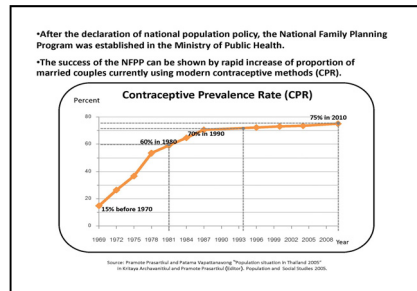
•The success of the NFPP can be shown by rapid increase of proportion of married couples currently using modern contraceptive methods (CPR).



Source: Pramote Prasartkul and Patama Vapattanavong "Population situation in Thailand 2005" In Kritaya Archavanitkul and Pramote Prasartkul (Editor), Population and Social Studies 2005.

The success of family planning programs¹¹ in Thailand can be shown by rapid increase of the contraceptive prevalence rate or the percentage of married couples currently using modern contraceptive methods.

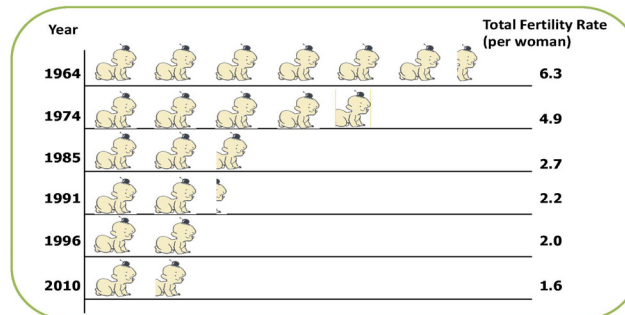
The contraceptive prevalence rate¹² of less than 15 percent before 1970 rose up to almost 60 percent in 1980 and to over 70 percent in 1990.



¹¹ **National Family Planning Program (NFPP)** was set up by the government in 1970 to promote voluntary use of contraception. The National Family Planning Program Committee was chaired by the Ministry of Public Health by having the Director-General of Department of Health as the Secretary. The members of the NFPP committee were composed of representatives from key ministries, NGOs, and universities.

¹² **Contraceptive Prevalence Rate (CPR)** is the proportion of married couples of reproductive age who are currently using a modern contraceptive method.

The fertility of the Thai Population has been declining rapidly since 1980. The TFR (average number of children a woman would have throughout her child-bearing period) dropped from **more than 6 before 1970 to 2 in 1990**, and to a very low level of fertility at **1.6 at present**.



Sources: year 1964 1974 1985 and 1991: The report on the survey of population change in Thailand
year 1996: The survey of contraception in Thailand 1996
year 2010: Estimated by Institute for Population and Social Research, Mahidol University

The fertility of the Thai population has been declining sharply. The **total fertility rate**¹³ -TFR - or the average number of children a woman would have throughout her childbearing period - dropped from the average of more than 6 children per woman in 1960s, to only 2 children in 1990.

Now, a Thai woman has only 1.6 children on the average, which can be classified into a very low level of fertility.

Compared to Singapore of 1.2

South Korea 1.2

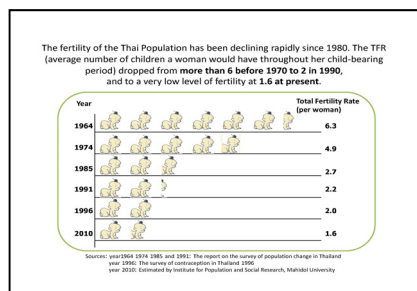
Japan 1.2

China 1.4

Canada 1.7

US 2.0

Cambodia, Lao, Myanmar more than 3.

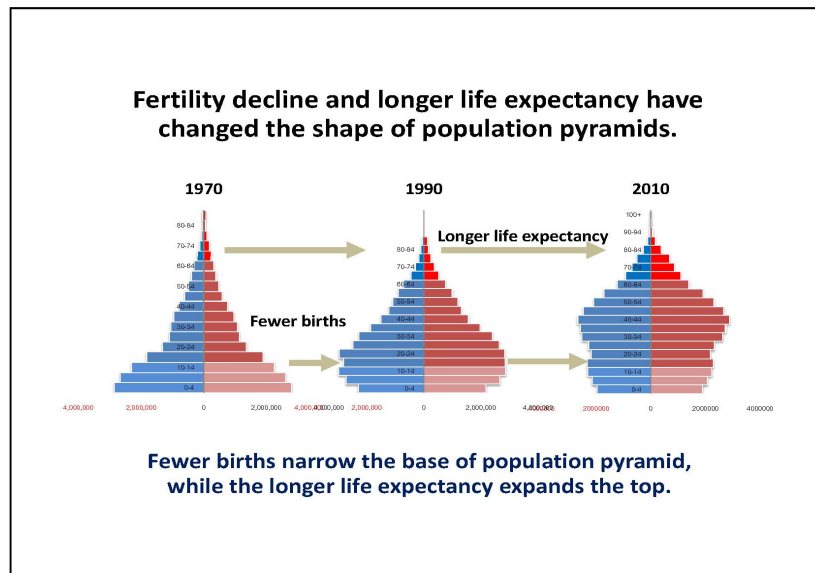


¹³ **Total Fertility Rate (TFR)** is the average number of children a woman would have throughout her childbearing years. The TFR can be calculated by summing all the age-specific fertility rates (ASFR).

