



# **Nutrition status in China**

**-past, present and future consideration-**

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# I. Undernutrition in China- --Trend and Current situation

**children under 5**

**Children and adolescents**

**Adults**

**Anemia**

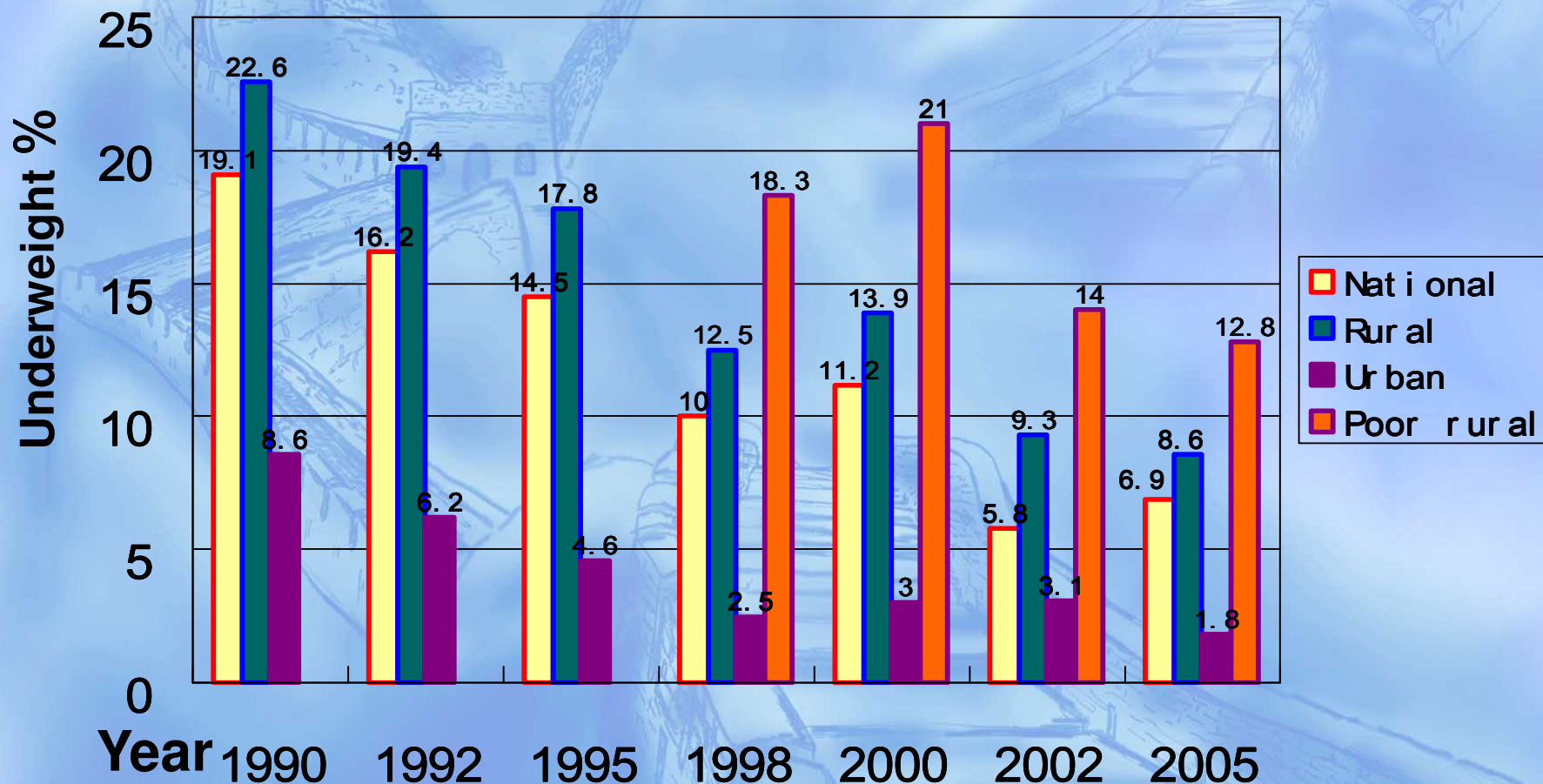


**Undernutrition in  
children under 5**

# Trend of Underweight

- Prevalence reduce  $\frac{1}{4}$  in 1990-1995, and further  $\frac{1}{4}$  reduction in 1995-2000, from 13.9% to 8.6% during 2000 - 2005. around 3.4 million in number. The prevalence was 50% higher in poor rural than general rural, around 1.45 million.
- In urban, 50% reduced during 1990-1995, was only 3% in 2000 and 1.8% in 2005. ◦

# Prevalence of underweight in children <5 during 1990 - 2005

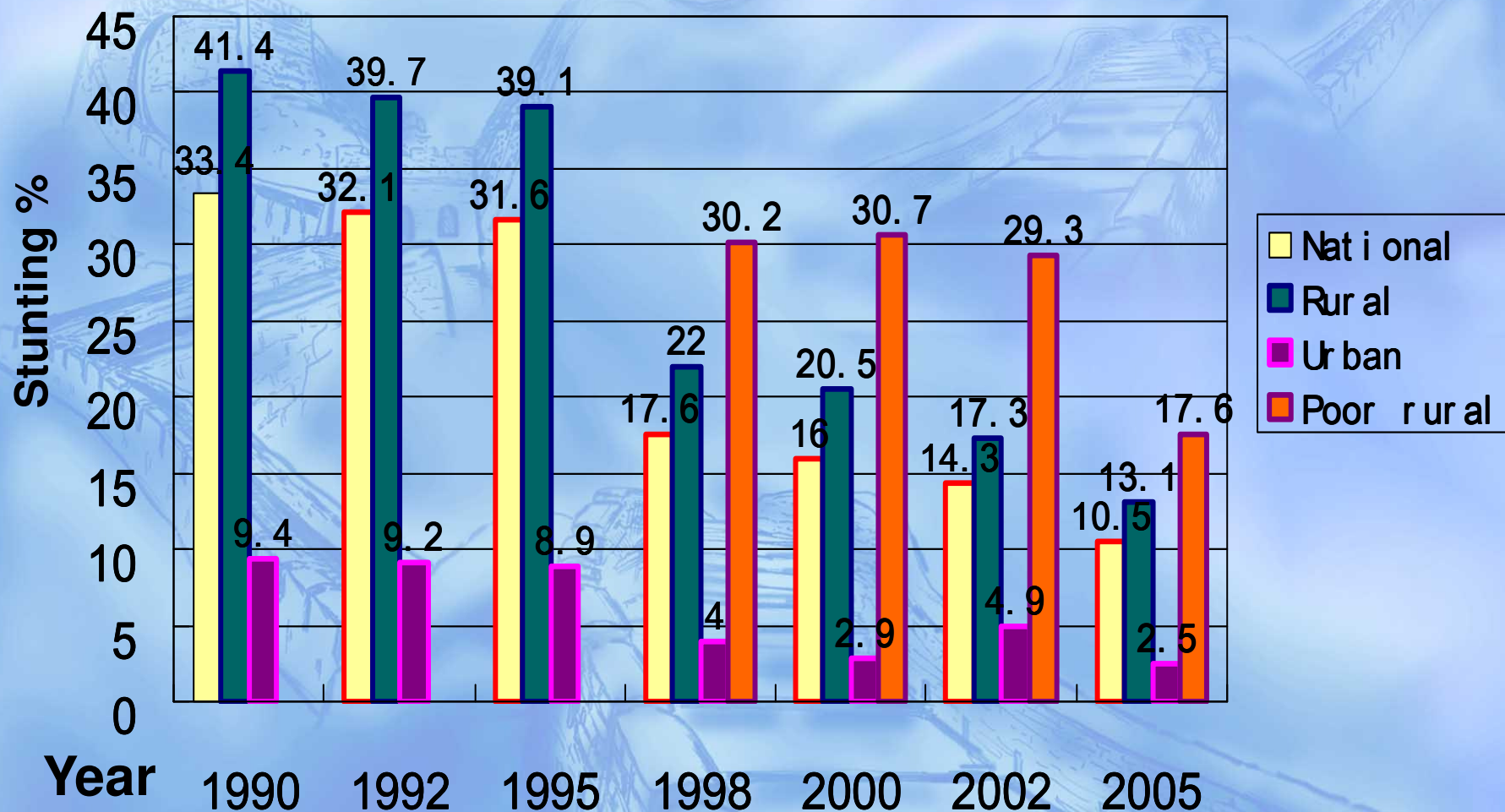


Source: Food and Nutrition surveillance System (FNSS)  
National Nutrition Survey in 1992 (1992CNNS),  
2002 National Survey on nutrition and health of Chinese Residents (2002CNHS)

# Trend of stunting

- High prevalence in 1990-93% in rural and 9.4% in urban;
- Very small change during 1990-1995;
- Reduced 50% in the rural and 2/3 reduced in urban during 1995-2000;
- During 2000-2005 further reduction in rural but still 13.1% in rural area, around 5 million in number. Prevalence in urban was 3-5%;
- In poor rural areas, maintained 30% no change in 1998-2002, but reduced to 17.6% during 2002-2005, around 2 million.

