



# RAPID

The Change We Seek



HIGHER POPULATION COUNCIL

Photos (cover, top-bottom): Studio Robina, ICHe, Jennifer Hayes, ICHe

# Population Growth & Its Impact on Land Use

**By the Higher Population Council**

# Outline

- 1** Population Characteristics
- 2** Population Projections
- 3** Past and Current Land Use
- 4** Population Growth Impacts on Land Use
- 5** Actions Required

# Current Situation

## Population Characteristics

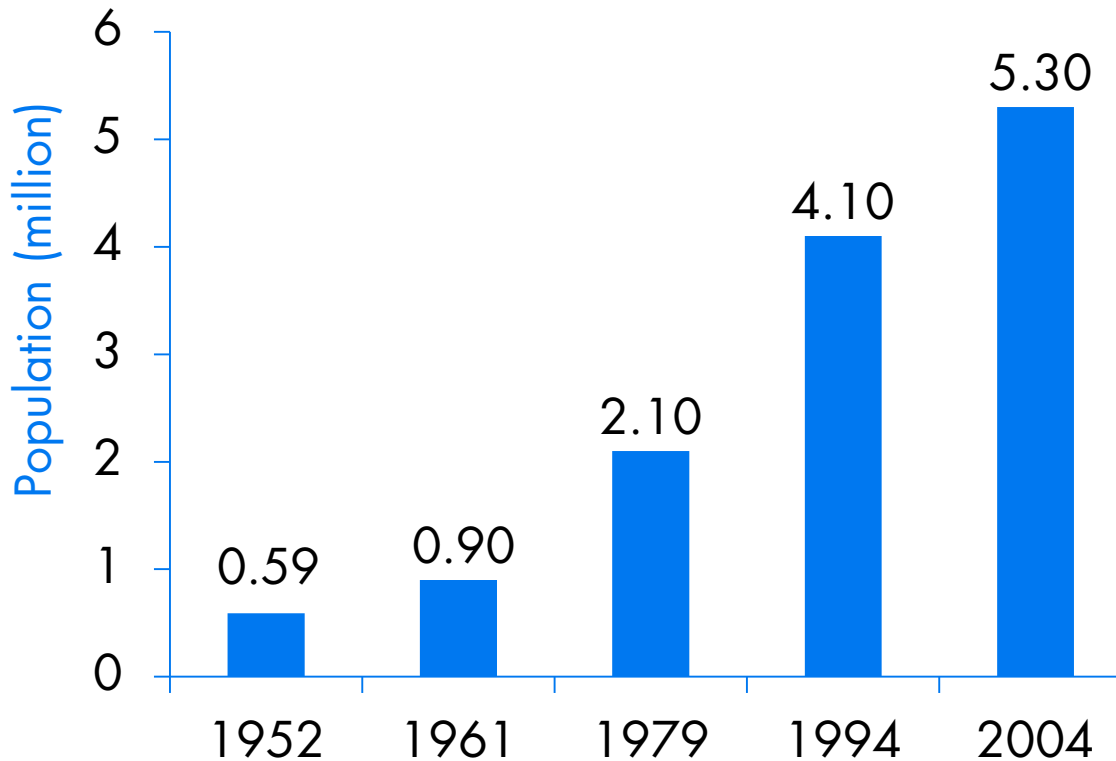
<b>Population (million) (2012)</b>	<b>6.4</b>
<b>Births per Woman (2012)</b>	<b>3.5</b>
<b>Crude Birth Rate per 1000 (2012)</b>	<b>27.2</b>
<b>Crude Death Rate per 1000 (2012)</b>	<b>7.0</b>
<b>Natural Growth Rate % (2012)</b>	<b>2.0</b>
<b>Life Expectancy (yrs.)</b>	
<b>Males</b>	<b>71.6</b>
<b>Females</b>	<b>74.4</b>



Photo by Moheemad Khawaja

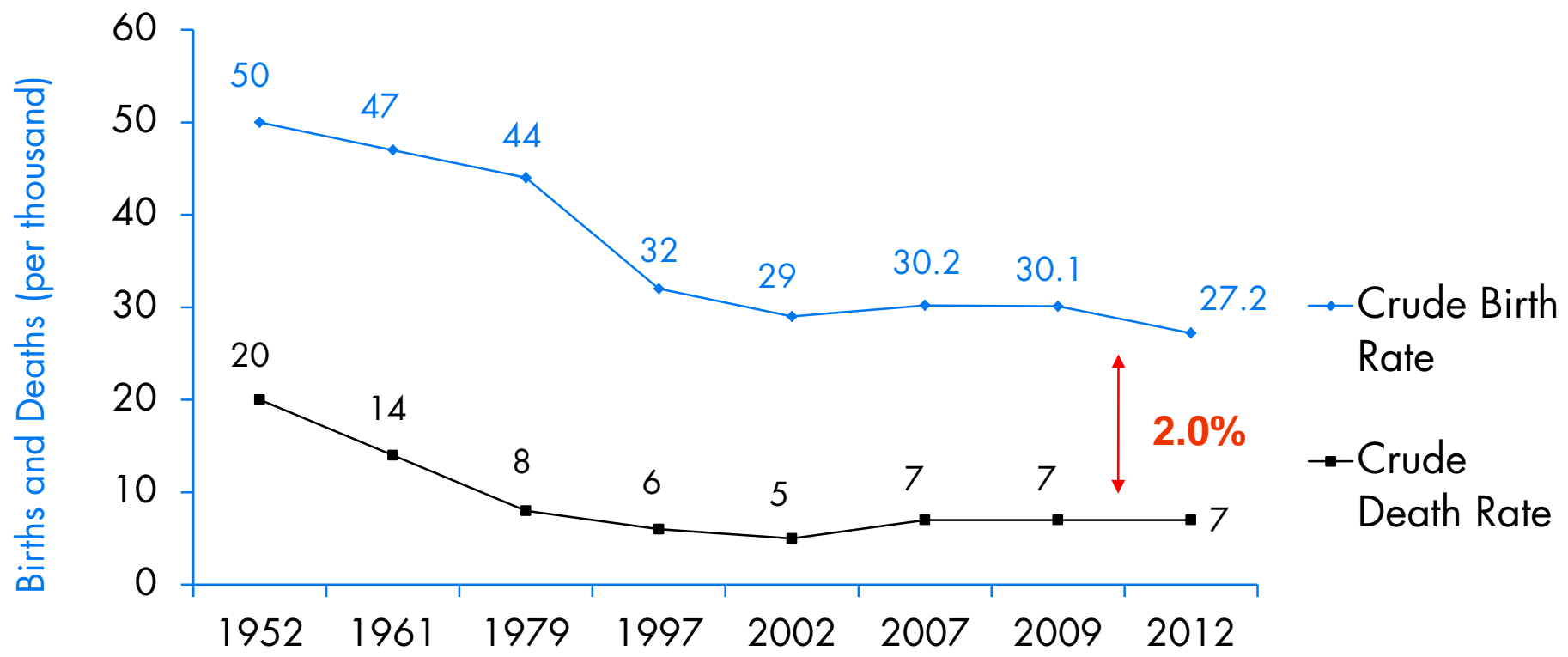
# Historic Population Growth

Population has increased tenfold in six decades



# Birth and Death Rates

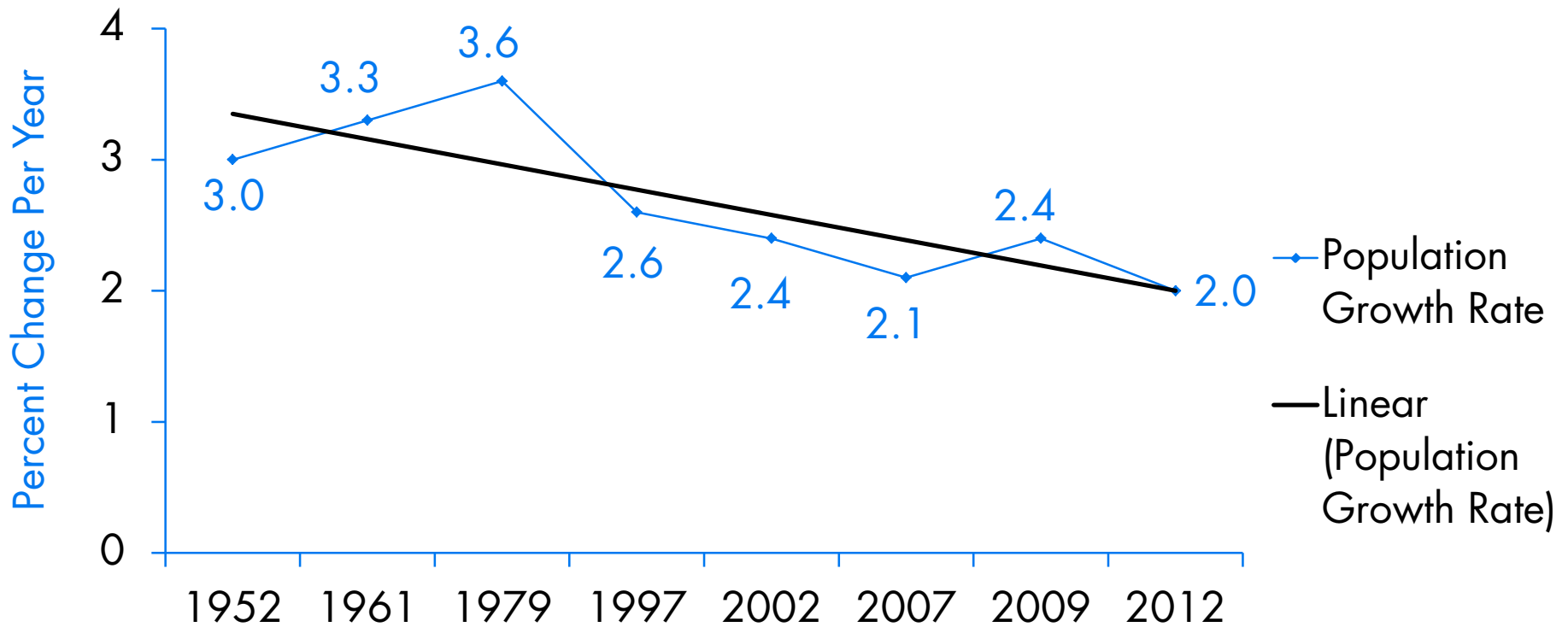
## Trends over time



Source: DOS Surveys and Reports

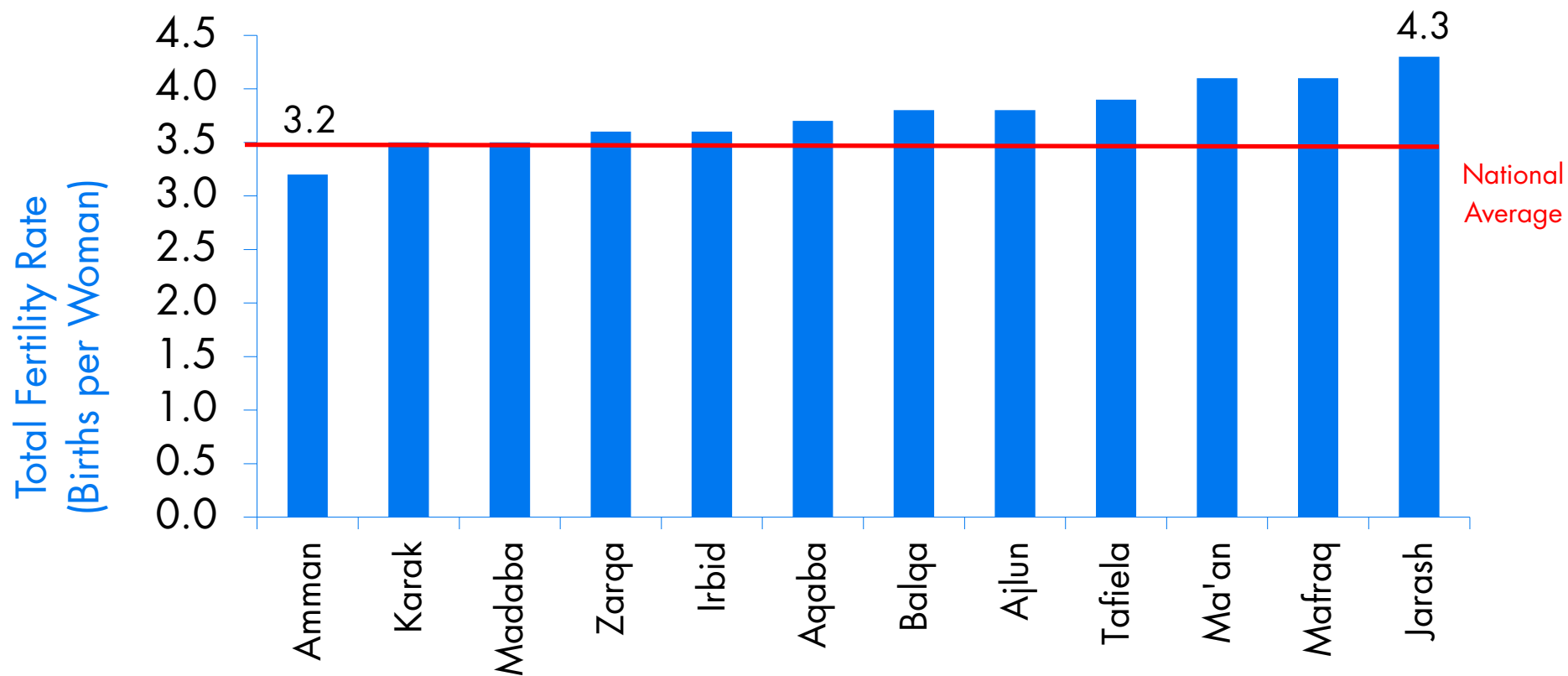
# Rate of Natural Increase (%)