Countries with lowest and highest fertility in 2005-2010

Lowest Fertility			Highest Fertility		
Rank	Country	TFR	Rank	Country	TFR
1	China, Macao	0.94	1	Niger	7.58
2	China, Hong Kong	1.03	2	Somalia	7.10
3	Bosnia&Herzegovina	1.22	3	Chad	6.85
4	Republic of Korea	1.23	4	Mali	6.80
5	Singapore	1.26	5	Timor-Leste	6.53
6	Slovakia	1.31	6	Burundi	6.52
7	Hungary	1.33	7	Congo	6.50
8	Poland	1.34	8	Angola	6.50
9	Romania	1.34	9	Uganda	6.38
10	Japan	1.34	10	Afghanistan	6.33

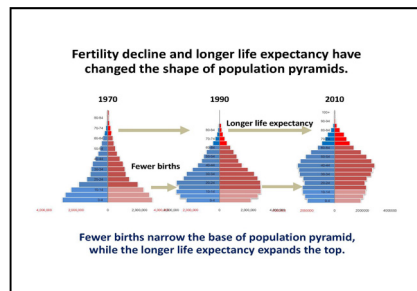
Source: World Population Prospects: the 2012 Revision



Fertility decline and longer life expectancy cause change in age structure of population.

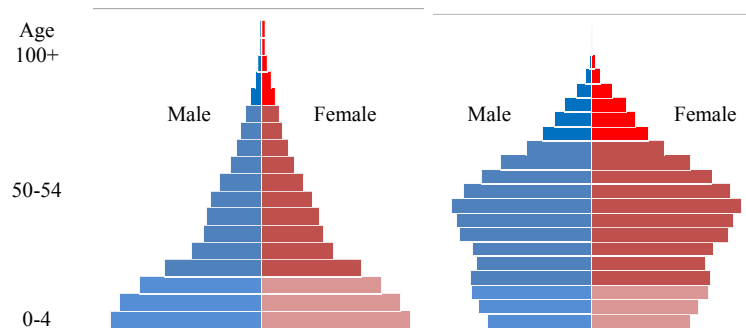
A population pyramid¹⁴ of triangular shape 40-50 years ago has markedly transformed to a bell-shaped at present.

Fewer births narrow the base of the pyramid, while longer life expectancy expands the top of the pyramid.



¹⁴ **Population Pyramid** is a graphic presentation of the age-sex structure of a population, indicating either single ages, 5-year groups, or other age combinations. The basic pyramid form consists of bars, representing age groups in ascending order from the lowest representing the youngest population to the highest representing the oldest population. The bars for males are given on the left of a central vertical axis, and the bars for females are given on the right of the axis.

Population pyramids of Thailand, 1970 and 2010



Population projection 2010-2040

In 2012, IPSR-MU is conducting the population projection for Thailand, for the period from 2010 to 2040.

The scenario from this projection believed to be most probable is our population forecast:

- Using population by age and sex from the 2010 Census as the base population.
- The base population is 63.8 million, not including migrant workers and non-Thais not in the household registration system.
- Medium fertility assumption that TFR is further declining from 1.62 in 2010 to 1.30 in 2040.
- Mortality assumption that the e_0 of 74 (M=70, F=77) in 2010 are extending to 78 years (M=75, F=82) in 2040.
- Assumption of net international migration near zero during the projection period.

We, Demographers at Mahidol University, just completed the population projection for Thailand in the next 30 years. We did this projection for the National Economic and Social Development Board¹⁵. In this projection, the population from the 2010 census, not including migrant workers from neighboring countries¹⁶, was used as the base population.

We did 4 scenarios according to different levels of fertility. The scenario that we believe most probable is the one with following assumptions:

-The fertility of the Thai women will further decline from TFR of 1.6 in 2010 to 1.3 in 2040.

- Thai people have longer life expectancy, from 70 years for males and 77 years for females in 2010 increase to 75 years for males and 82 years for females in 2040.

-In this projection, the migrant workers from neighboring countries are not included.

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- Assumption of net international migration near zero during the projection period.

¹⁵ The report of this projection is:

Office of the National Economic and Social Development Board, Population Projections for Thailand, 2010-2040. February, 2013.

¹⁶ The 2010 census is used as the base population for population projection with 4 scenarios of assumption on fertility.

Scenario I: TFR increases from 1.62 in 2010 to 1.80 in 2040.

Scenario II: TFR is stable during 2010-2040.

Scenario III: TFR is 1.62 during 2010-2015 and gradually decreases to 1.30 in 2040 (our population forecast).

Scenario IV: TFR decreases from 1.62 in 2010 to 1.10 in 2040.

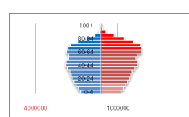
Projected population in 2010, 2020, 2030, and 2040

Scenario (in 1,000)	I	II	III	IV
Base year 2010*	63,790			
2020	66,176	66,052	65,996	65,707
2030	67,226	66,730	66,174	65,344
2040	66,457	65,357	63,864	62,321

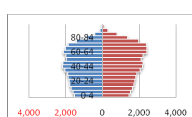
* The base population in this projection does not include non-Thais whose names are not in household registration.