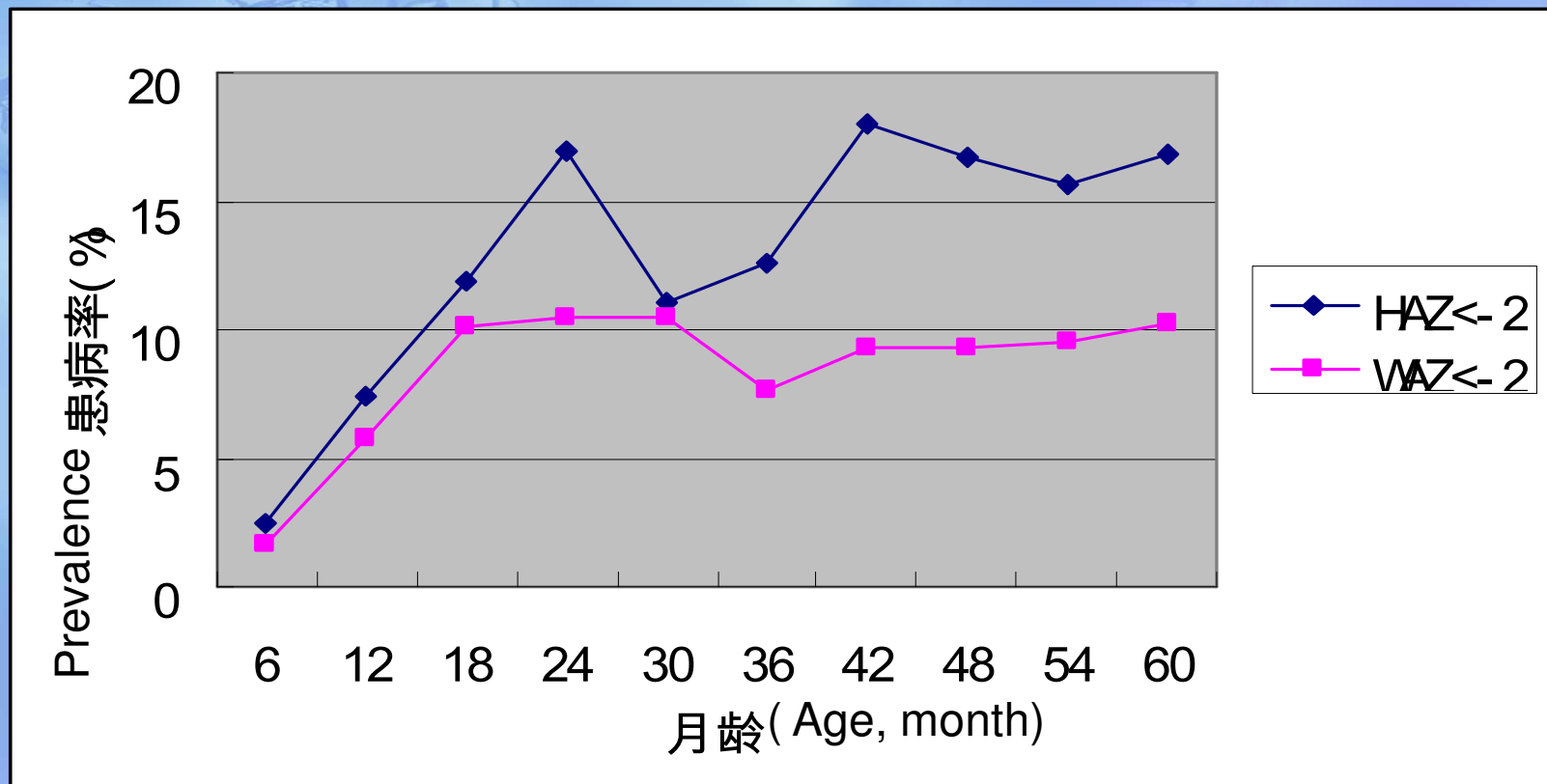
# Prevalence of stunting in children <5 during 1990 - 2005




Source: Food and Nutrition surveillance System (FNSS)  
 National Nutrition Survey in 1992 (1992CNNS),  
 2002 National Survey on nutrition and health of Chinese Residents (2002CNHS)