Trend over time



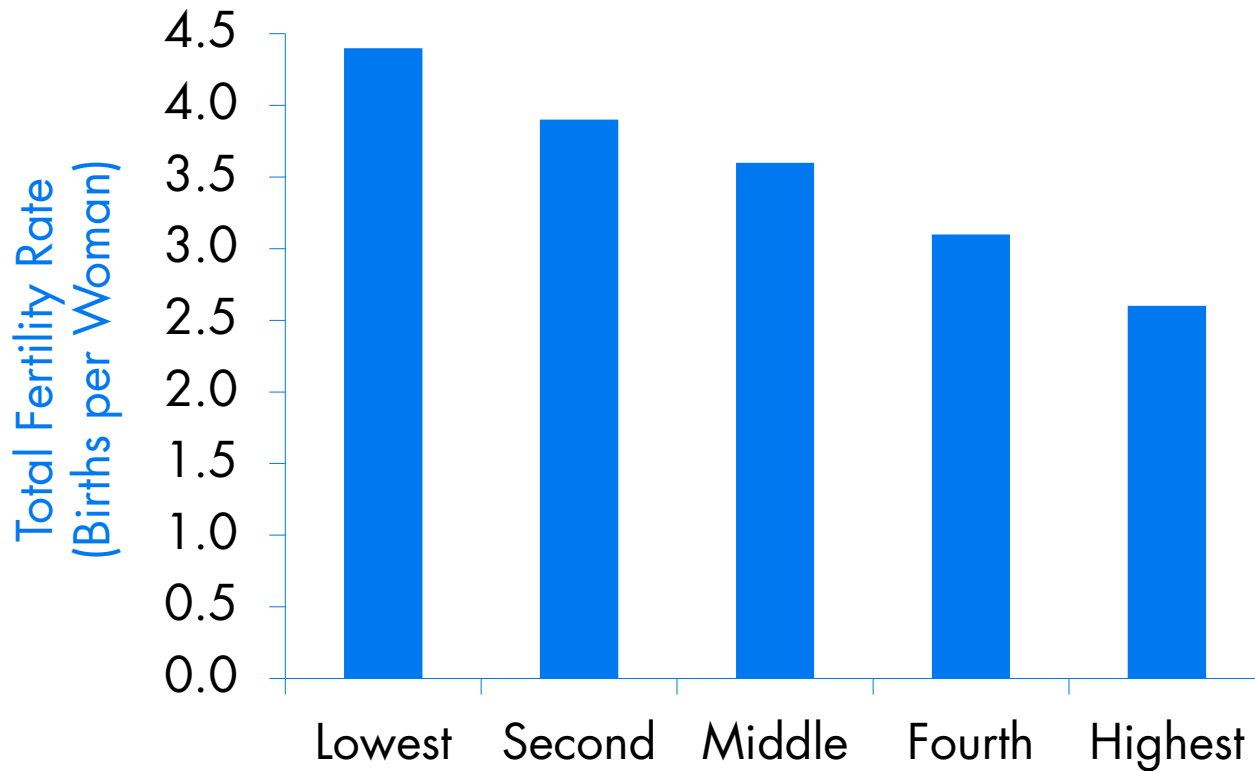
# TFR by Governorate 2012

High rate throughout Jordan



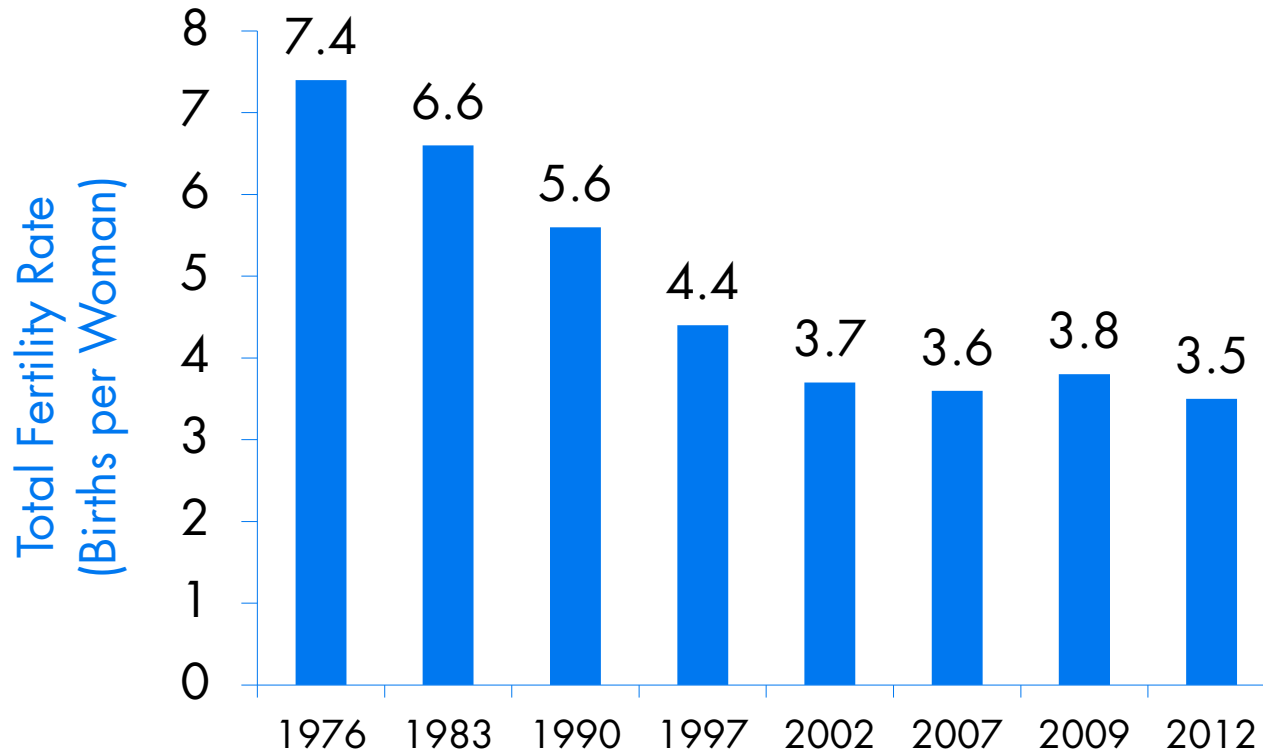


# Total Fertility Rate by Household Wealth



# Total Fertility Rate

Relatively constant since 2002



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# Population Scenarios

## Scenario 1: Current Fertility

- TFR constant at 3.5

## Scenario 2: Reduced Fertility

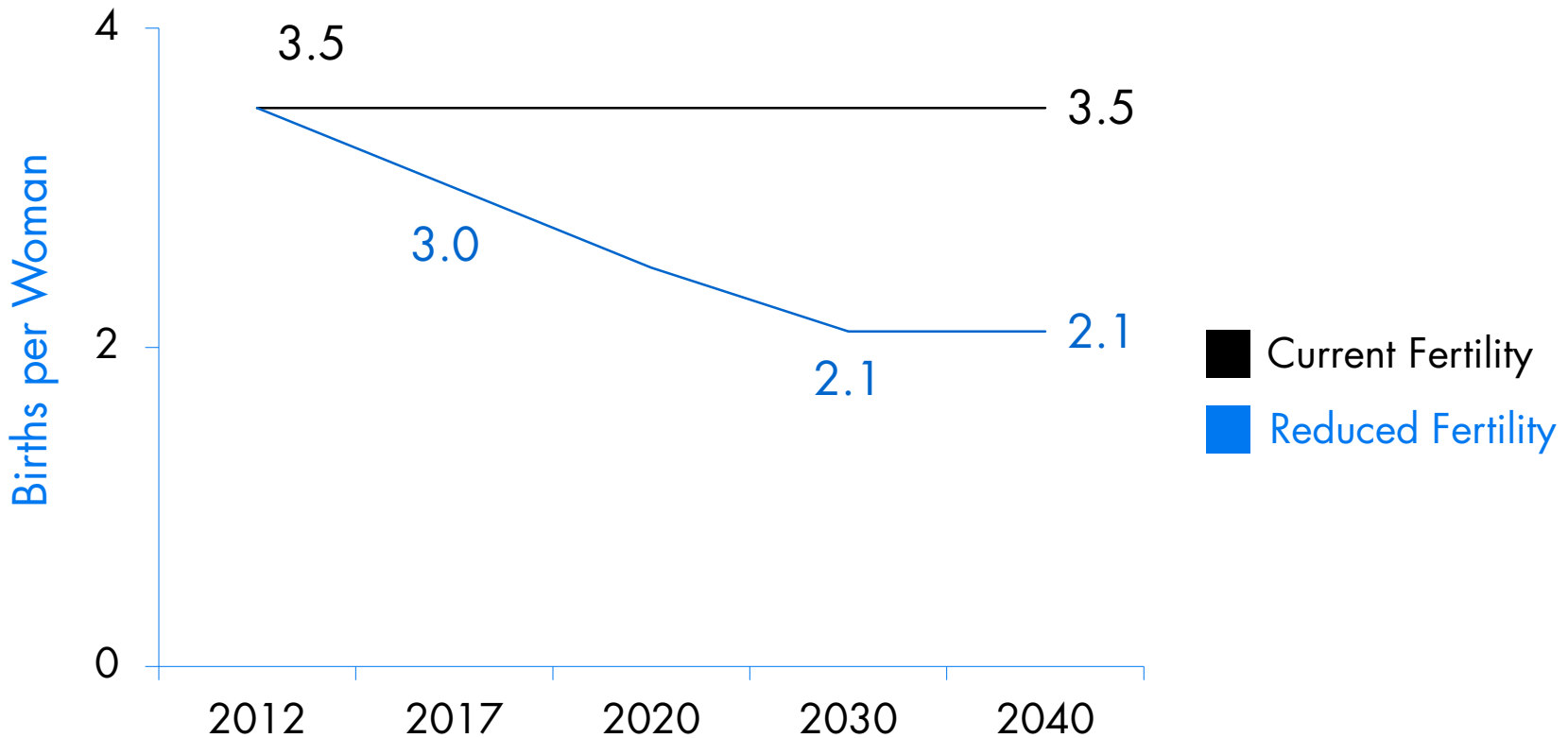
- TFR from 3.5 in 2012 to 3.0 in 2017 and to 2.1 in 2030

## Other Assumptions:

- For both scenarios, TFR is constant from 2030–2040
- Life expectancy increases from 2012–2017 and remains constant thereafter
- Net international migration is zero