Population pyramids in 2040 by different scenarios

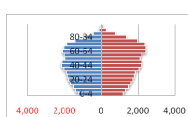
Scenario I



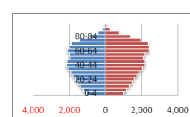
Scenario II

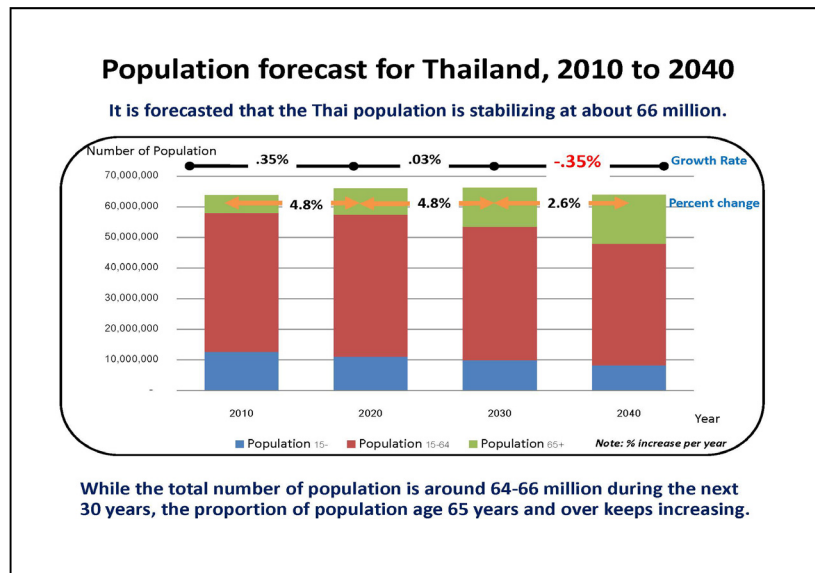


Scenario III



Scenario IV

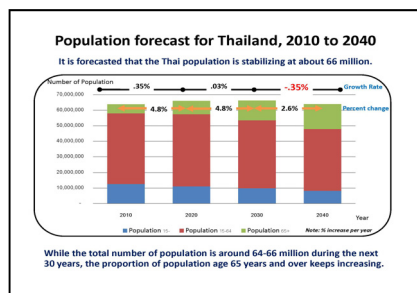




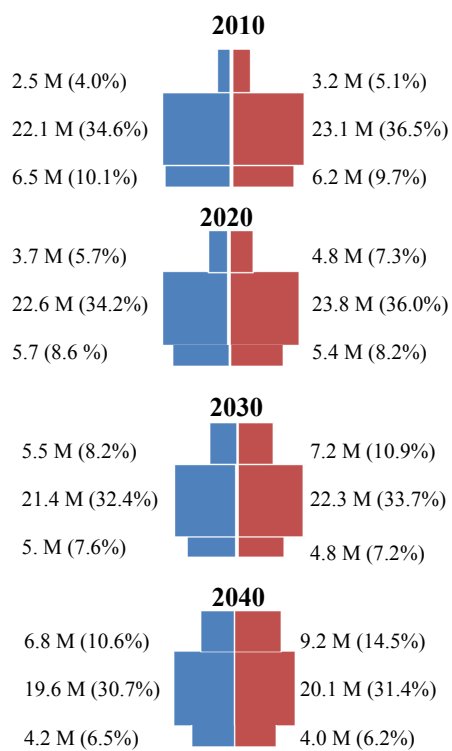
The most probable scenario of the population projection is our forecast of population in the next 30 years. We forecast that the total number of population of Thailand will be stabilizing at 64-66 million during the next 30 years. The total number will reach the peak at about 66.4 million in around 2026 (next 13 years)¹⁷.

After 2031, the Thai population will start declining, then the growth rate will start showing negative sign.

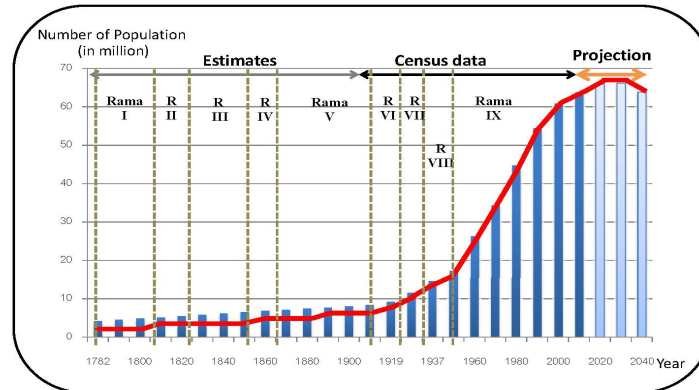
The population in the next 30 years, in 2040, will be approximately 63.8 million, about the same number as the population in 2010.