# Age distribution of undernutrition of children

1. Peak for underweight -18-24 mon. keeping leveling
2. Peak of stunting – 24 mon. continued increasing





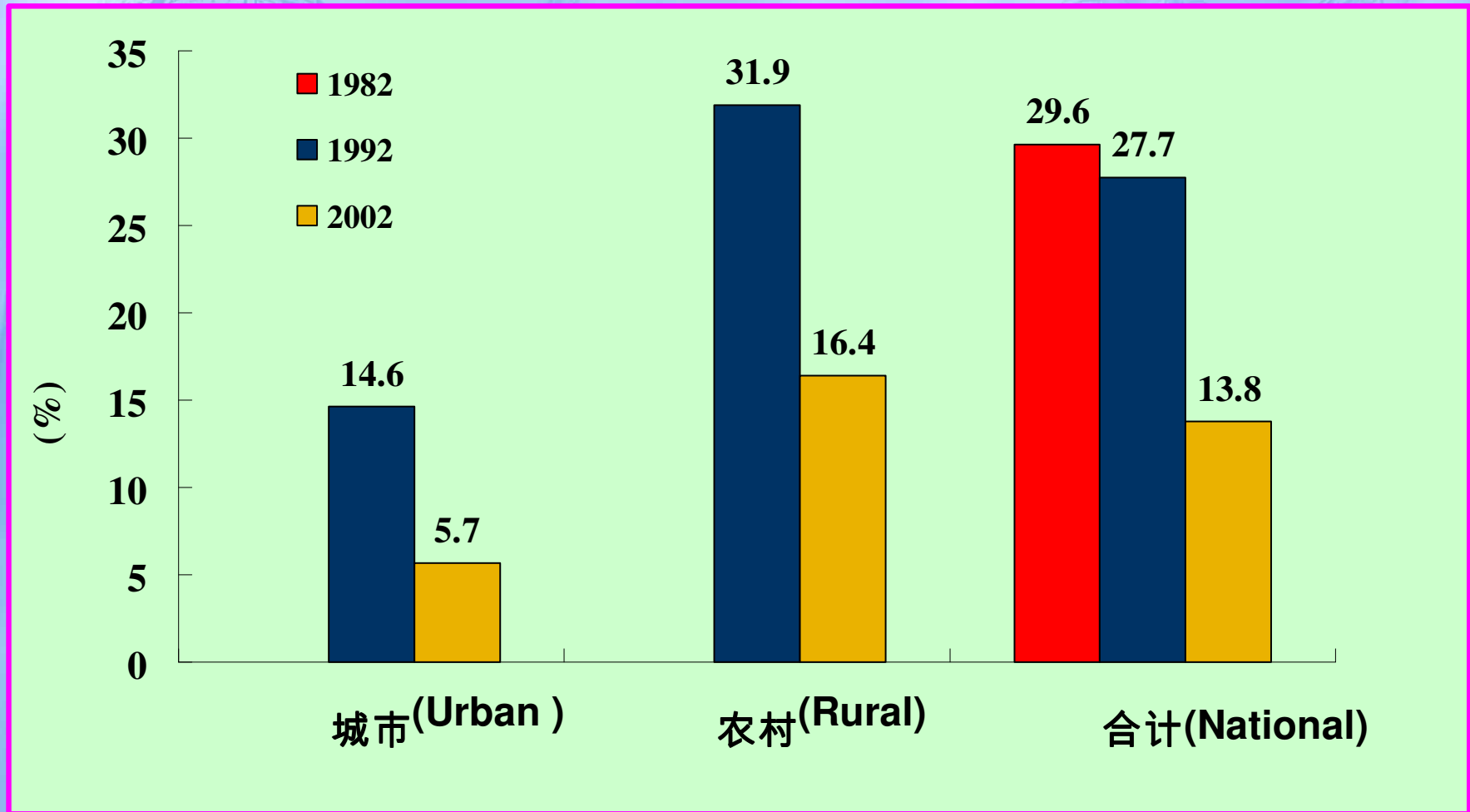


**Undernutrition**  
**in children and adolescents**  
**aged 5-18**

# Prevalence of stunting

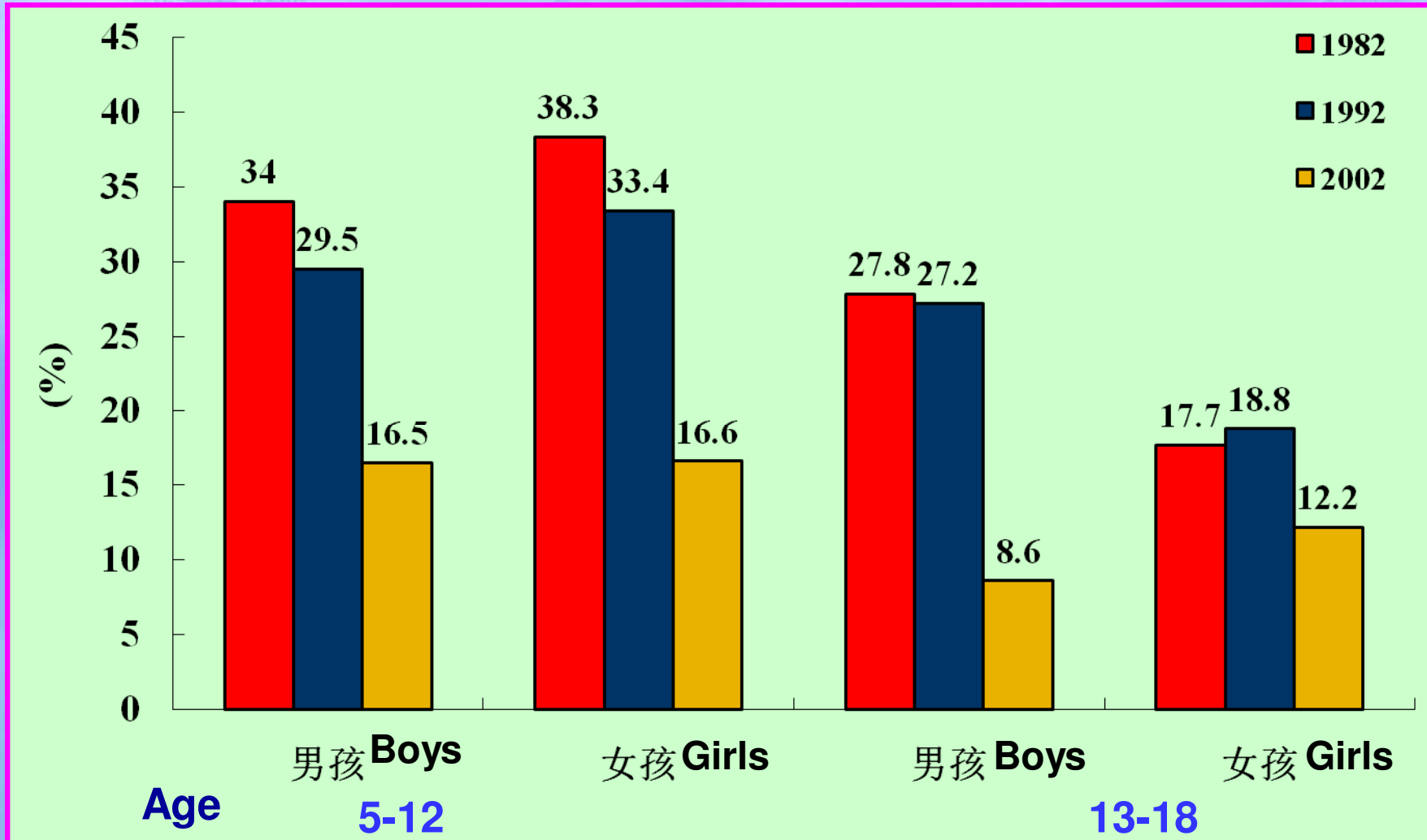
- Neglected reduction of stunting during 1982-1992, dramatic reduction happened in 1992-2000, the height growth of children age 5-18 became normal in 2002;
- In 2002, 18 - 28% of rural children aged 5-1yrs were stunted, 12-22% of adolescents aged 13-18 yrs stunted ;
- In poor rural area, prevalence of stunting was 28% and 22% respectively in children aged 5-12 and 13-18yrs