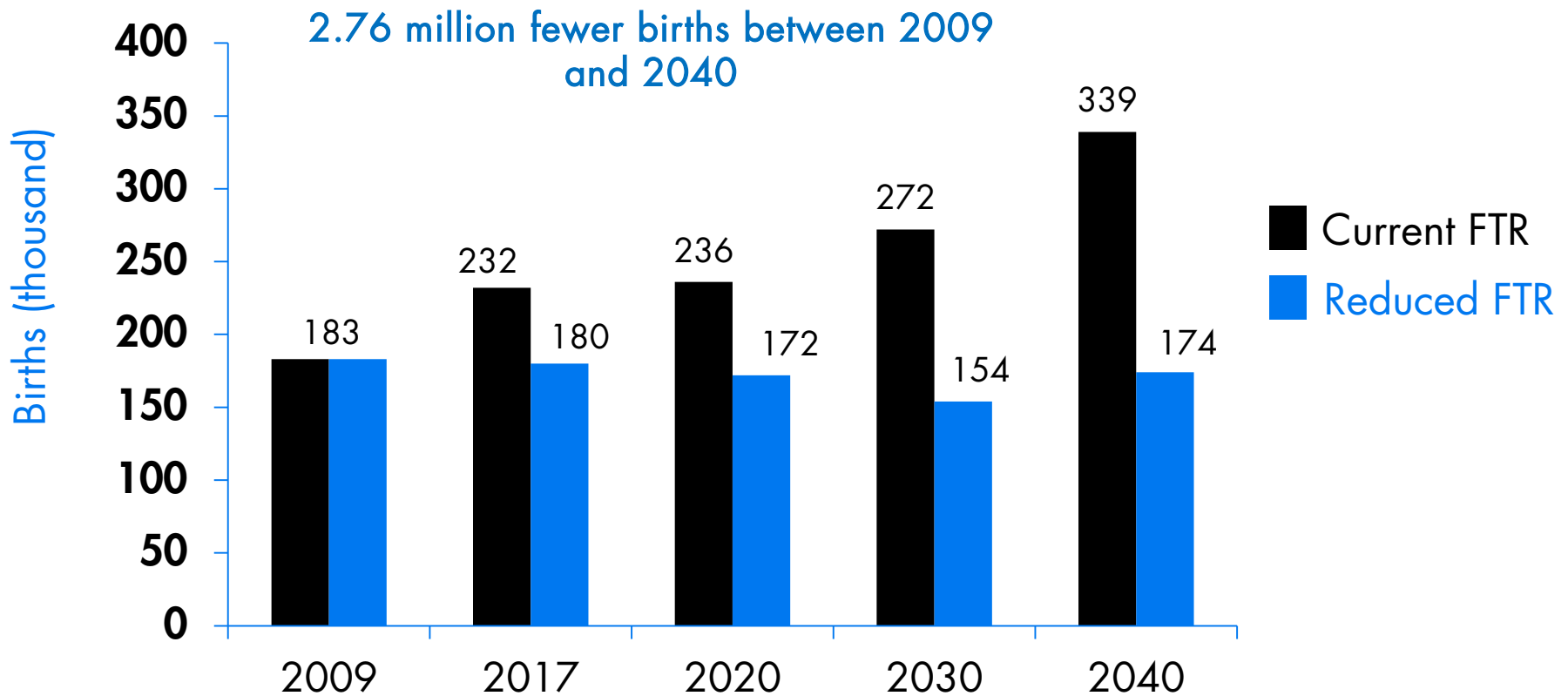
# Fertility Projections' Assumptions

## High versus declining fertility rate scenario



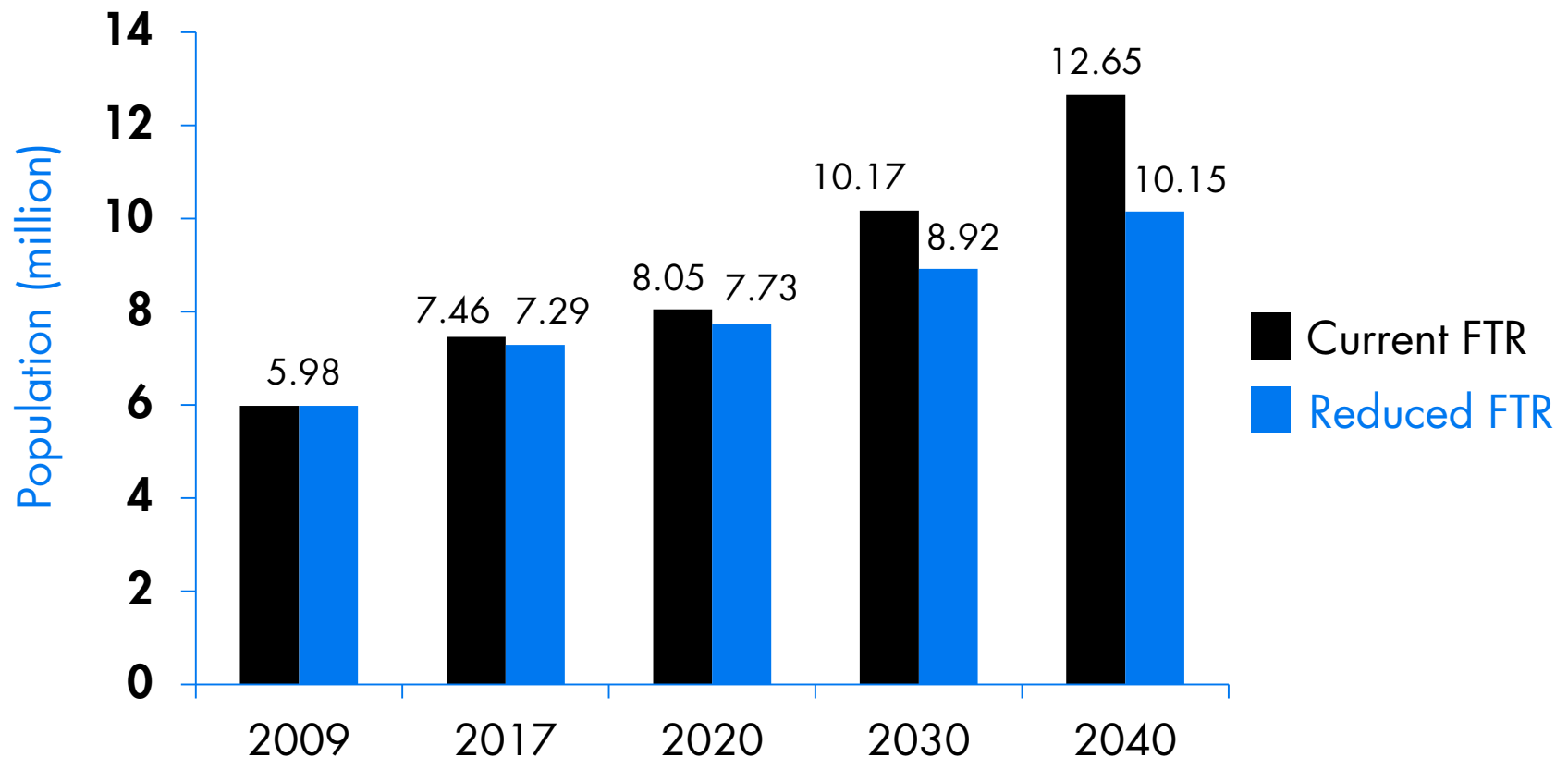
# Annual Births

Fewer births with low fertility



# Population Growth

Smaller population with lower fertility



# Outline

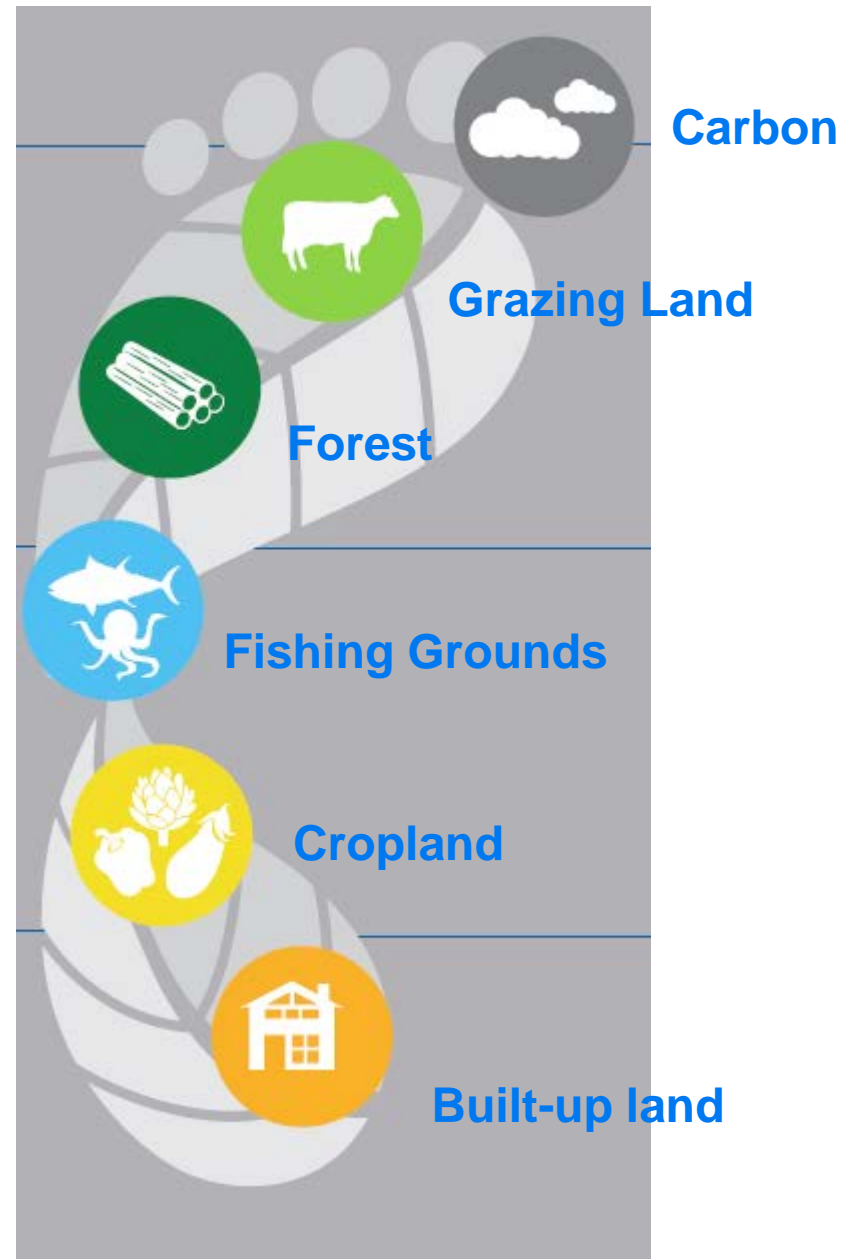
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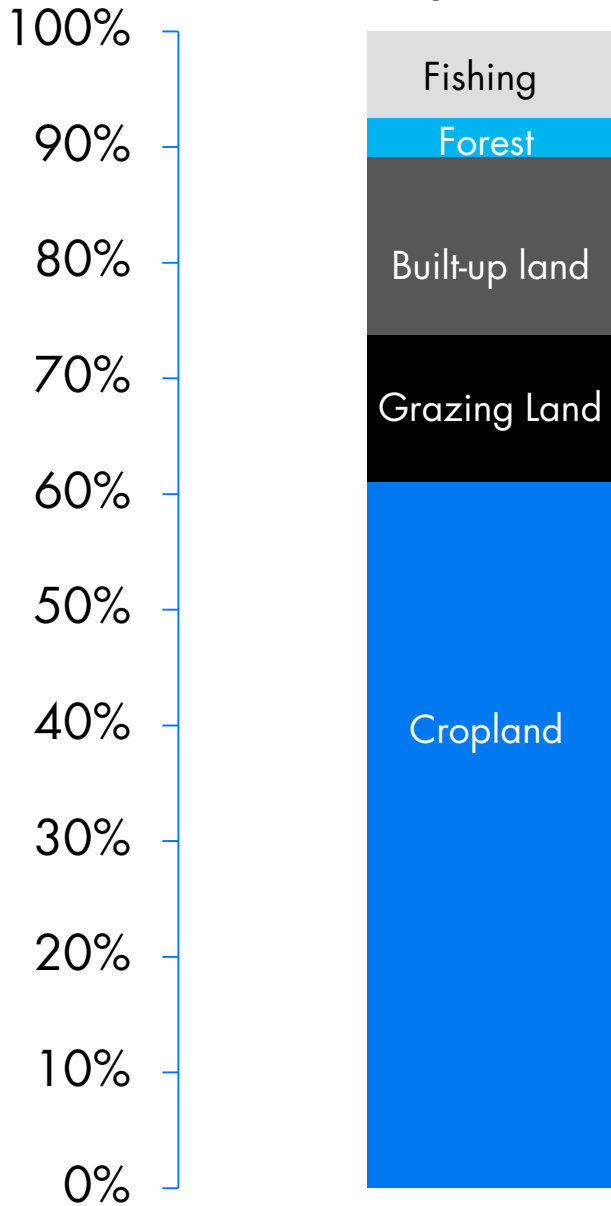
# Uses of Land

- Food production
  - Growing crops
  - Grazing animals
- Housing
- Recreation
- Services/Facilities (schools, hospitals, mosques)
- Businesses
- Roads and highways
- Mining and quarrying

The *Ecological Footprint* calculates the amount of land a country needs to fulfill the production and consumption needs of its population in different categories.

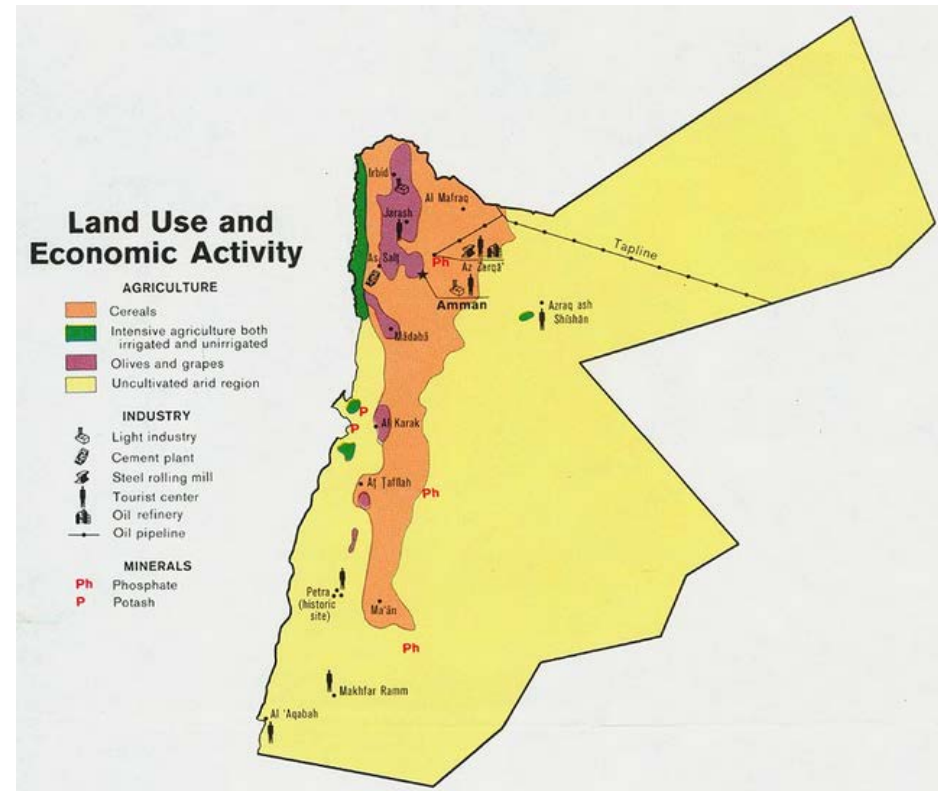


# Jordan's Ecological Footprint



# Current Land Use

- Total amount of land is finite
  - Total land area = 89,342 (sq km)
  - Agricultural land = 9,735 (sq km) – 11% of total
  - Arable land = 1,460 (sq km) – 1.6% of total
  - Pastures/meadows = 7,400 (sq km) – 8.3% of total
  - Forests = 980 (sq km) – 1.1% of total

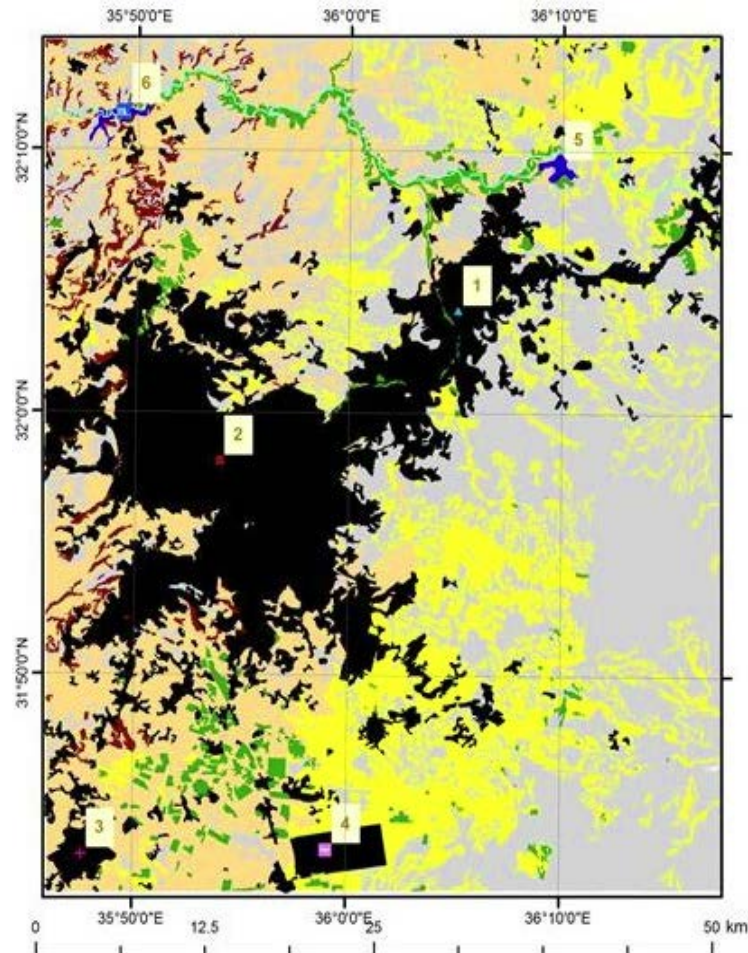


# Pressures on Land

- **Desertification**
- **Industrialization**
- **Urbanization**
- **Building residences**