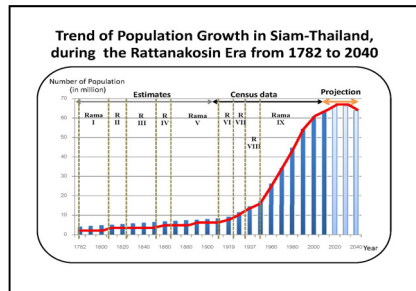
¹⁷ **Forecasted population aged 0-14, 15-64, and 65+**



Trend of Population Growth in Siam-Thailand, during the Rattanakosin Era from 1782 to 2040



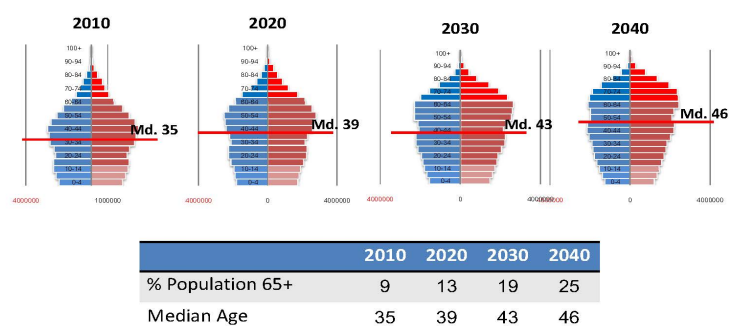
This slide shows the trend of population growth in Thailand, which I put together the past trend from 1782 when Ratanakosin was founded of which data were estimated by foreigners, the trend from 11 population censuses since 1910, and the future trend to 2040 from our forecast¹⁸.



¹⁸ In the Reign of King Rama III, Padre Pallegoix estimated that there were 6 million people in the Kingdom of Siam. In the Reign of King Rama IV, Sir John Bowring estimated the number of Siamese at 4.5-5.0 million. The number of population in Thailand at the beginning of Rattanakosin Era (1782) can be estimated in the range of 4.5 to 6 million.

It should be noted that the population of Thailand has tremendously increased during the past century. It has been increasing 16 times, from 8 million as counted by the 1910 census to 64 million by the 2010 census.

While the total number of population is stabilizing, the population structure is ageing.



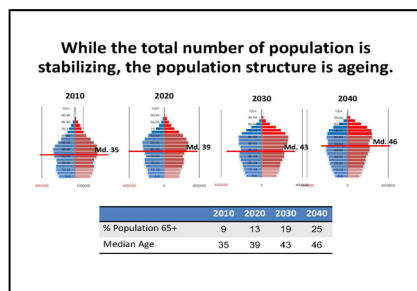
Now, let's look at the population aging in Thailand in the future.

The population aged 65 years and over accounted for 9 percent in 2010 will be increasing to 13 percent in 2020, to 19 percent in 2030, and up to 25 percent in the next 30 years.

Another indicator of population aging is the increasing median age. The median age is the age that divides the population into two halves, one half is younger and the other is older.

Forty years ago, the median age of the Thai population was lower than 20 years which indicated the young population.

In 2010, the median age is 35 years and continues to increase to 46 years in 2040, which means half of 64 million population at that time will be over 46 years old¹⁹.

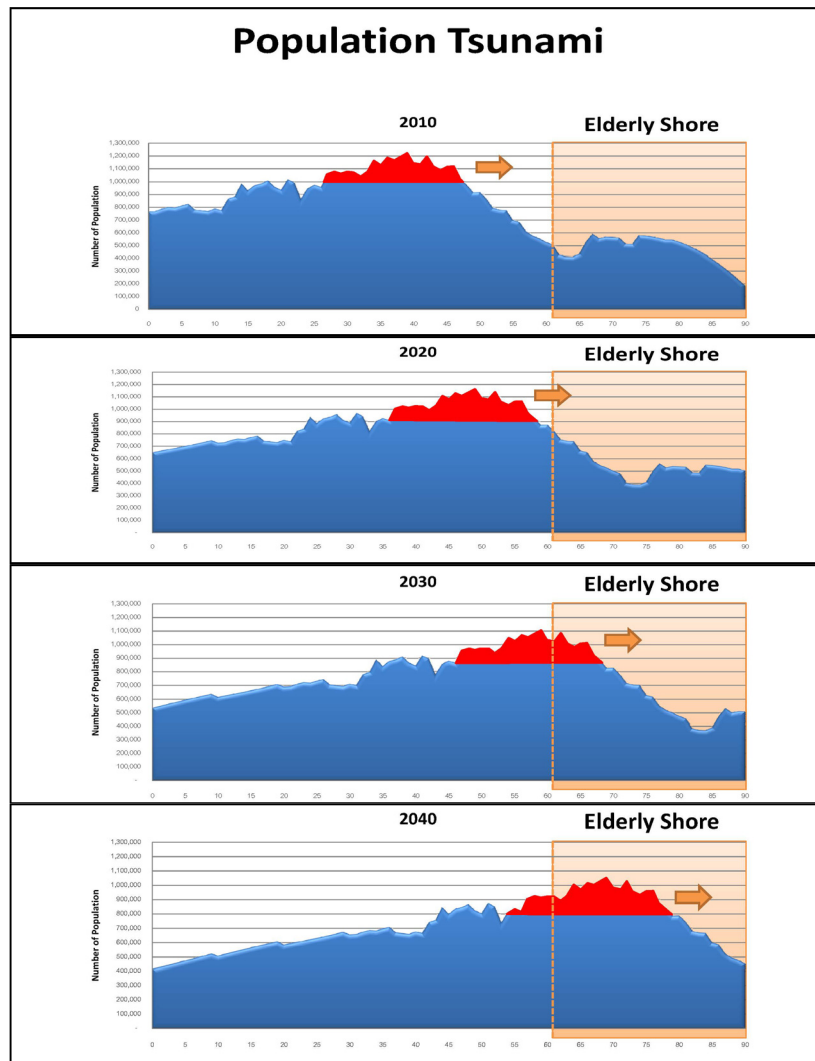


¹⁹ If we take the percentage of aged population to the total population as an indicator of aging, the criteria below can be used.