# Trend of stunting



Source: 1982 CNNS. 1992 CNNS and 2002 CNHS

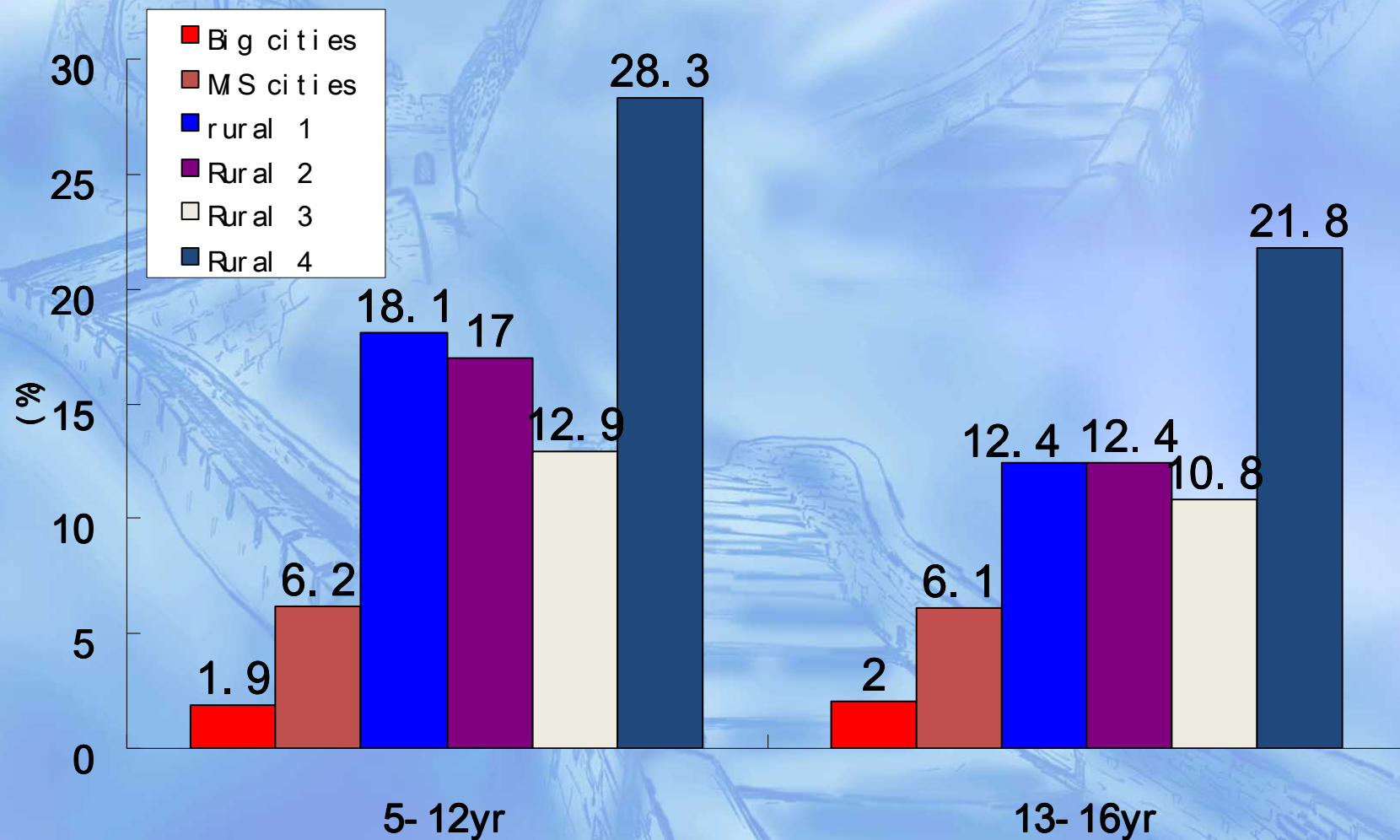
# Trend of stunting by age groups



Source: 1982 CNNS( age 7-18),1992 CNNS and 2002 CNHS,

# Prevalence of stunting by region

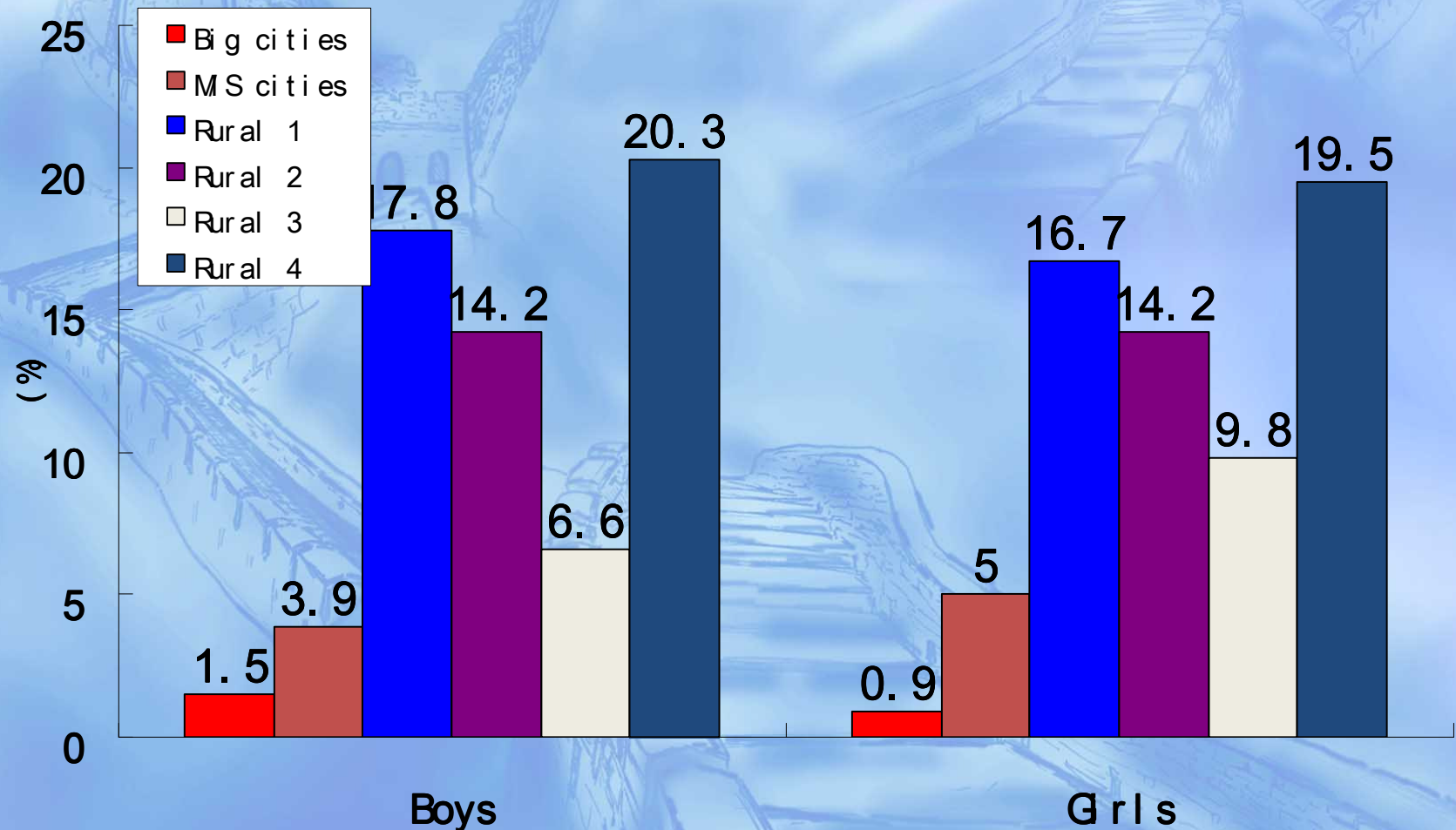
6 regions in 2002



Source: 2002CNHS

WHO 2007 Reference

# Prevalence of underweight of children aged 5-9 by regions, 2002



Source: 2002CNHS

WHO 2007 Reference

The background of the slide is a blue-tinted, sketch-like illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a range of mountains. The drawing style is loose and artistic, with visible lines and shading. The overall color palette is a monochromatic blue, ranging from light to dark tones. The text is centered over the middle of the image.

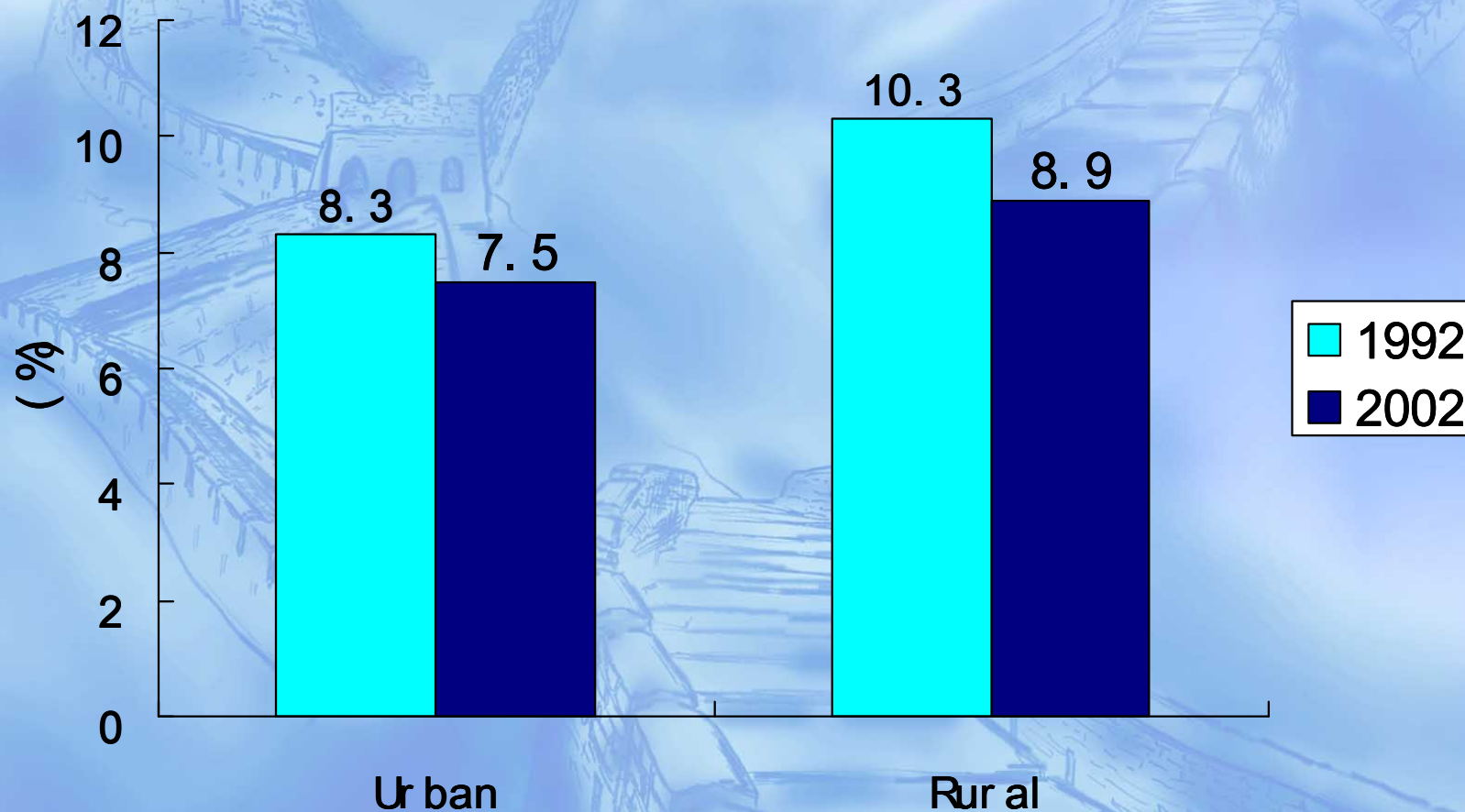
**Undernutrition of adults**

# Undernutrition in adults

- Underweight prevalence in adults has little change during 1992-2002, which was 8% in urban and 10% in rural.
- But it was 15-18% in rural elderly (aged >60 yrs) in rural areas.