# Change in Amman-Zarqa Land Area (1983–2010)

2010

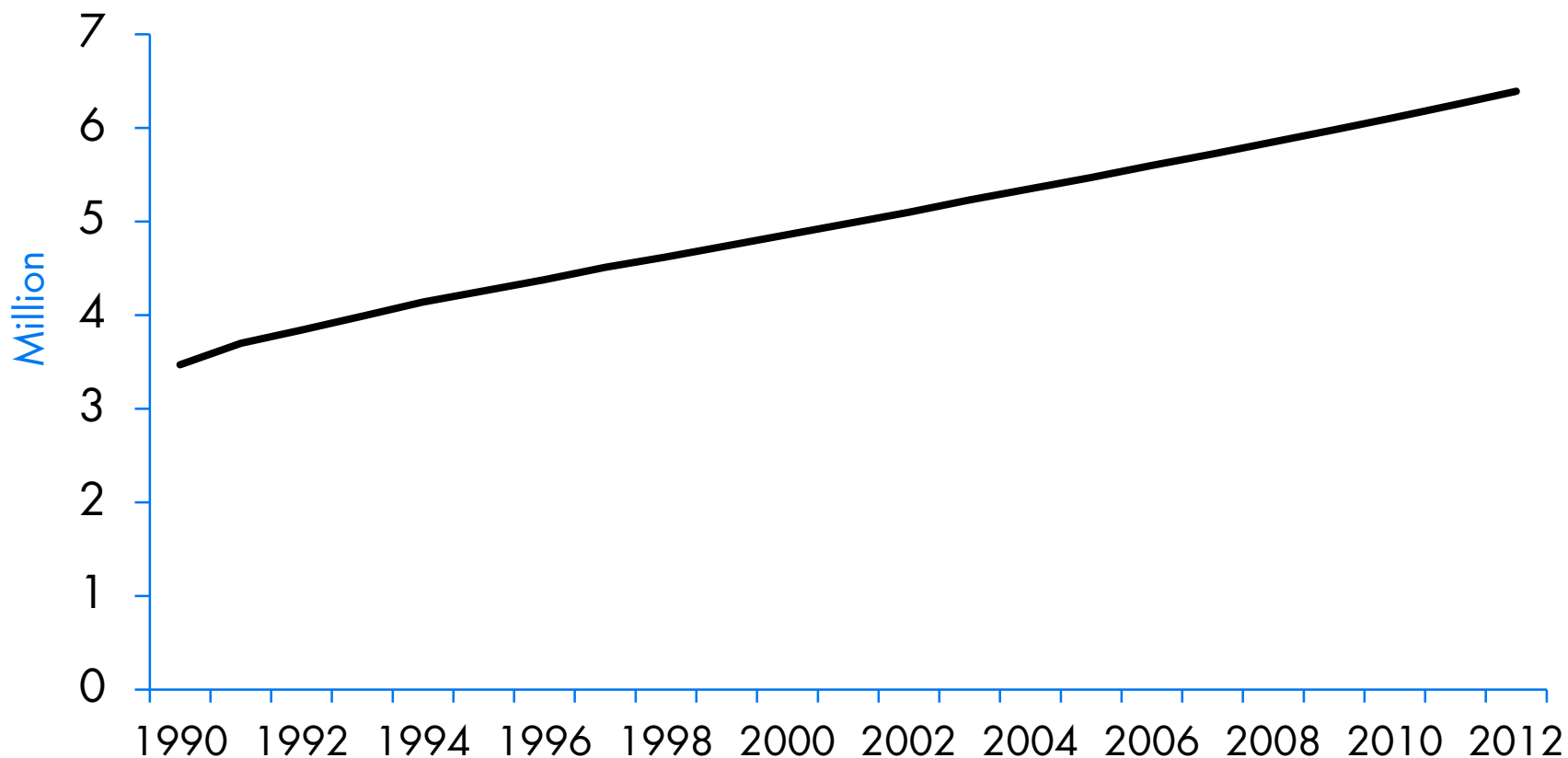


## Legend

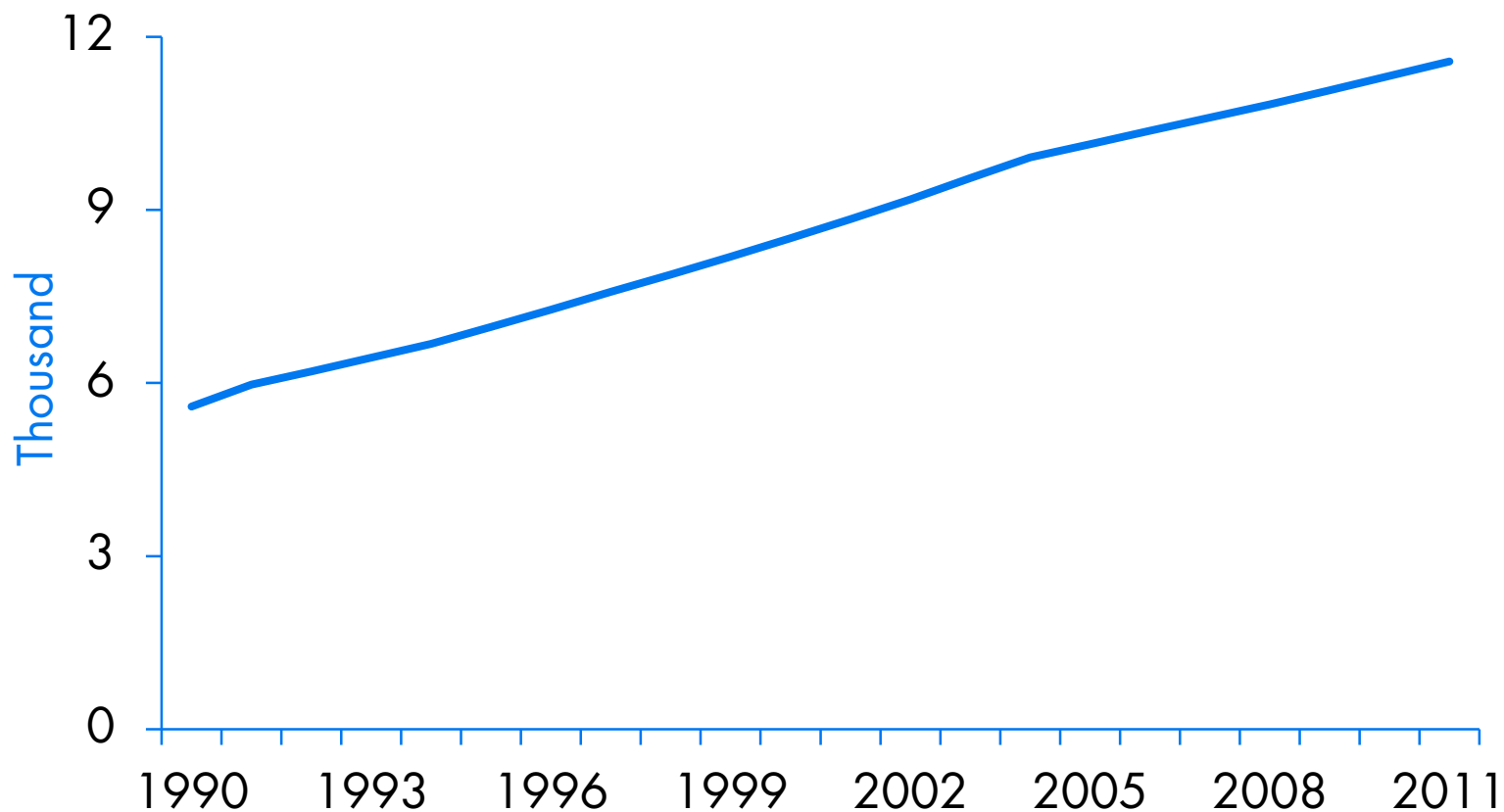
- |                     |                                 |           |                       |
|---------------------|---------------------------------|-----------|-----------------------|
| Urban               | Open forests                    | 1, Zarqa  | 4, Queen Alia Airport |
| Rainfed arable      | Rangelands/non-cultivated areas | 2, Amman  | 5, As-Samra WWTP      |
| Irrigated areas     | Water bodies                    | 3, Madaba | 6, King Talal Dam     |
| Mixed rainfed areas | Protected areas                 |           | zarqariver            |



# Total Population (1990–2012)



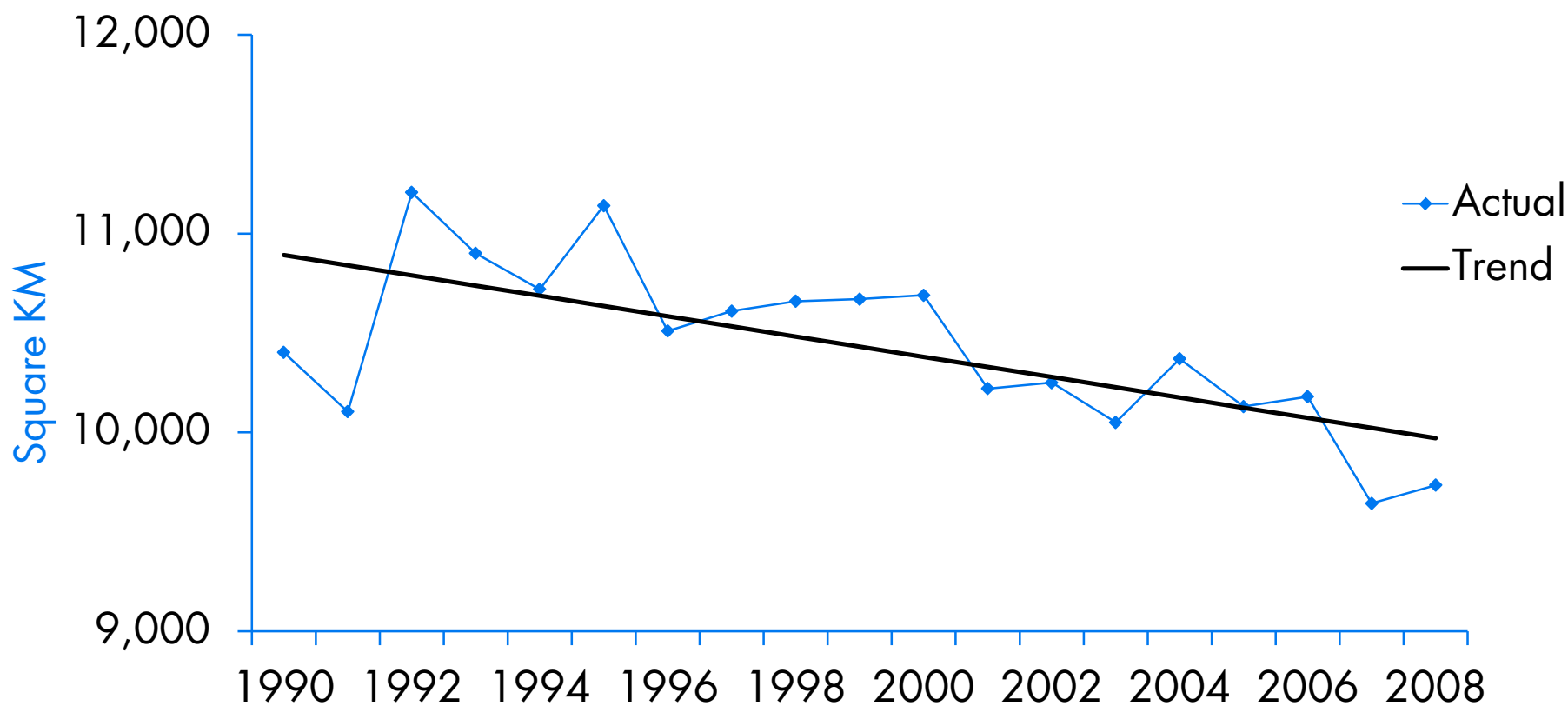
# Total Households (1990–2011)