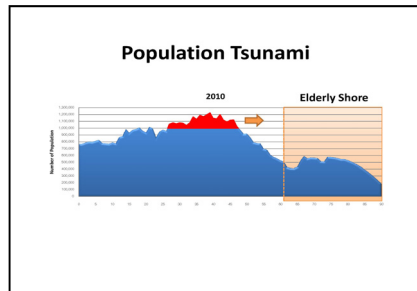
Classification of aged society/population

Society/Population	Percent of population	
	60+	65+
Young	<10	<7
Aged	10-19.9	7-13.9
Complete aged	20-26.9	14-19.9
Super aged	27+	20+

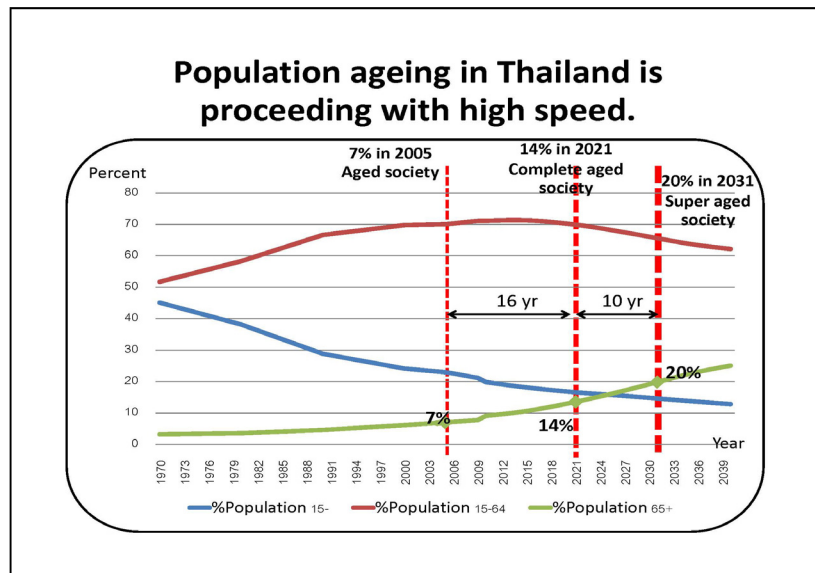
Society/Population	Median age (approximately)
Young population	<20
Medium population	20-29.9
Old population	30-39.9
Very old population	40+



From now on the population tsunami or the million birth cohort is moving to become elderly. This population tsunami will be accelerating the speed of population aging in Thailand in the next 10-20 years²⁰.



²⁰ In 2013, the population in the Million Birth Cohort are 30-50 years old. The number of population in this cohort altogether is more than 20 million. We can foresee this huge wave (tsunami) moving to become elderly in the very near future, and that the reason why the population of Thailand are aging at a very high speed.

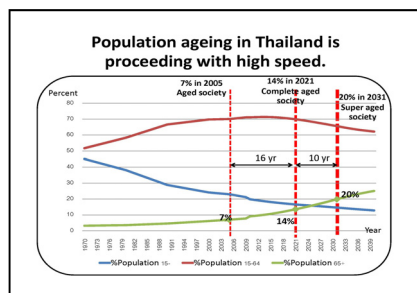


Thailand entered into the **aged society** since 2005 when the proportion of population aged 65 years and over reached 7 percent.

We will become a **completed aged society** in 2021, when the proportion of population 65 years and over reaches 14 percent.

And we will become **super aged society** when population 65 years plus reaches 20 percent in 2031.

Altogether it will take Thailand 26 years from being aged society to become super aged society²¹.



²¹ **Percentage of population age 15-, 15-64, and 65+**

Year	Percentage of Population		
	Under 15	15-64	65+
1970	45.1	51.7	3.2
1980	38.1	58.3	3.6
1990	28.8	66.6	4.6
2000	24.1	69.8	6.1
2005	23.0	70.1	7.0
2010	19.8	71.1	9.1
2015	18.0	71.4	10.6
2020	16.4	70.5	13.0
2025	15.1	68.9	16.0
2030	13.8	66.8	19.4

Source: 1. 1970-2000, 2010 from Census; 2. 2005 from Estimated Population ; 2015-2030 from Population Projection (Office of the National Economic and Social Development Board, 2013)

Time taken from aged to complete aged and to super aged society in some selected countries.

Country	Year			Year taken	
	Aged	Complete Aged-Society	Super Aged-Society	Aged to Complete Aged-Society	Complete to Super Aged-Society
Thailand	2005	2021	2031	16	10
South Korea	2000	2017	2026	17	9
Japan	1970	1994	2005	24	11
United Kingdom	1929	1975	2028	46	53
USA	1942	2014	2032	72	18

#Data for other countries taken from a set of power points prepared by Korea Institute for Health and Social Affairs (KIHASA), 2012.

It takes Thailand 16 years from aged society to completed aged society, and another 10 years to become super aged society. This is considered a very fast speed of aging.