# Trend of underweight of adults

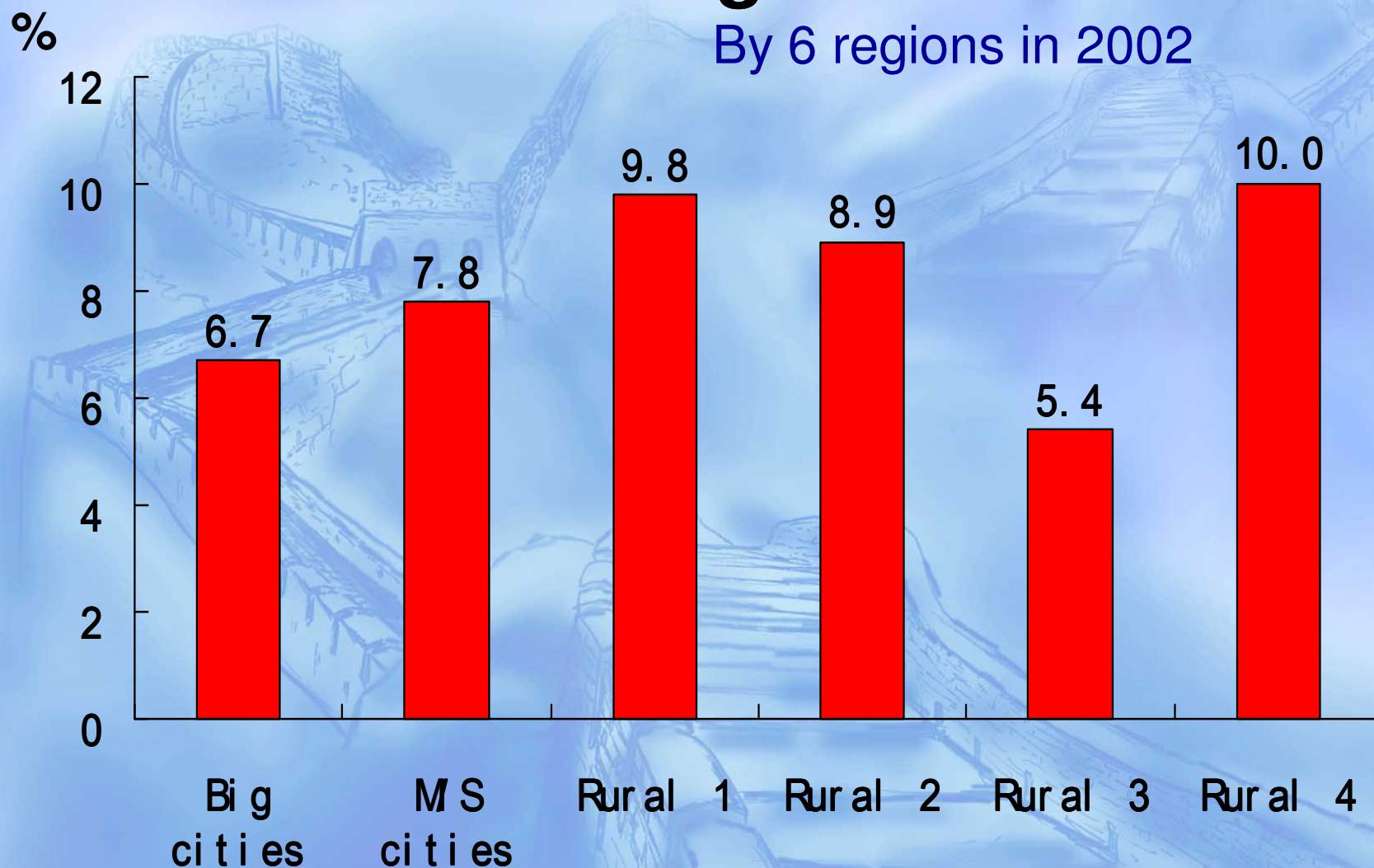


Source: 1992CNNS, 2002CNHS

Definition : BMI < 18.5

# Underweight prevalence of adults aged 18-59

By 6 regions in 2002

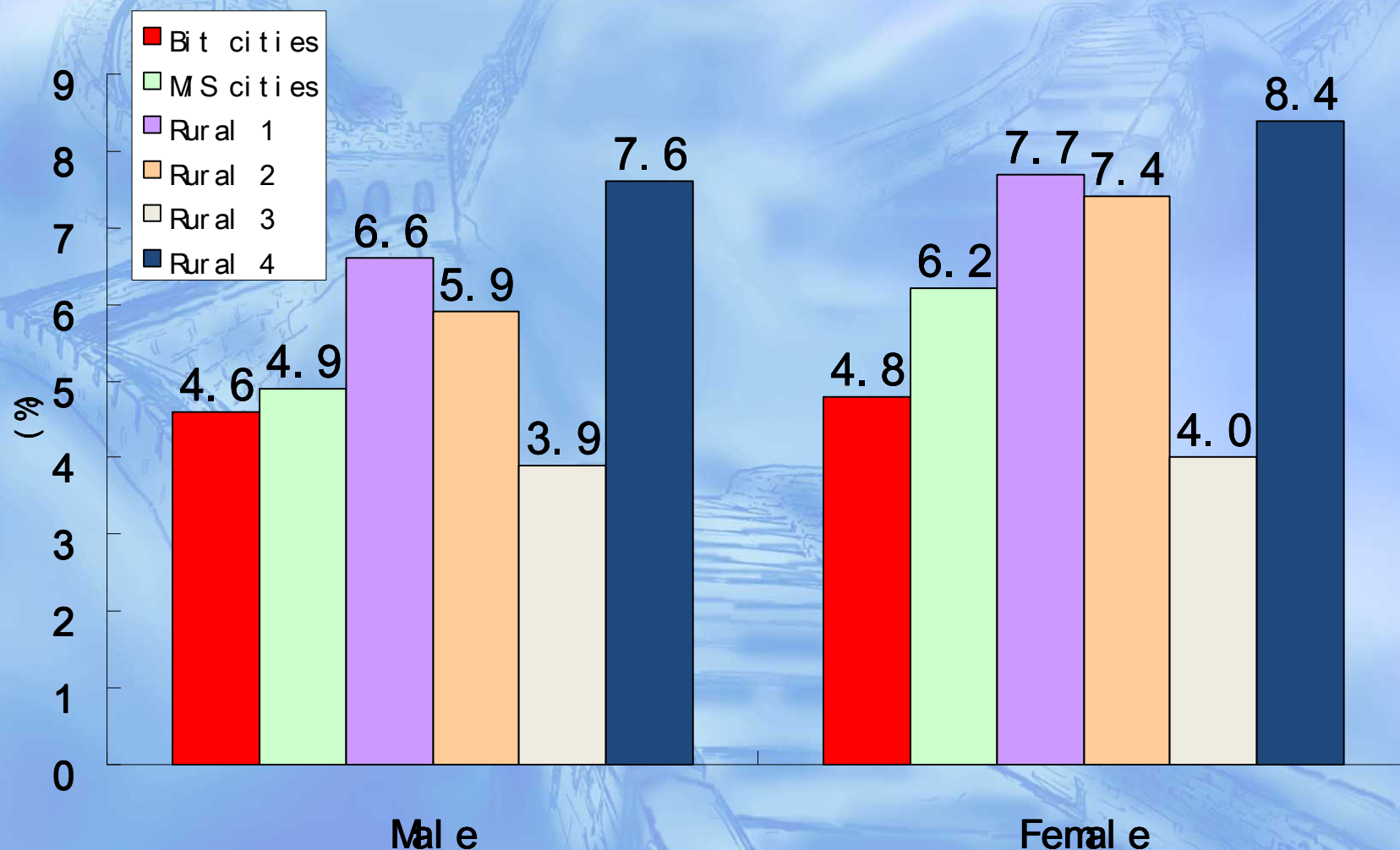


Source: 2002CNHS

Definition : BMI < 18.5

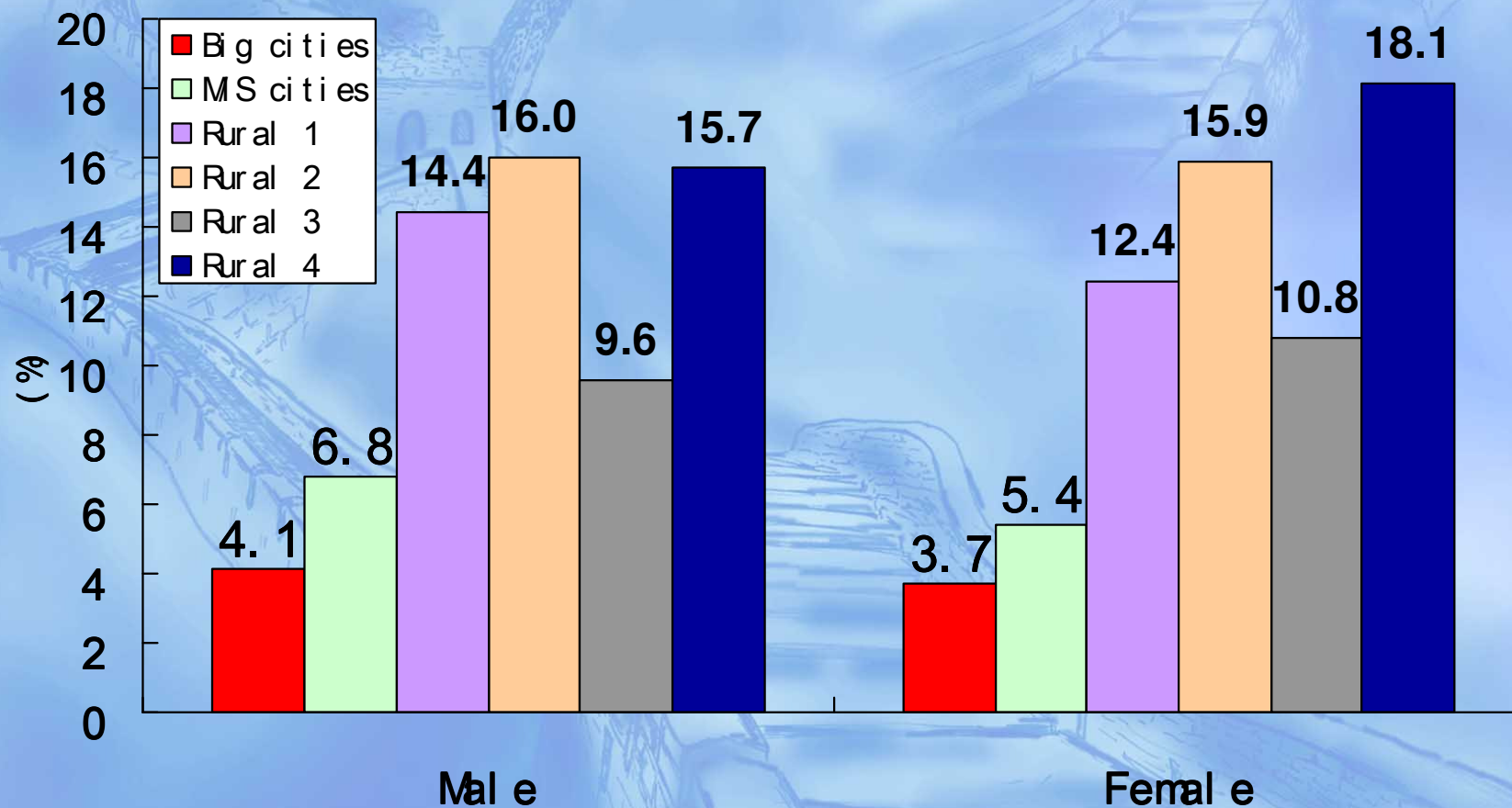
# Underweight of adults by sex

By 6 regions in 2002



# Undernutrition of adults aged >60

By 6 regions in 2002



Source: 2002CNHS

Definition : BMI<18.5

The background of the slide is a blue-tinted, sketch-like illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a range of mountains. The drawing uses fine lines and shading to create a sense of depth and texture, capturing the iconic zig-zag pattern of the wall as it follows the ridges and valleys of the terrain. The overall aesthetic is artistic and monochromatic.