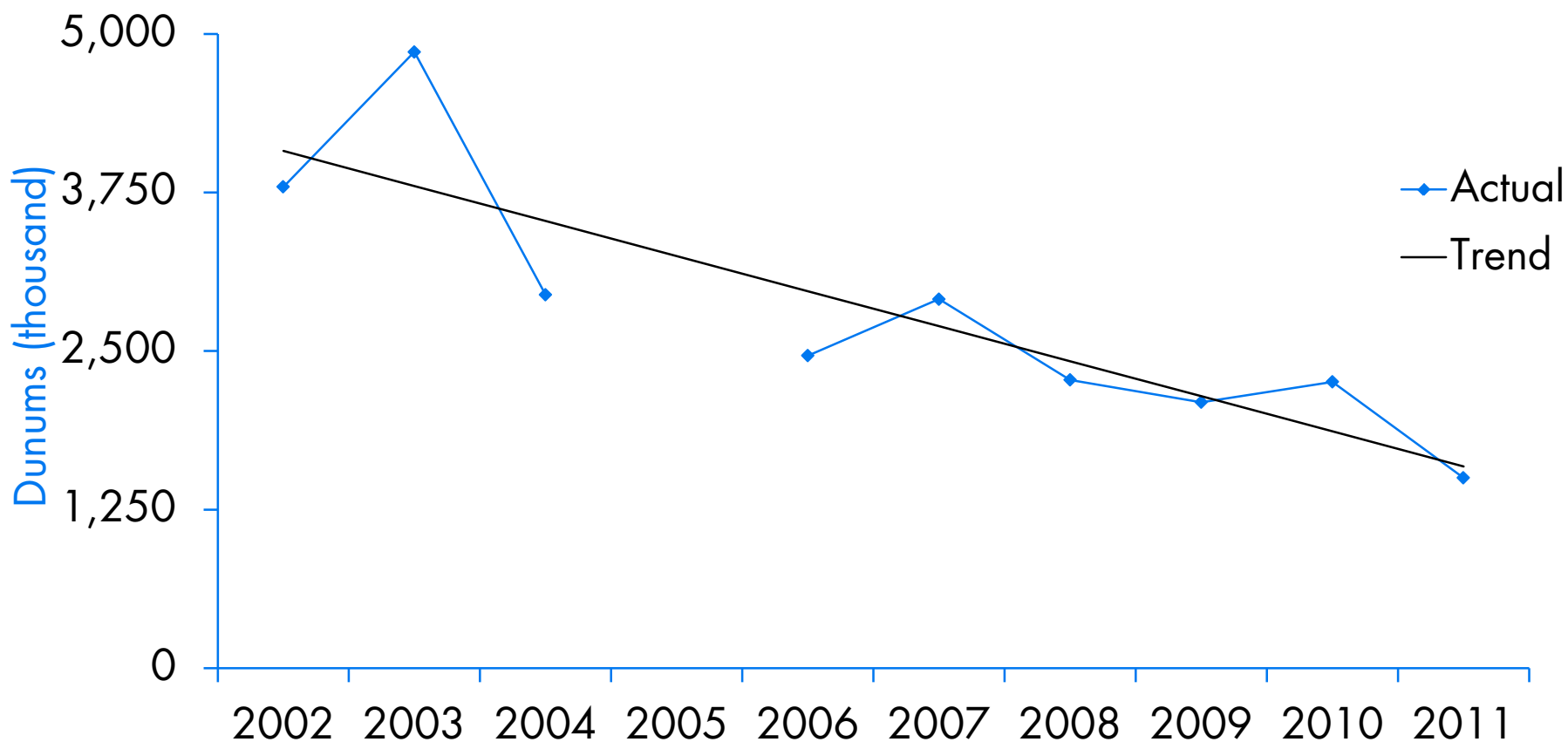


# Total Agricultural Land

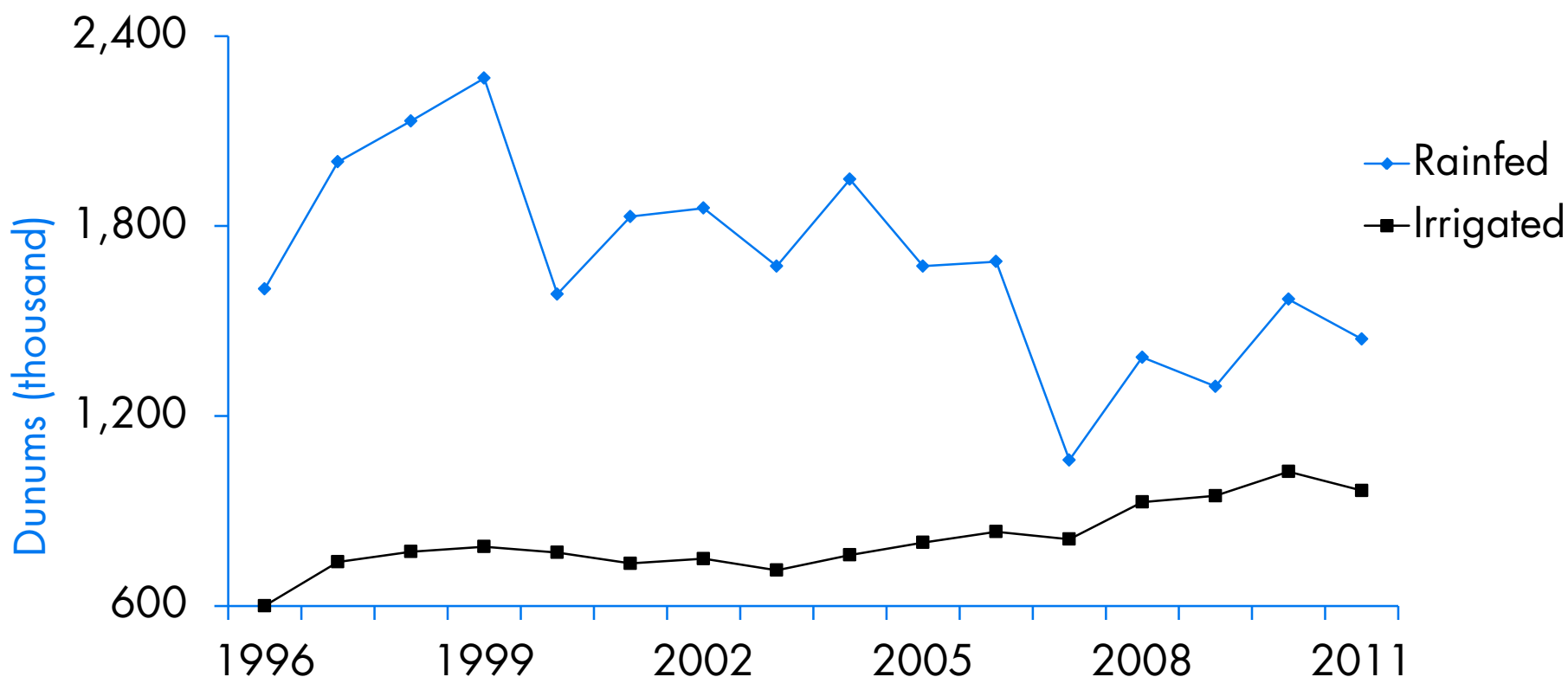
Trend over time



# Planted Forest Area (2002–2011)



# Rainfed vs. Irrigated Land (1996–2011)

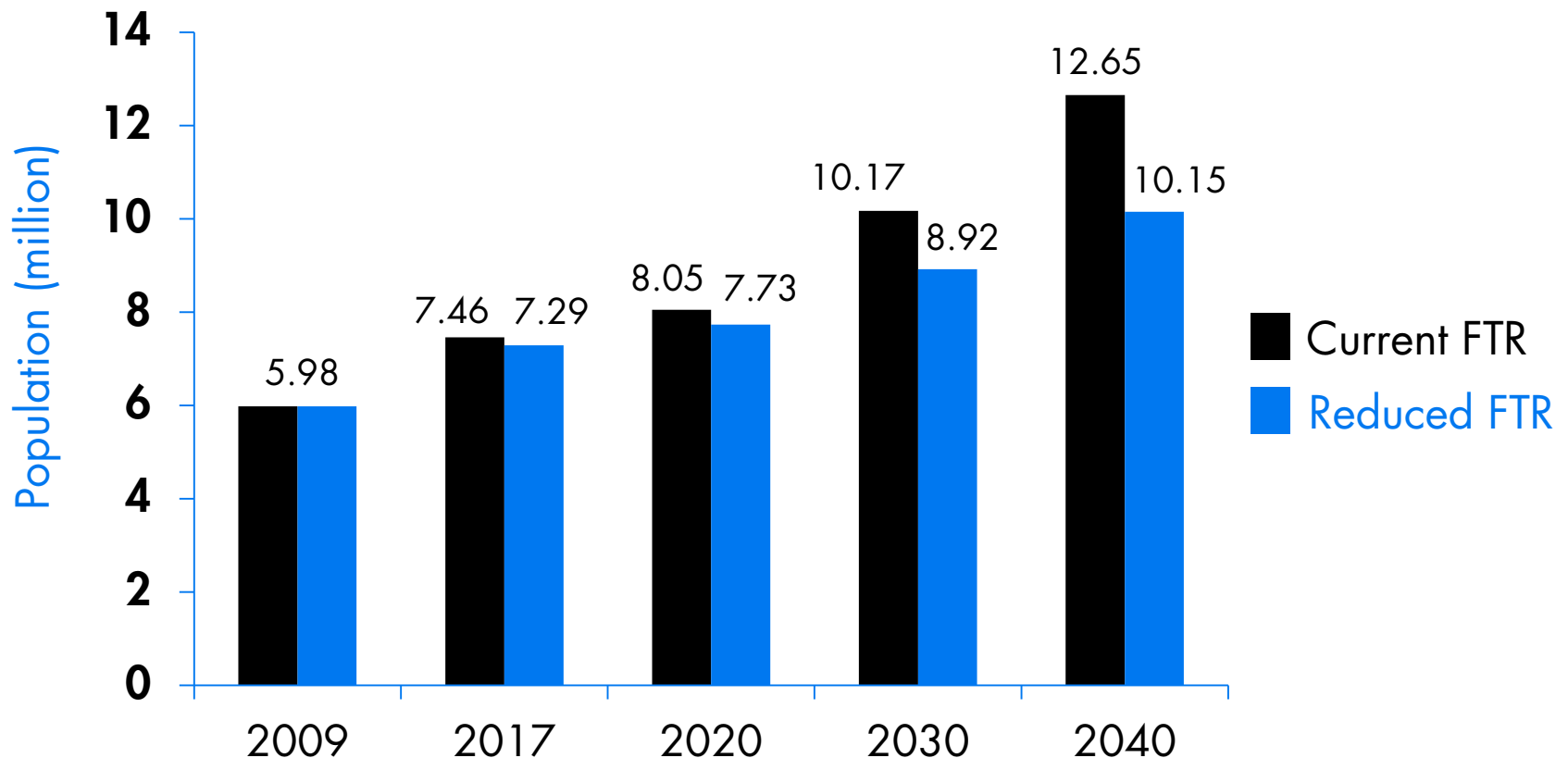


# Outline

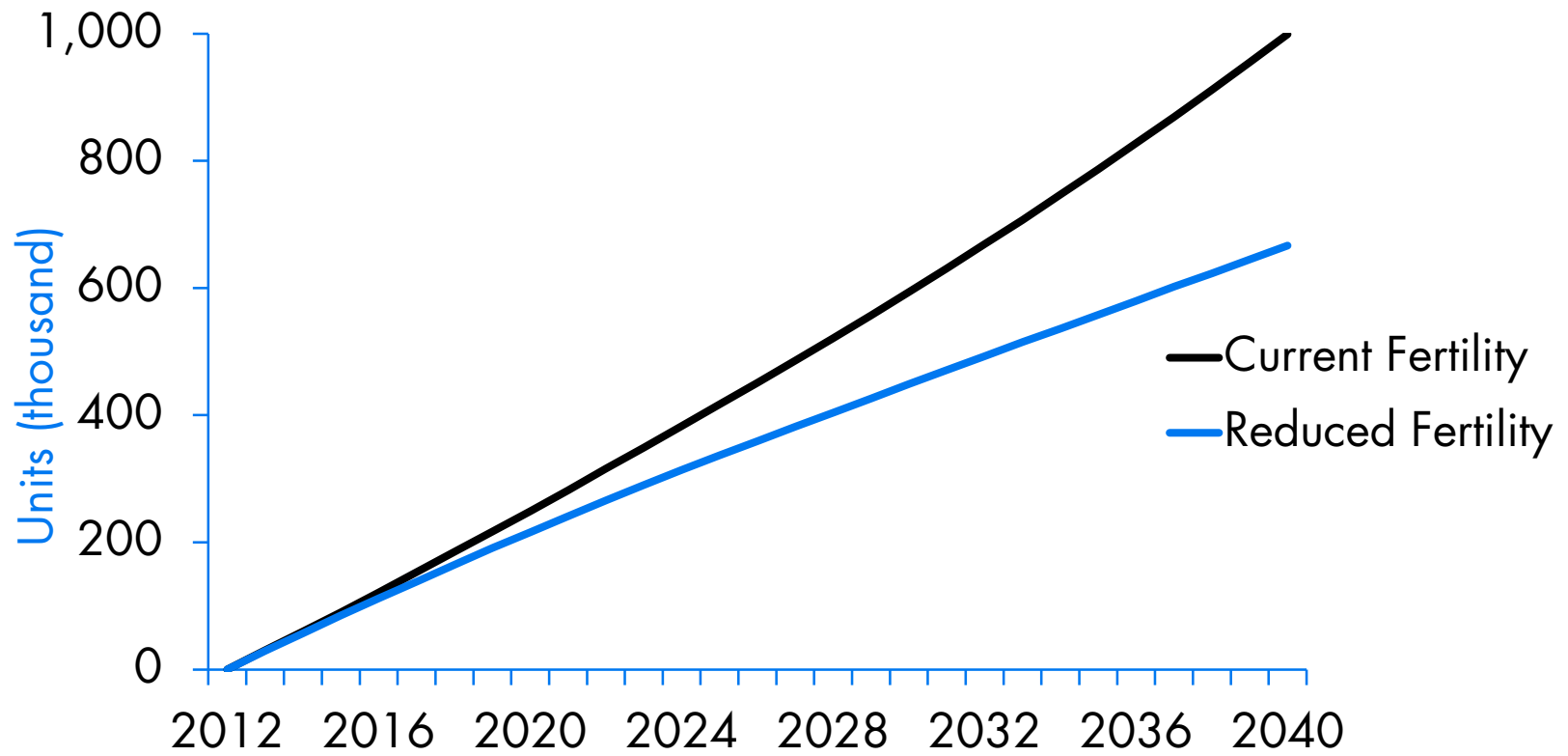
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# Population Growth