The speed of aging of the Thai population is about the same as that of South Korea, which also take 26 years from aged to super aged society. This speed is much faster when compared to 35 years of Japan and almost one hundred years of UK and USA²².

Time taken from aged to complete aged and to super aged society in some selected countries.

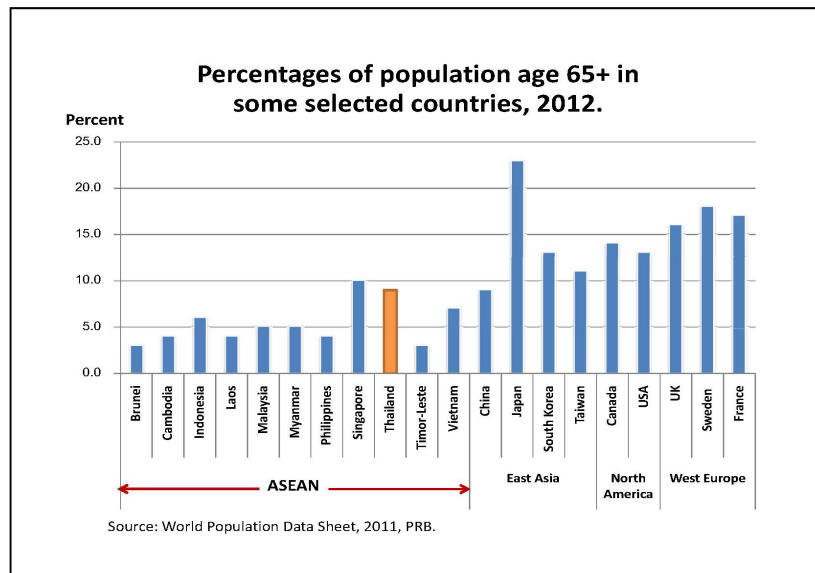
Country	Year			Year taken	
	Aged	Complete Aged-Society	Super Aged-Society	Aged to Complete Aged-Society	Complete to Super Aged-Society
Thailand	2005	2021	2031	16	10
South Korea	2000	2017	2026	17	9
Japan	1970	1994	2005	24	11
United Kingdom	1929	1975	2028	46	53
USA	1942	2014	2032	72	18

#Data for other countries taken from a set of power points prepared by Korea Institute for Health and Social Affairs (KIHASA), 2012.

²² **Time taken from aged society to be complete aged society and super aged society**

Country	Year			Years Taken	
	Aged	Complete Aged	Super Aged	Aged to Complete Aged	Complete Aged to Super Aged
Korea	2000	2018	2026	18	8
Japan	1970	1994	2006	24	12
France	1864	1979	2018	115	39
Germany	1932	1972	2009	40	37
Italy	1927	1988	2006	61	18
USA	1942	2015	2036	73	21

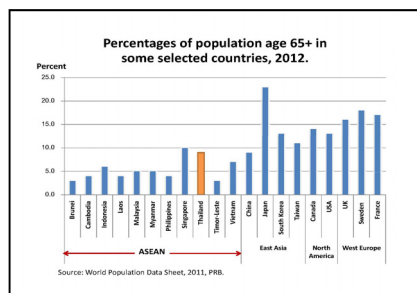
Source: Korean National Statistical Office



Compared the population aging in ASEAN countries, we can say that Thailand is the second oldest country with the population aged 65 plus accounted for 9 percent after 10 percent of Singapore, the oldest country in ASEAN. Vietnam is in the third rank with 7 percent of population 65 years and over²³.

I should note that, at present, Japan is the only super aged society in the world with about 23 percent of population aged 65 years and over.

Japanese has the longest life expectancy in the world. The life expectancy of Japanese is about 83 years, 80 years for males and 86 years for females.



²³ **Percent of population in ASEAN and some selected countries by age group (under 15, 15-64, and 65+), 2013**

Country	Under 15	15 - 64	65+	Country	Under 15	15 - 64	65+
Brunei	25.3	70.7	4.0	China	18.4	72.8	8.8
Cambodia	30.1	65.7	4.2	Japan	13.1	62.0	24.9
Indonesia	26.1	68.1	5.8	S. Korea	15.2	72.6	12.3
Laos	32.1	63.9	4.0	Canada	16.2	68.6	15.2
Malaysia	29.1	65.6	5.3	USA	20.1	66.0	13.9
Myanmar	24.4	70.3	5.4	UK	17.3	65.2	17.4
Philippines	34.3	61.8	3.8	Sweden	16.9	63.8	19.4
Singapore	15.6	73.9	10.5	France	18.4	63.8	17.8
Thailand	18.7	71.4	9.9				
Vietnam	22.8	71.1	6.1				

Source: World Population Prospects, the 2010 Revision

Highest life expectancy at birth during 2005-2010

Rank	Countries	2005-2010
1	Japan	82.67
2	China, Hong Kong SAR	82.37
3	Switzerland	81.78
4	Australia	81.69
5	Italy	81.48
6	Iceland	81.37
7	Singapore	81.21
8	Spain	81.20
9	Sweden	81.07
10	France	80.89

Source: World Population Prospects, the 2012 Revision

Feminization of the Thai aged society

Age	2010			2025			2040		
	Male (thousand)	Female (thousand)	Sex Ratio	Male (thousand)	Female (thousand)	Sex Ratio	Male (thousand)	Female (thousand)	Sex Ratio
65+	2,546	3,245	78	4,567	5,953	77	6,764	9,231	73
90+	47	86	55	94	197	47	145	346	42
All Ages	31,084	32,705	95	32,084	34,286	94	30,580	33,284	92

Sex Ratio = Number of males per 100 females

- The higher the age, the less males per 100 females.
- Among population age 65 years and over, there are less than 80 males per 100 females.
- Among the oldest old at 90 years old and over, the sex ratio is about 1 male to 2 females.