# *Anemia*

# Anemia prevalence has not reduced in 15 years with speedy economic progress

## Anemia prevalence of children <5 (1992-2005)

| Year  | National | Urban | Rural |
|-------|----------|-------|-------|
| 1992* | 16.5     | 13.1  | 17.6  |
| 1998  | 16.8     | 15.2  | 17.7  |
| 2000  | 21.7     | 12.3  | 26.7  |
| 2002* | 18.8     | 12.7  | 20.8  |
| 2005  | 18.6     | 11.6  | 20.3  |

source : China FNSS

\*1992 CNNS and 2002 CNHS

# Anemia prevalence of populations, %

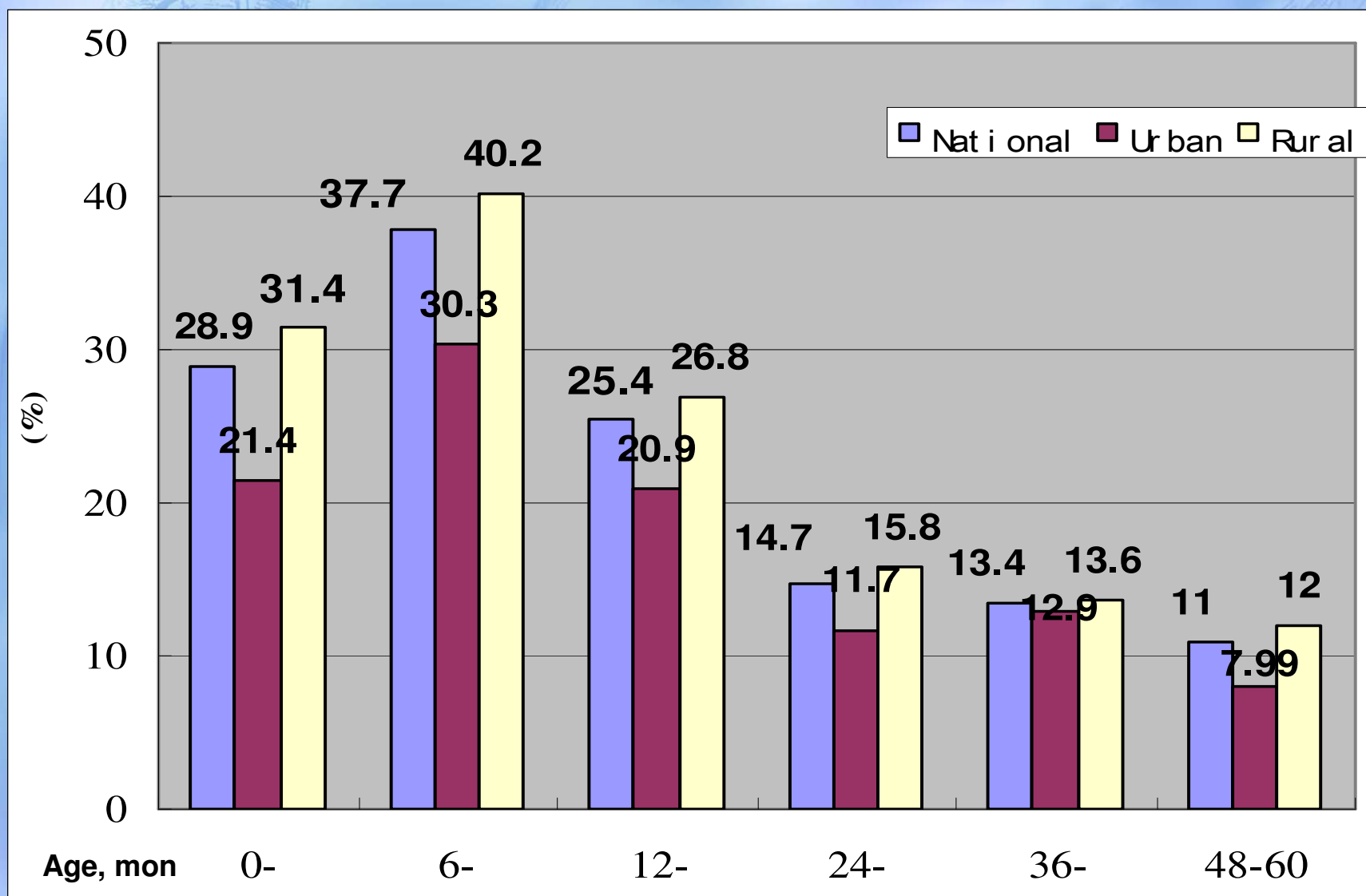
**High prevalence in  
children aged <2, child bearing age women and elderly**

|                                 | <b>Urban</b> | <b>Rural</b> | <b>National</b> |
|---------------------------------|--------------|--------------|-----------------|
| <b>Male</b>                     | <b>13.4</b>  | <b>16.7</b>  | <b>15.8</b>     |
| <b>Female</b>                   | <b>21.5</b>  | <b>24.0</b>  | <b>23.3</b>     |
| <b>Prevalence of age groups</b> |              |              |                 |
| <b>Children: 6-11months</b>     | <b>40.6</b>  | <b>37.5</b>  | <b>38.3</b>     |
| <b>12-23 months</b>             | <b>29.2</b>  | <b>28.9</b>  | <b>29.0</b>     |
| <b>Women aged 18-44yrs</b>      | <b>23.7</b>  | <b>27.2</b>  |                 |
| <b>Pregnant women</b>           | <b>25.3</b>  | <b>30.4</b>  | <b>28.9</b>     |
| <b>Elderly aged &gt;60 yrs</b>  | <b>19.6</b>  | <b>31.6</b>  | <b>29.1</b>     |

Source: 2002 CNHS

# Anemia prevalence of children <5 in 2005

**30-40% at age 6 - 11 mon, 20-30% at 12-23 mon.**







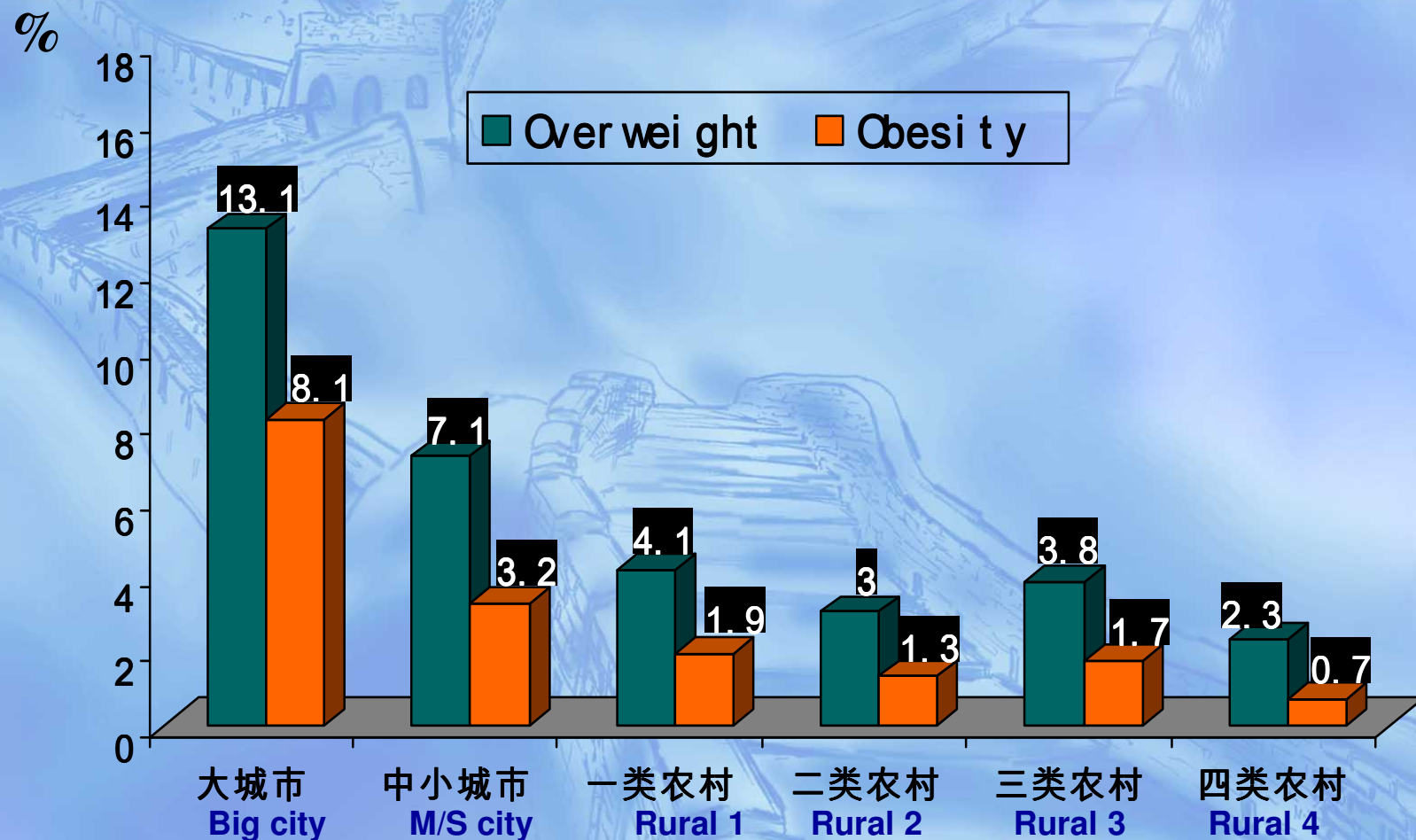
## **ii. Nutrition related chronic disease in China**