Smaller population with lower fertility

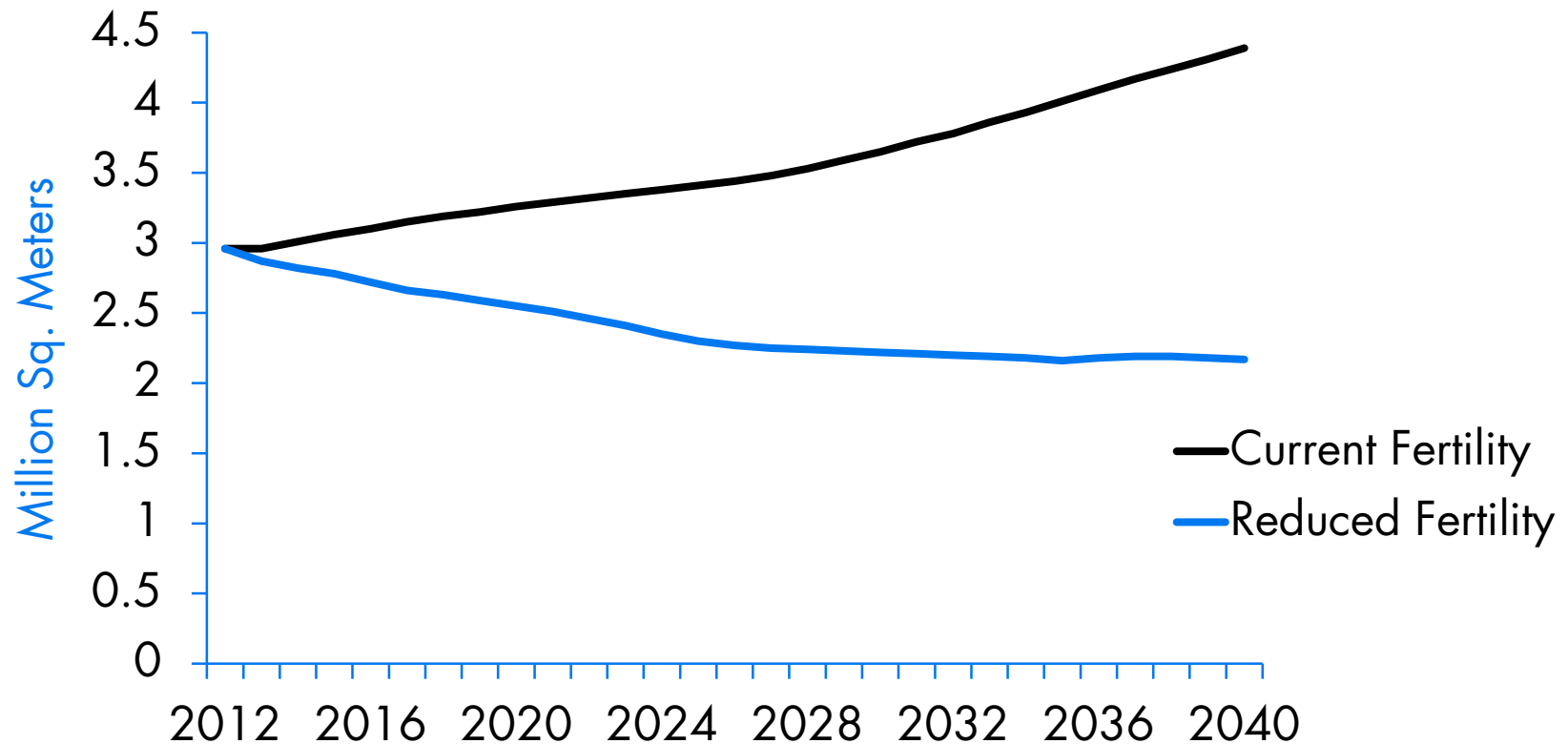


# New Housing Units Required

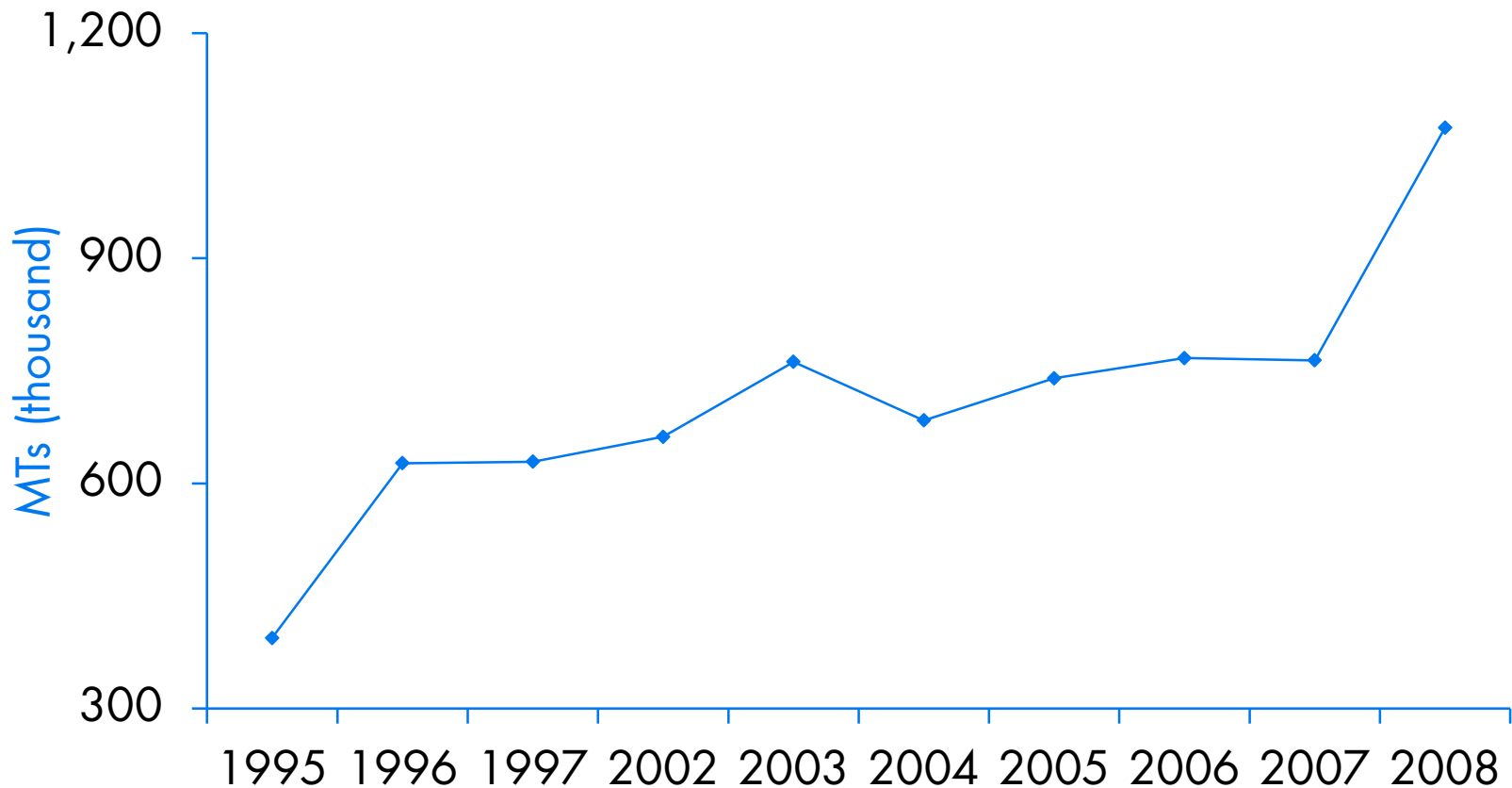


# Annual New Area Required for Housing

**33 million fewer square meters needed between 2012 and 2040**

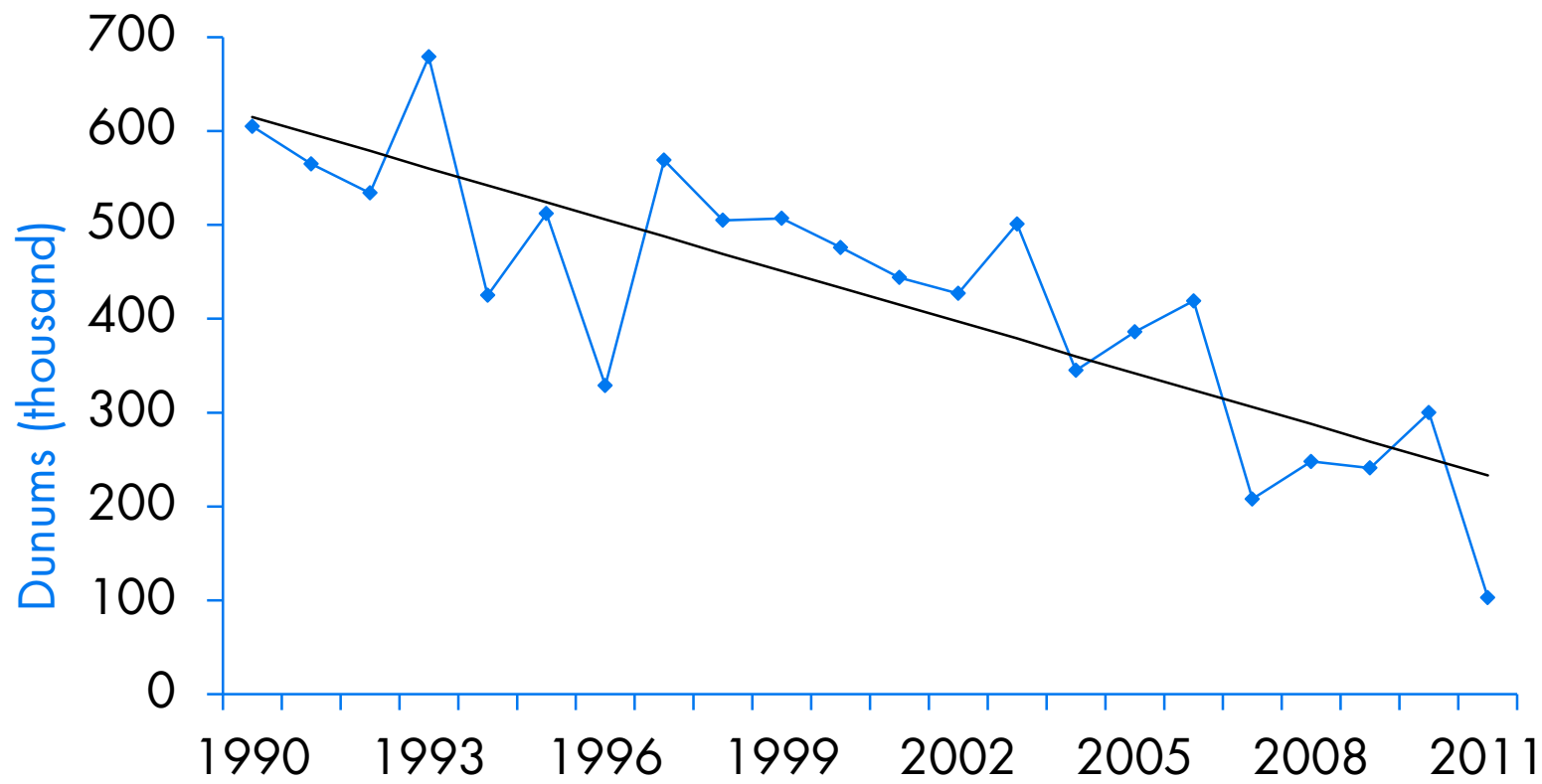