From our population forecast, we clearly see that the Thai aged society will be more feminized. The feminization can be indicated by lower sex ratio, the number of males per 100 females²⁴.

The higher the age, there will be less males per 100 females.

Among elderly population, aged 65 years and over, there will be less than 80 males per 100 females.

Among the oldest old at 90 years and over, the sex ratio is about 1 male to 2 females.

Feminization of the Thai aged society

Age	2010			2025			2040		
	Male (thousand)	Female (thousand)	Sex Ratio	Male (thousand)	Female (thousand)	Sex Ratio	Male (thousand)	Female (thousand)	Sex Ratio
65+	2,540	3,245	78	4,567	5,953	77	6,764	8,231	73
90+	47	86	55	94	197	47	145	346	42
All Ages	31,284	32,792	95	52,068	54,288	94	93,565	104,284	89

Sex Ratio = Number of males per 100 females

- The higher the age, the less males per 100 females.
- Among population age 65 years and over, there are less than 80 males per 100 females.
- Among the oldest old at 90 years old and over, the sex ratio is about 1 male to 2 females.

²⁴ **Sex Ratio** is defined as number of males per 100 females. Usually, the sex ratio at birth is in the range of 105-110 males to 100 females.

The sex ratio of population in Thailand by age groups

Age group	2010	2025	2040	Age group	2010	2025	2040
0-4	105	105	105	55-59	90	89	91
5-9	104	105	105	60-64	89	87	87
10-14	103	104	105	65-69	86	84	84
15-19	102	105	104	70-74	81	80	79
20-24	100	103	104	75-79	75	75	73
25-29	98	102	103	80-84	70	67	64
30-34	96	100	103	85-89	63	58	54
35-39	95	98	101	90-94	55	49	44
40-44	93	95	99	95-99	54	42	35
45-49	92	92	97	100+	45	33	25
50-54	91	91	94				

Source: Office of the National Economic and Social Development Board, 2013

At present, the population situation in Thailand is

- **Trend of fewer births (about 800,000 births in 2010 and will be declining to less than 700,000 in 2040)**
- **Total number of population is stabilizing (Growth rate is approaching 0.)**
- **Continuous population ageing. The aged population is increasing about 5% per year.**

Now we can summarize the population situation of Thailand²⁵.

We can see the trend of fewer births (about 800,000 births in 2011).

The total number of Thai population is stabilizing with the growth rate is approaching zero.

The Thai population is continuously aging. The elderly population 65 years and over is increasing very rapidly at about 5 percent per year.

At present, the population situation in Thailand is

- Trend of fewer births (about 800,000 births in 2010 and will be declining to less than 700,000 in 2040)
- Total number of population is stabilizing (Growth rate is approaching 0.)
- Continuous population ageing. The aged population is increasing about 5% per year.

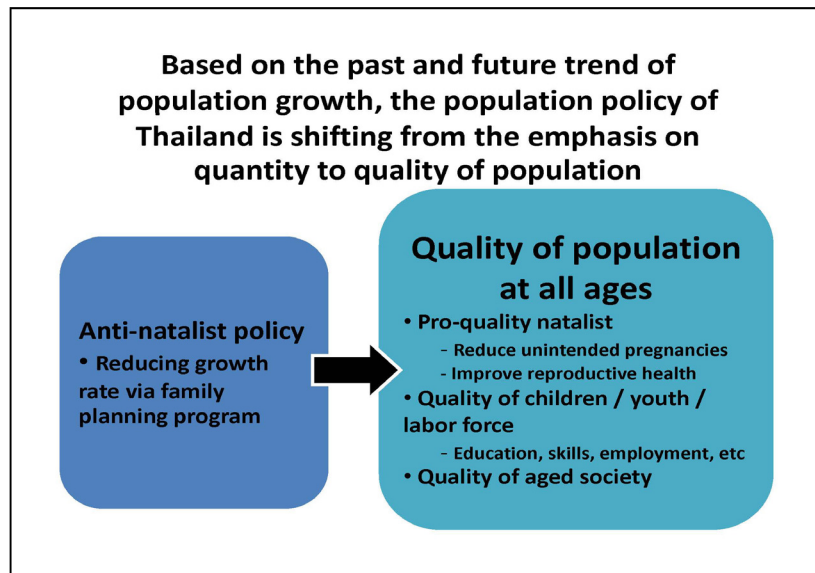
²⁵ I used to summarize the population in Thailand by 4 key words namely: fewer births, rapid aging, more crowdedness, and more strangers.

Fewer births: The new generation of population are having fewer children.

Rapid aging: The population of Thailand is aging very rapidly.

More crowdedness: More people are moving to live crowdedly in urban areas.

More strangers: There will be more migrant workers from our neighboring countries.



Based on the past and future trend of population growth, the population policy of Thailand is shifting from the emphasis on quantity to quality of population.