**Obesity**  
**Hypertension**  
**Dislipidemia**  
**Diabetes**

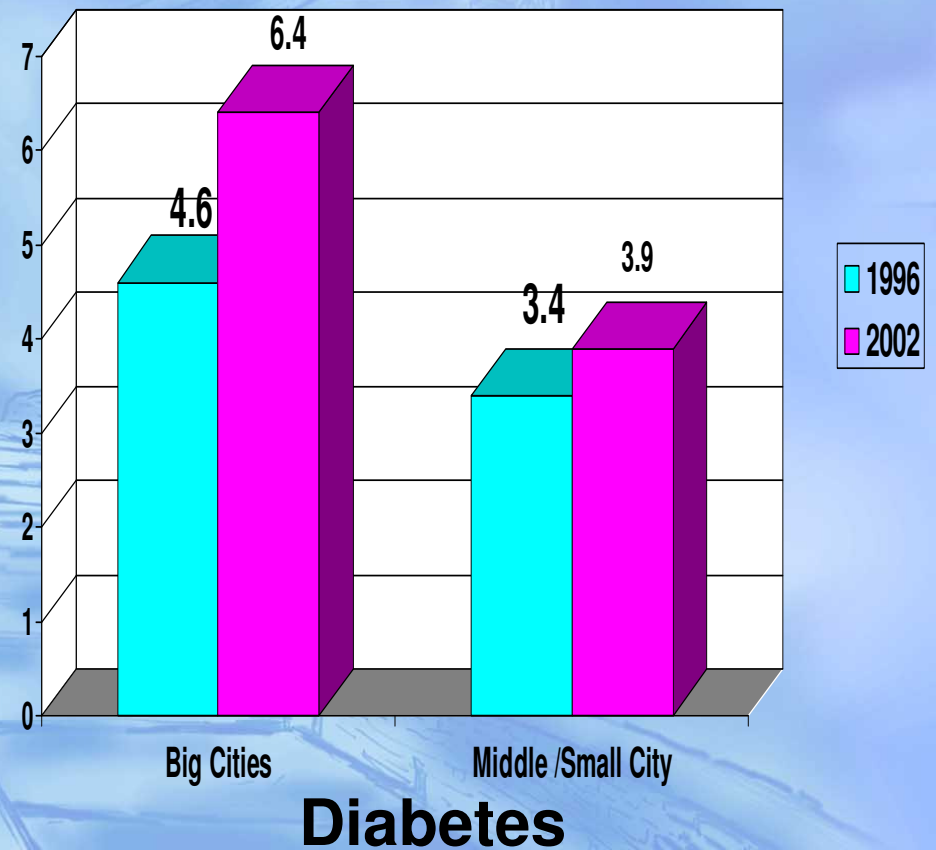
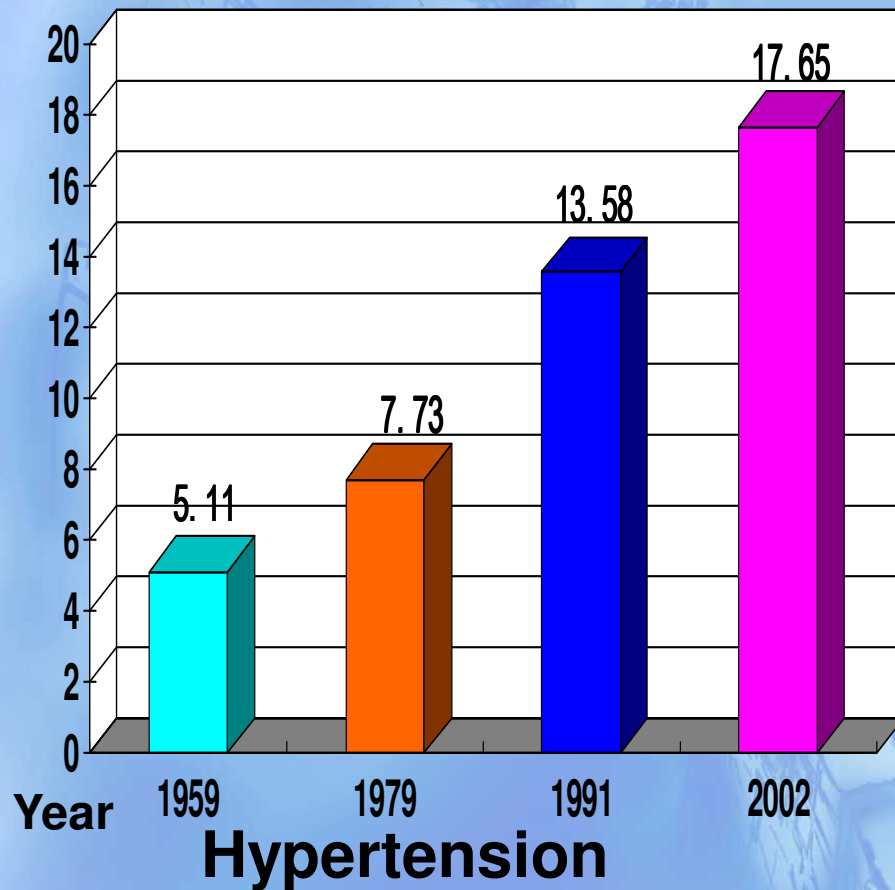
# Rapid increase of chronic disease in China (2002)

- **In adults**      **Overweight 22.8%,**  
                         **Obesity was 7.1%**
- **Estimated total numbers:**  
                         **Overweight 200 million**  
                         **Obesity over 60 million**
- **Prevalence of adult in big cities**  
                         **Overweight 30.0%**  
                         **Obesity 12.3%**

# Prevalence of overweight and obesity of children aged 7-17-yr in different region in 2002



# Trend of disease prevalence (%)





**iii. Factors related to nutrition  
status and diseases**

**Favorable factors:**

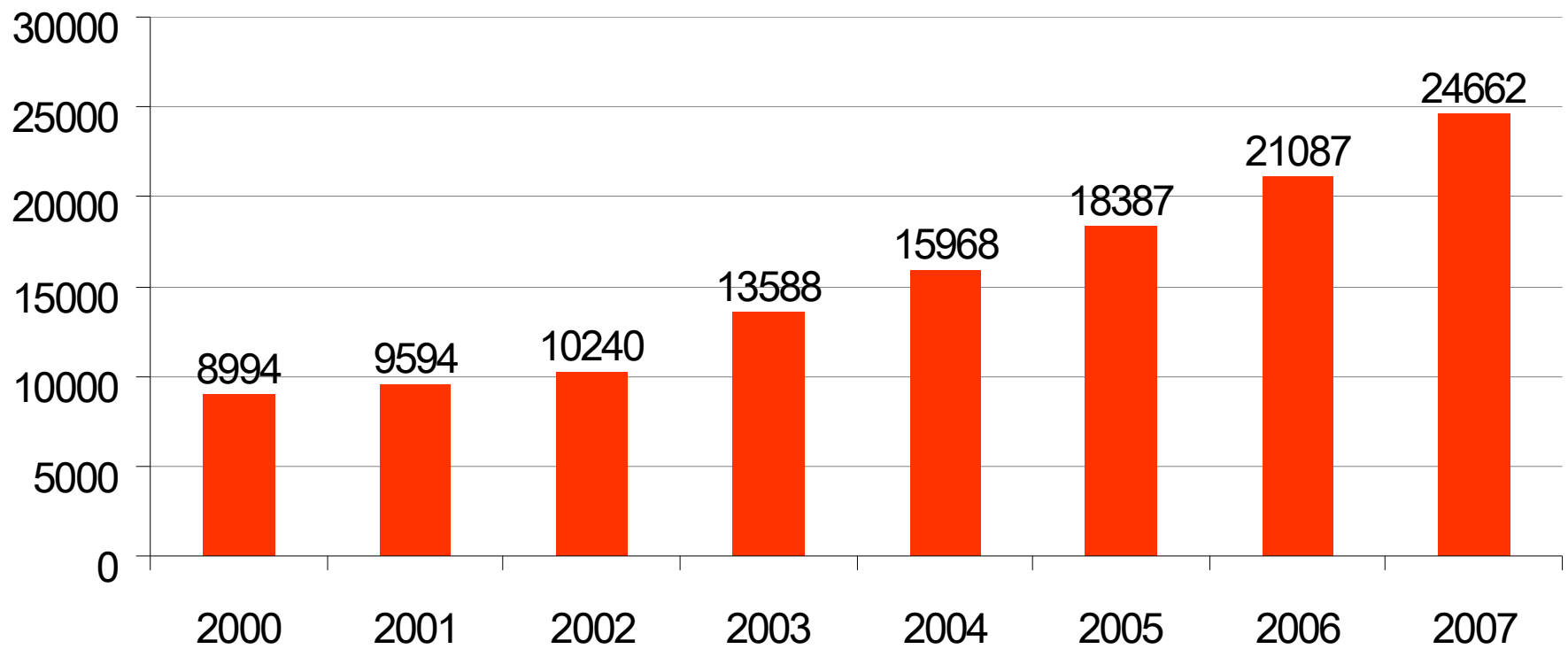
**Economic progress**

**Poverty reduction**

**Farmer-favorable policies**

# GDP changes in past 3 decades

**GDP during 2000-2007 ( Billion RMBYuan )**



# Great achievements in poverty reduction

- **Absolute poverty (683Yuan/capita/yr) reduced from 80 million in 1993 to 32.09 million and 23.65 million in 2000 and 2005 respectively. 26.3% reduction in 2000-2005.**
- **Low income population (684-944 Yuan/capita/yr) reduced from 62.13 million in 2002 to 40.57 in 2005 (34.5% reduction)**