# Wheat Consumption (1995–2008)

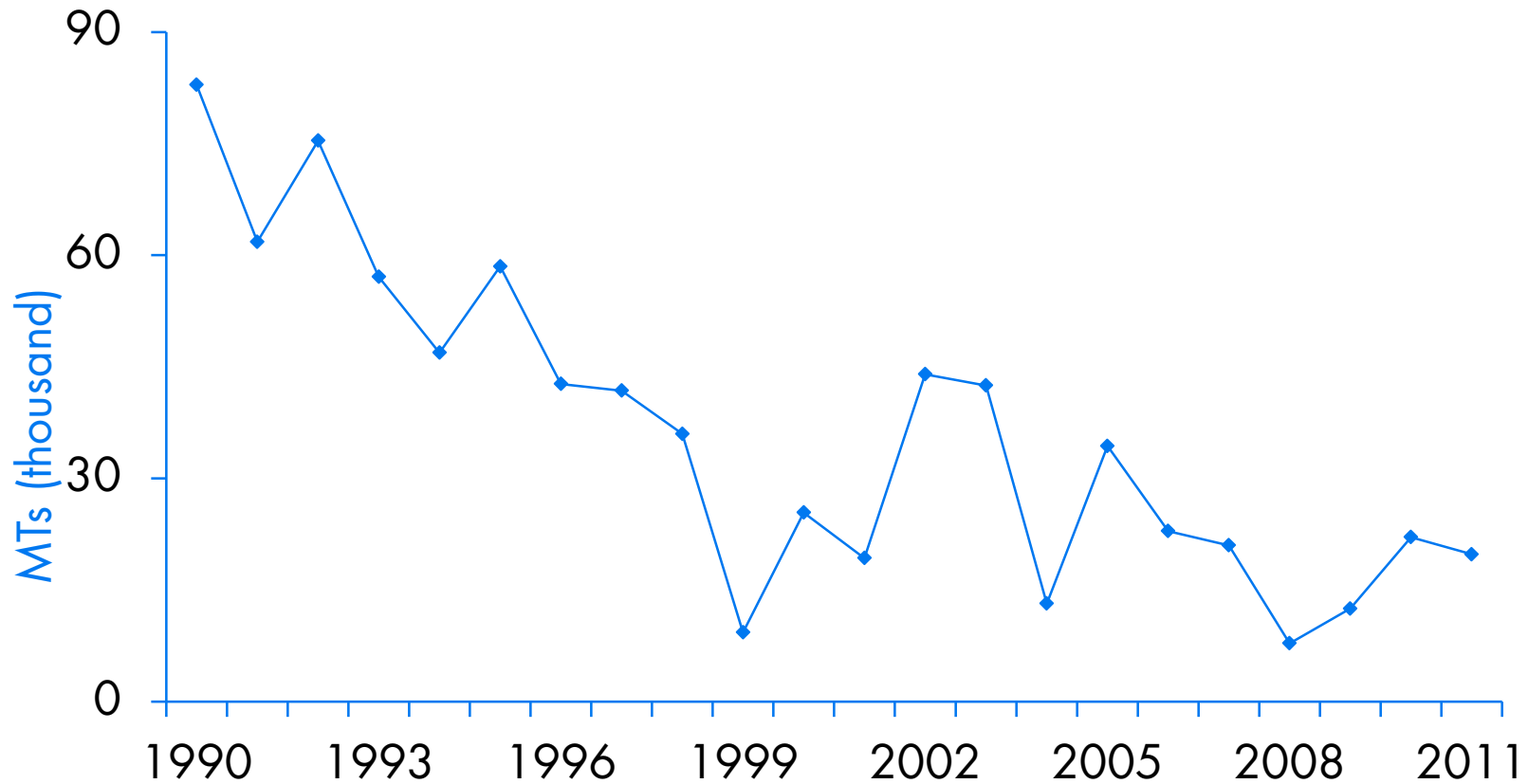




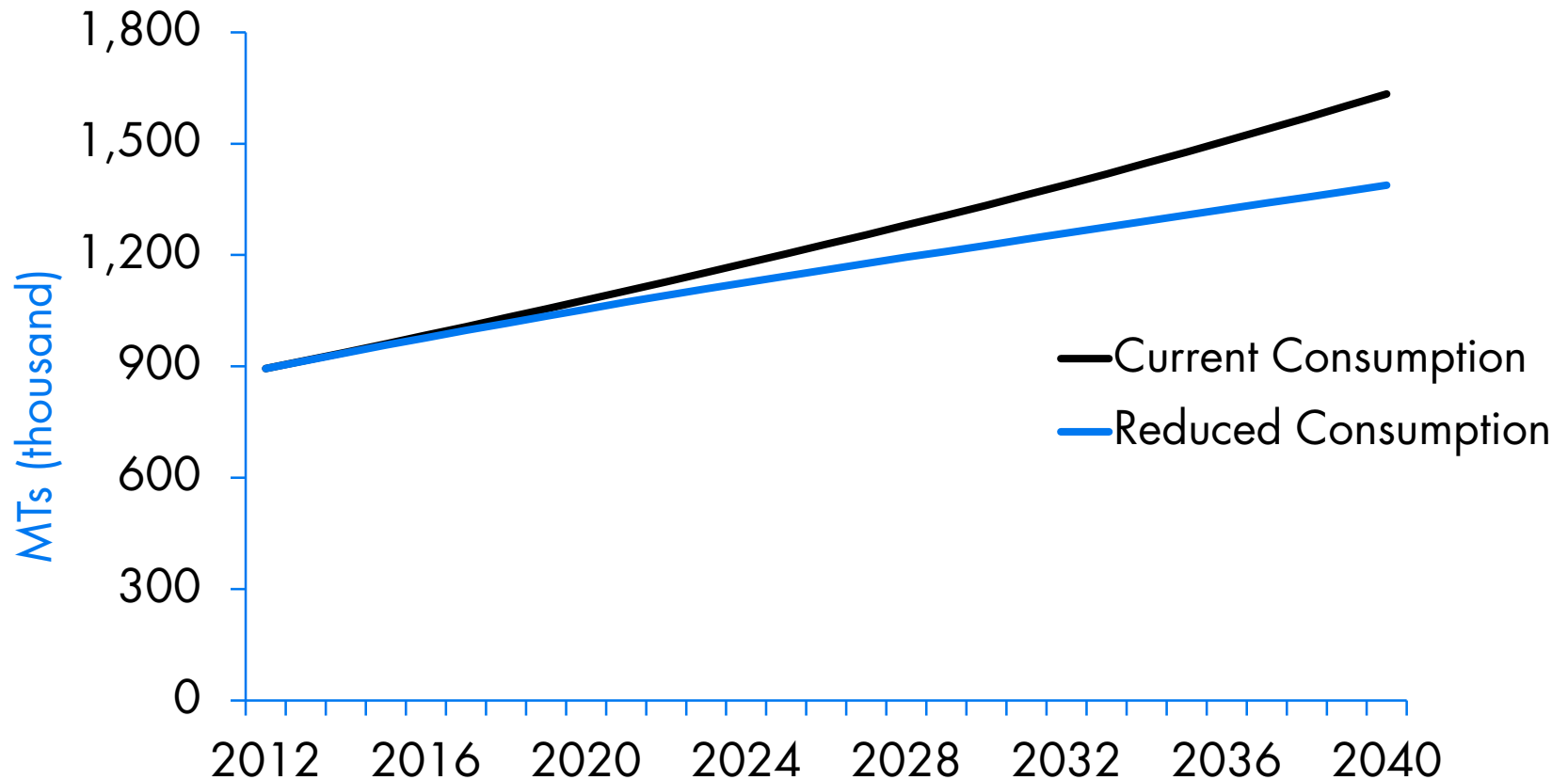
# Area Planted in Wheat (1990–2011)



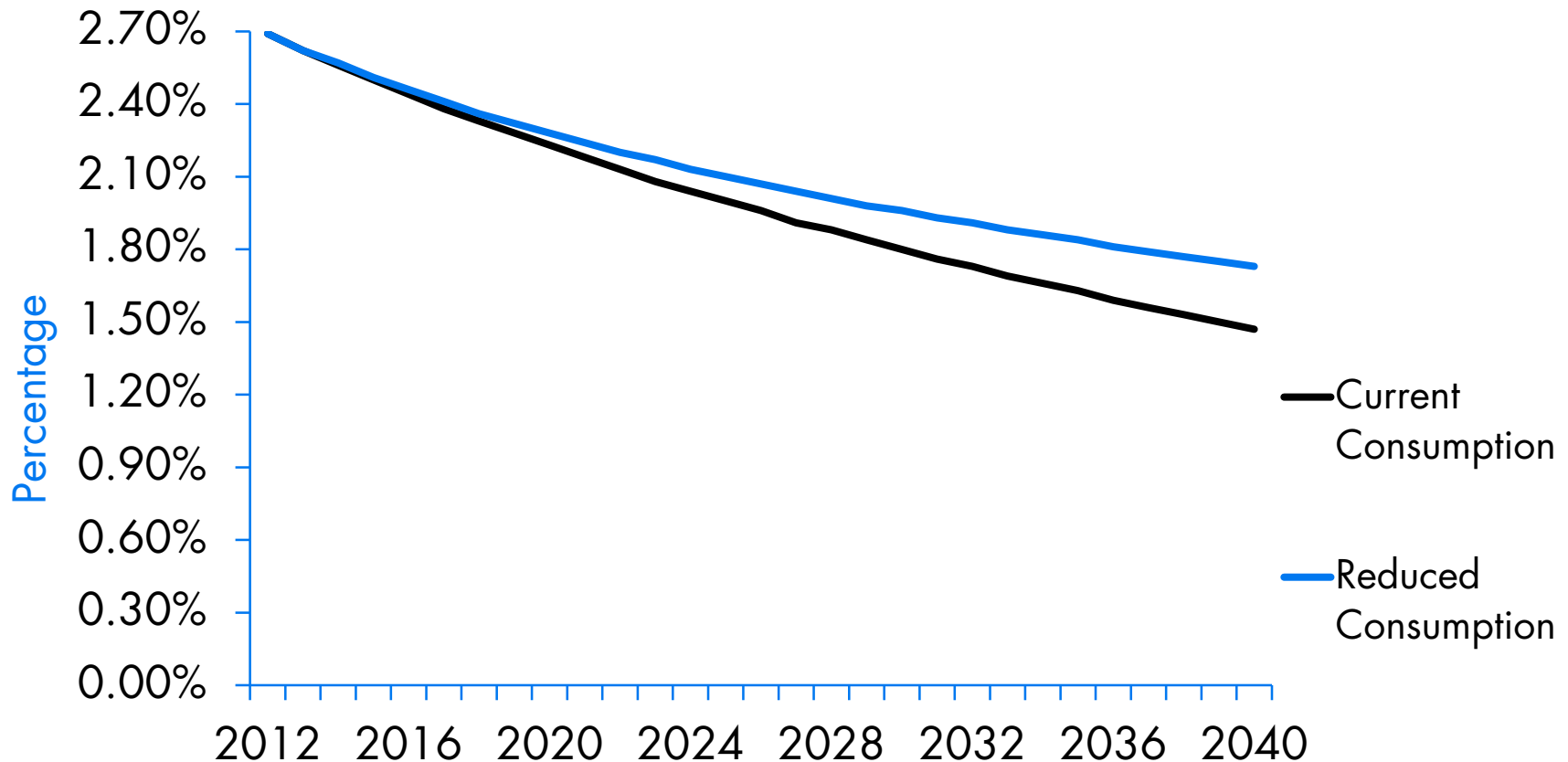
# Wheat Production (1990–2011)