In the past, we had anti-natalist policy aiming to reduce growth rate via family planning program. The policy is shifting to aim at improving quality of population at all ages.

At birth, we have pro-quality natalist policy²⁶ aiming to have all babies born with quality, by reducing unintended pregnancies and improving reproductive health. We have to reduce number of babies born with physical or mental disability.

We are targeting to improve the quality of children, youth, and labor force.

And we're having the policy to improve the quality of aged society.



²⁶ **Pro-quality natalist policy:** I would like to use this term to mean the policy to promote all babies born with quality. The quality birth refers to the baby born from intended pregnancy of the planned parents. The intended pregnancy should be well taken care in order to result in mentally and physically healthy baby.

Quality of Aged Society

3 Securities for elderly

- 1) Security in income:** Sufficient income for elderly
- 2) Security in health:** Promotion of healthy and active lives
- 3) Security in living arrangement:** Living with care givers/ care giving system

To improve the "quality of aged society"²⁷, 3 aspects of securities for elderly should be assured:

Security in income, we have to insure that all elderly have enough income for living.

Security in health, we have to insure that all elderly have healthy and active lives.

Security in living arrangement, we have to insure that all elderly live with care givers or in a care giving system.

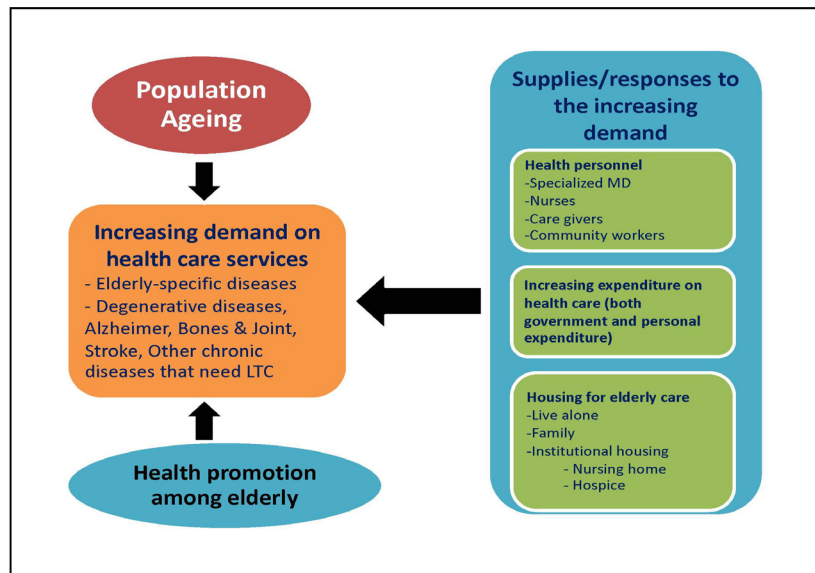
Quality of Aged Society

3 Securities for elderly

- 1) **Security in income:** Sufficient income for elderly
- 2) **Security in health:** Promotion of healthy and active lives
- 3) **Security in living arrangement:** Living with care givers/ care giving system

²⁷We may want to see the quality of aging society in the future of the following characteristics.

1. **Healthy and active aging society:** Elderly people are living in the society with physical and mental happiness. The development should aim to prolong the elderly's disability-free life expectancy.
2. **Economically secured aging society:** All elderly in the aged society should have income enough for their living. The sources of income may be from their saving, pension, state welfare, or support from their children.
3. **Well care for elderly:** Elderly people should be living with some carers or under well-caring system. They should be living with their families. Those elderly living alone should be covered by caring system.
4. **Harmonized aging society:** People of all ages should be living together harmoniously in the society. There should be no conflict between ages and no ageism in the society.
5. **Friendly environmental for elderly:** The elderly in the future should be living in the friendly environment. The environment here means both natural and man-made ones such as buildings, infra-structure, and other inventions.



My last slide shows the example of relationship between population aging and health.

Population aging leads to increasing demand on health care services. In the aged society, we can foresee the increasing prevalence of elderly-specific diseases especially degenerative diseases, such as Alzheimer, cardiovascular and respiratory diseases, diabetes, stroke, depression, diseases related to bones and joints, etc. These elderly diseases are chronic by nature, which need long term care.

I put health problem in this block just to say that the health promotion among elderly can help reduce the demand on health care service.



For the supplies and responses to the increasing demand on health care services, we may have to think about increasing health personnel such as specialized MD, gerontologists, psychologists, nurses, care givers, community workers.

We have to think about increasing expenditure on health care, both government and personal or family expenditure. We have to think about living arrangement that can provide care for elderly, especially those elderly living alone in urban areas.

I finally wish to encourage students and researchers in various fields to take a deeper study and make an interdisciplinary approach to aging issues both population and biological aging.

Topics that I find interesting are such as public policy for sustainable welfare, architecture and design for the elderly, public infrastructure, anti-aging medicine and life long learning for the elderly.

Again, let's collectively make population aging a challenging and joyful topic for doing research!

Thank you.

*Thank Sureeporn Punpuing and
Aphichat Chamratrithirong for their valuable
comments and suggestions during the preparation of
this series of my lectures.*

*Thank Jongjit Rittirong for her assistance in preparing
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Pramote Prasartkul

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Pramote Prasartkul

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