# Farmer-favorable policies since 2000

- Exemption of tax for agriculture
- Direct subsidy for grain cropping
- Protection of price for major grain purchase
- Resulted annual income increase of farmers

**2000- 2253 Yuan/capita**

**2005- 3255 Yuan**

**44.5% increase。**





## **Influential Social factors:**

**Dietary factors-positive and negative impact**

**Young child feeding**

**Mother's education**

**Population mobilization**

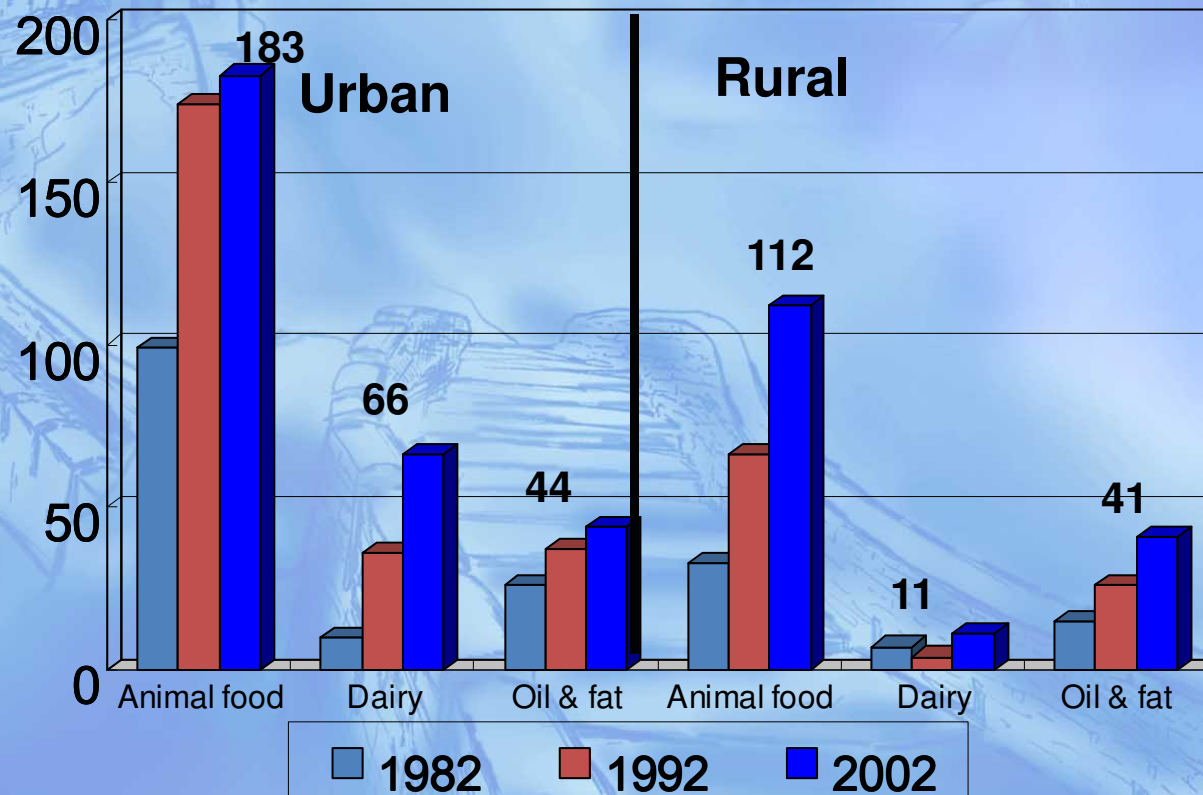
**Safe drinking water**

**Nutrition knowledge**

# Dietary structure

Became better in rural, but worsen in urban

Changes in food intake (g/day)



# Dietary pattern change

Shift of dietary pattern:  
(Energy share of  
CHO and fat)

**Rural – getting better**

**CHO ↓ to 61.5%**

**Fat ↑ to 27.5%**

**Animal food ↑  
4.5% pt.**

**Urban – toward  
imbalance**

**CHO too low <50%**

**Fat too high 35%**

## Changes in Dietary Intake: 2002 vs.1992

| % of Energy share | Year | Urban | Rural | High-Income Rural |
|-------------------|------|-------|-------|-------------------|
| Fat               | 1992 | 28.4  | 18.6  | NA                |
|                   | 2002 | 35.0  | 27.5  | 29.2              |
| CHO               | 1992 | 57.4  | 71.7  | NA                |
|                   | 2002 | 48.5  | 61.5  | 57.4              |
| Animal food       | 1992 | 15.2  | 6.2   | NA                |
|                   | 2002 | 17.6  | 10.7  | 13.8              |

# Correlation of dietary factors/w. diseases

| With the prevalence of diseases | Increase of energy share of dietary fat from <20% to 35% | Increase of carbohydrates intake from <200 to 500g/day |
|---------------------------------|--|--|
|                                 | P for trend of risk for disease                          | P for trend of risk of disease                         |
| Overweight/obesity              | Positively related<br>$p < 0.0001$                       | Negatively relate<br>$p < 0.0001$                      |
| Hypertension                    | $p = 0.824$  | Negatively relate<br>$p < 0.0001$                      |
| Type 2 diabetes                 | Positively related<br>$p = 0.026$                        | Negatively related<br>$p = 0.0045$                     |
| Hypercholesterolemia            | Positively related<br>$p < 0.0001$                       | Negatively related<br>$p < 0.0001$                     |
| Hypertriglyceridemia            | $p = 0.455$  | Negatively related p-<br>$p = 0.0016$                  |

# Attributable factors for stunting in children <5 in Rural (2005)

| <b>Variables</b>                            | <b>Odd Ratio (OR)</b> | <b>P</b>          | <b>Attributable risk (AR%)</b> |
|---|-----------------------|-------------------|--------------------------------|
| <b>Mother's education</b>                   | <b>1.609</b>          | <b>&lt;0.0001</b> | <b>37.8</b>                    |
| <b>Annual income (every 100 Yuan diff.)</b> | <b>1.022</b>          | <b>&lt;0.0001</b> | <b>2.2</b>                     |
| <b>Located in poor county</b>               | <b>1.458</b>          | <b>0.0004</b>     | <b>31.4</b>                    |
| <b>Unsafe drinking water</b>                | <b>1.531</b>          | <b>0.0022</b>     | <b>34.7</b>                    |
| <b>Non-iodized salt</b>                     | <b>2.237</b>          | <b>0.0097</b>     | <b>50.8</b>                    |

# Attributable factors for stunting of children aged 6-24 months in rural (2005)

| Variables                            | Odd Ratio (OR) | P      | Attributable risk (AR)% |
|--------------------------------------|----------------|--------|-------------------------|
| <i>Education of mothers</i>          | 1.518          | 0.001  | <b>34.12</b>            |
| <i>With mother out-for-job</i>       | 1.516          | 0.0096 | <b>34.04</b>            |
| Annual income (every 100 Yuan diff.) | 1.027          | 0.0001 | 2.63                    |
| <i>No eggs in past 24 hrs</i>        | 1.303          | 0.0159 | <b>23.25</b>            |
| <i>No dairy I n past 24 hrs</i>      | 1.244          | 0.0475 | <b>19.61</b>            |
| Located in poor county               | 1.359          | 0.0068 | <b>26.42</b>            |

## iv. Strategic consideration for nutrition improvement

- Invest on **nutrition for children 0-24 month**
  - Focus on **rural poor area (children 0-18)**
  - **Anemia prevention** by food fortification –soy sauce, food supplement for CF + micronutrient supplementation for women
    - **Balance diet** recommendation
    - **Community chronic disease prevention**  
(Healthy weight/healthy blood pressure, diet/ PA)

The background of the slide is a blue-tinted, sketch-like illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a range of mountains. The drawing style is light and airy, with visible lines suggesting the texture of the stone and the contours of the landscape. The overall color palette is a monochromatic blue, creating a serene and historical atmosphere.

**Thank you !**