# Projected Total Wheat Consumption

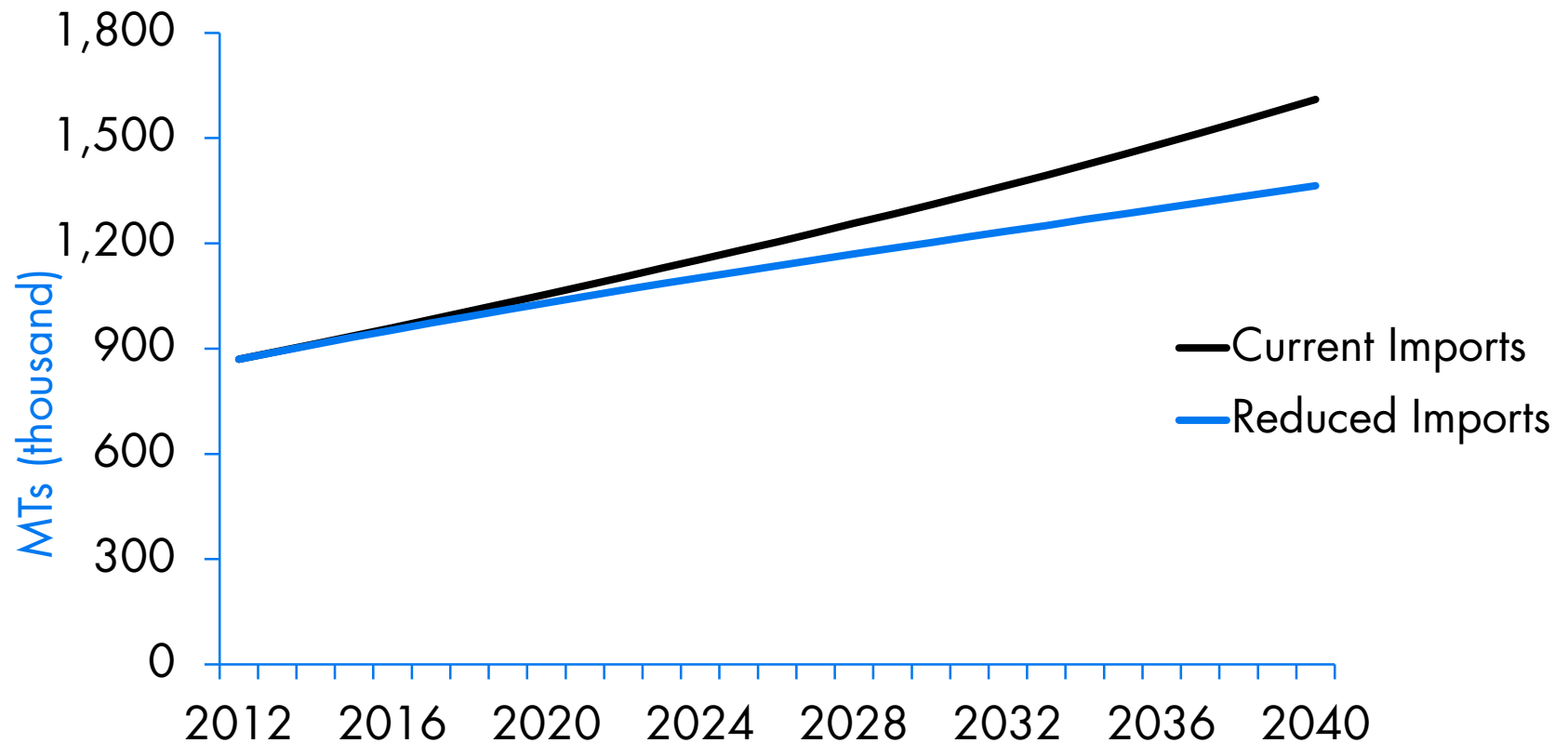


# Domestic Production of Wheat as % of Total Consumption

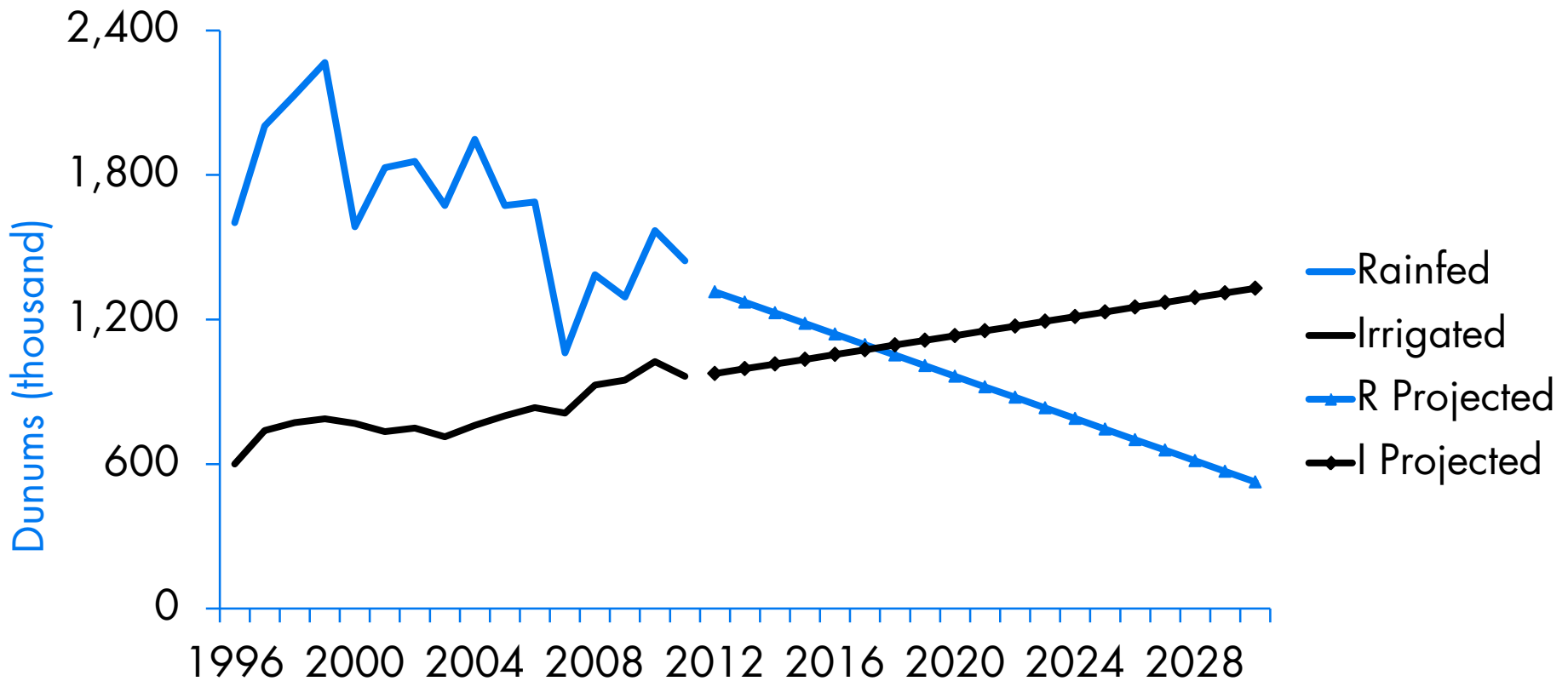


# Projected Annual Wheat Imports

600 million JD saved between 2012–2040

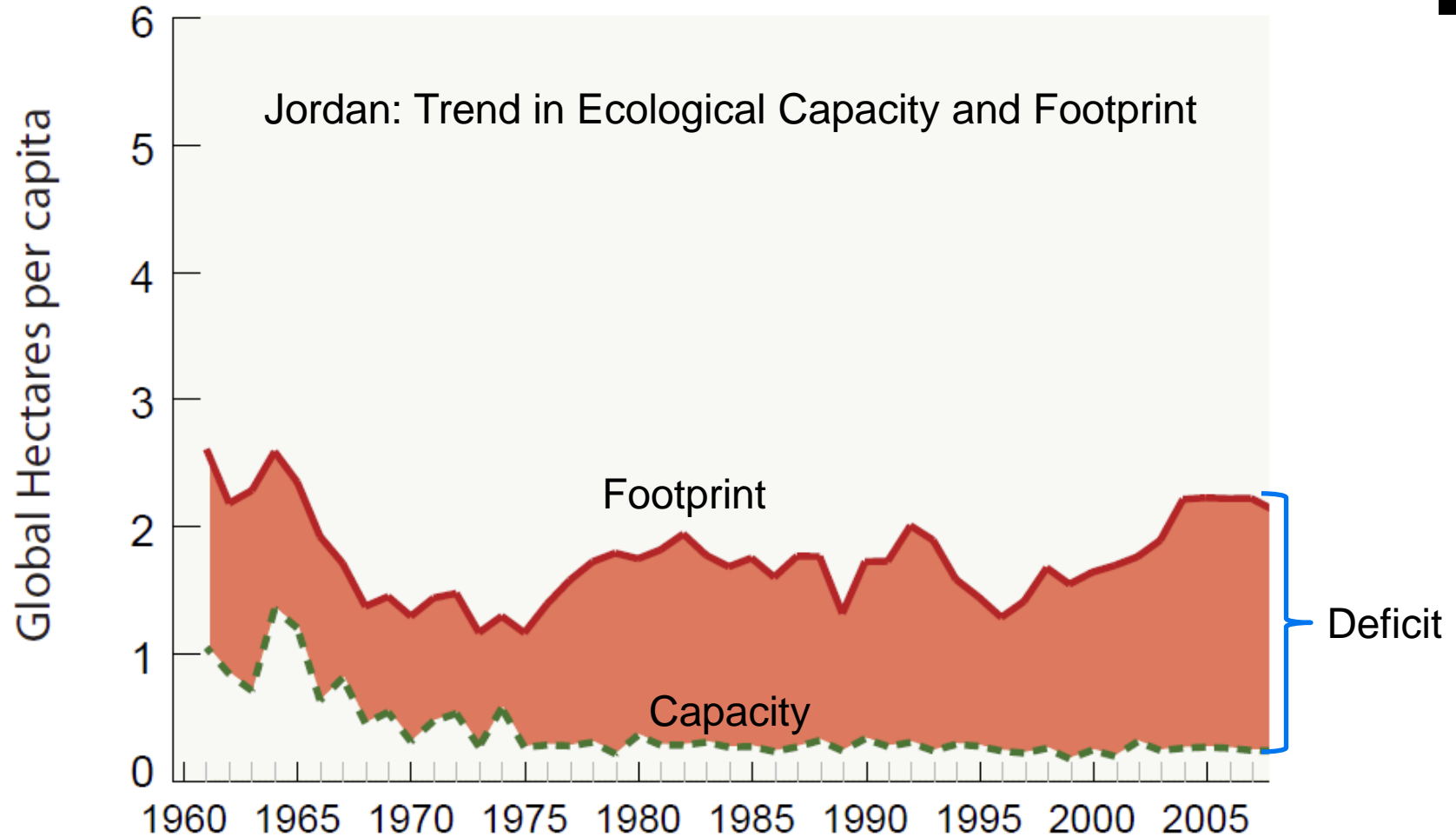


# Rainfed vs. Irrigated Land



Can Jordan's Ecosystem  
meet the needs of its  
growing population?

# There is a widening gap between ecological capacity and demand





# What factors affect the ecological footprint?

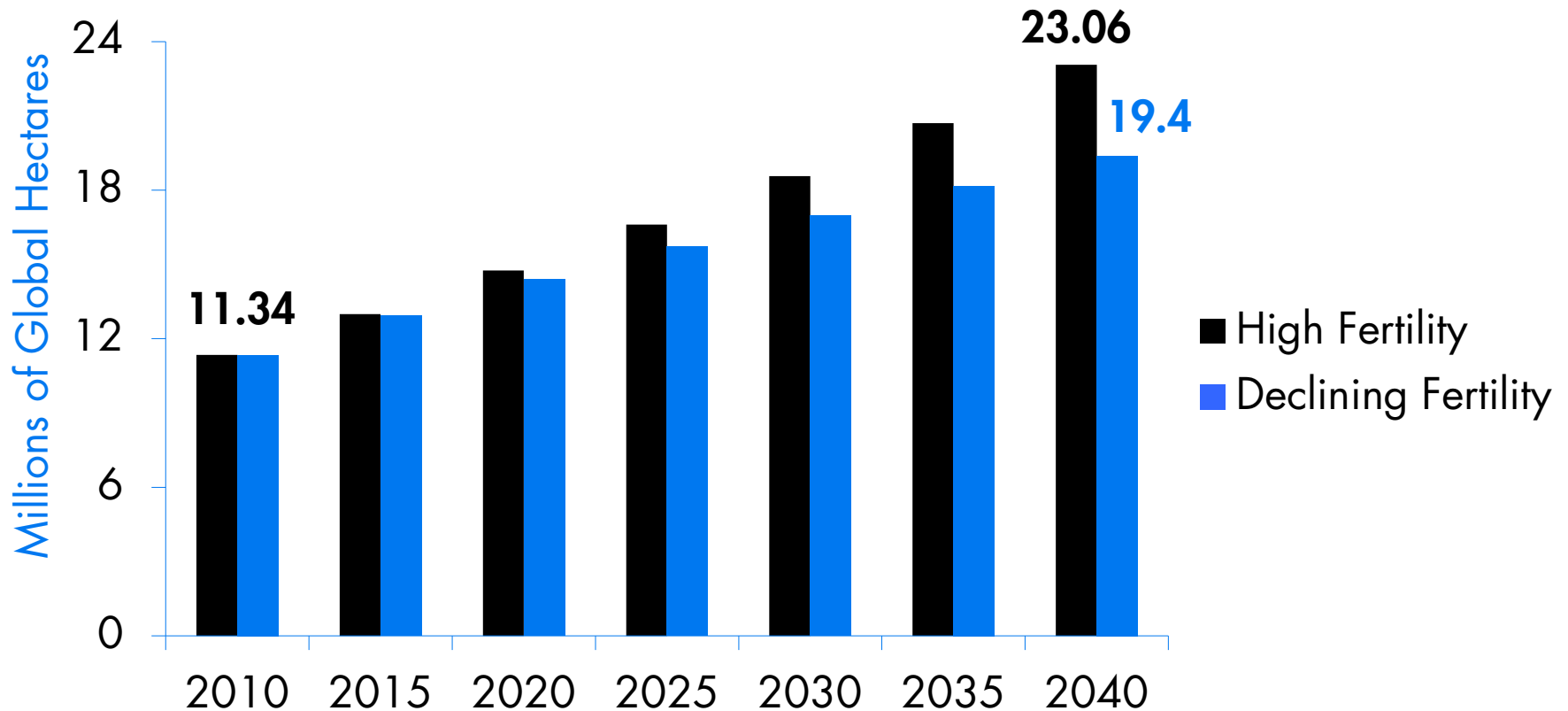
- Population growth
- Urbanization
- Increased consumption
- Increased production

# What are the threats to Jordan of the ecological deficit?

- Increased reliance on imports threatens economic security
- Food insecurity with less agricultural land and more dependence on imports
- Increased air and water pollution pose public health threats
- Water shortages
- Land degradation (costing 3.1% of GDP per year - WB)

# Ecological Deficit

Lowered with slower population growth



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# Actions Required

- Establishment of appropriate zoning codes
- Consistent and strict enforcement of zoning codes
- Effective and efficient use of existing lands
- Reforestation program
- Enforcement of logging laws and regulations
- Implementation of innovative approaches to meet future housing needs

# Government Approaches

- Ministry of Agriculture
  - Increase self-sufficiency in food (proportion of self-sufficiency)
  - ...protecting the environment and sustaining long-term production
  - Direct agricultural production to meet the needs of local, regional, and international markets and be competitive in terms of quality and price
  - Increase the contribution of agricultural exports to improve the trade balance
- Ministry of Environment
  - Preserve and protect the environment, including air, land, water, and biological diversity
  - Propose and develop policies and legislation to protect the environment
- Ministry of Municipal Affairs
  - The ministry has developed a comprehensive master plan for optimal land uses to act as a pilot plan for directing development, population expansion, investment, and conservation of agricultural and natural resources

# Population-related Actions

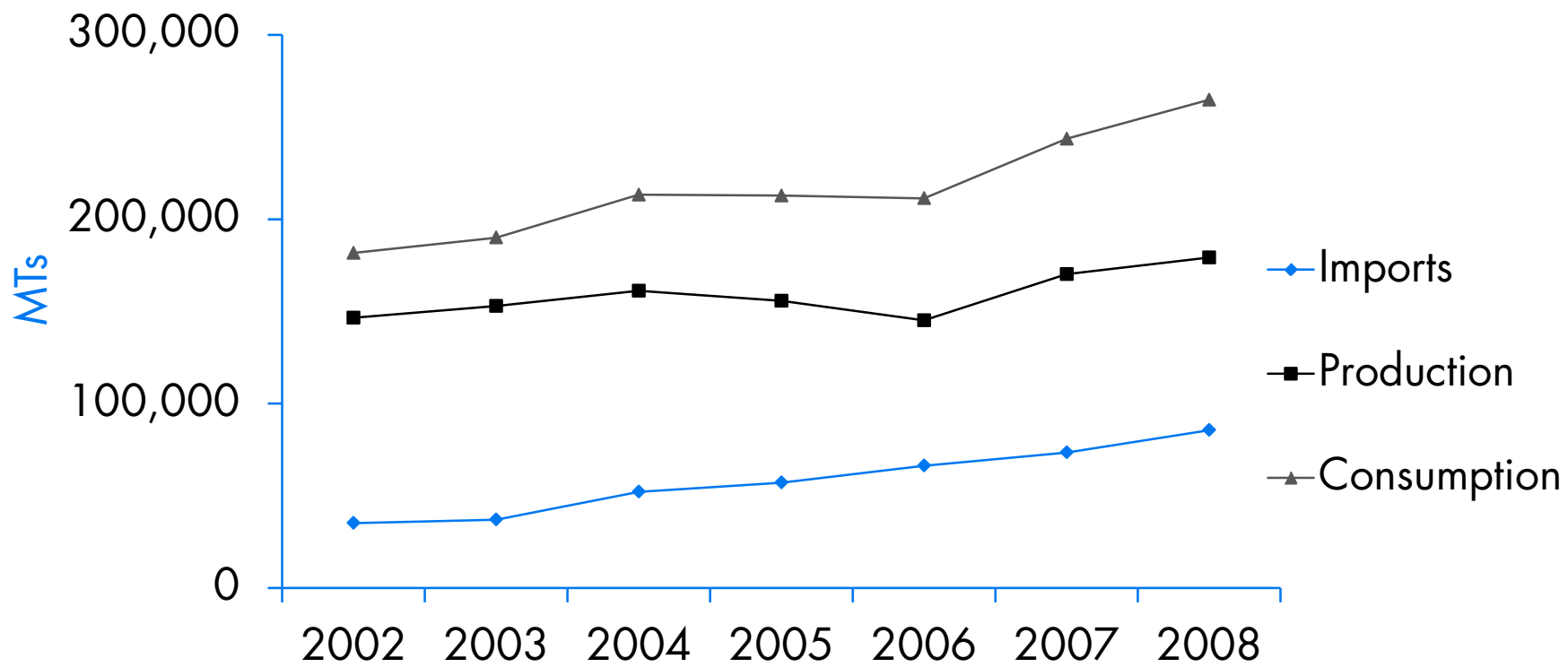


- High-level officials publicly support family planning
- All Ministries consider population in their plans
- Adequate funds are made available to implement plans
- Encourage government and nongovernmental participation

# Extra Slides



# Meat Production/Imports (2002–2008)



# Main Objectives of Agriculture Strategy

- Increase self-sufficiency in food (proportion of self-sufficiency)
- Adopt the principal of economic efficiency in managing and using factors of agricultural production (water, agricultural land, capital, labor force) while protecting the environment and sustaining long-term production
- Increase income and profits from agriculture and improve the living standards of farmers and others living on agriculture-related activities
- Direct agricultural production to meet the needs of local, regional and international markets and be competitive in terms of quality and price
- Maximize the value-added of agricultural activities to GDP
- Increase the contribution of agricultural exports to improve the trade balance
- Achieve social and economic equity between agriculture and other economic sectors and within the agricultural sector itself
- Achieve complementarity of agricultural activities with Arab countries and seek cooperation with countries in the region and production and exchange of agricultural goods and foods on a balanced exchange of benefit basis for all parties

# Ministry of Municipal Affairs (Master Plan)

“As Jordan requires to have the optimum land uses plan to meet the natural, geographical, developmental, populous areas, natural resources, the ministry has developed a comprehensive master plan for the optimal land uses to be as pilot plan to direct the development, populated expansion, investment and conserve the agricultural and natural resources originated from the directives of King Abdullah II for development, investment and preservation of the national resources.”

# Environment Strategy

## Strategic Goals

1. Balance between the social and economic development needs and protecting the environment
2. Preserve and protect the environment, including air, land, water, and biological diversity
3. Ensure the quality of environmental health and safety
4. Improve institutional effectiveness and performance
5. Propose and develop policies and legislation to protect the environment
6. Enhance awareness and environmental culture
7. Support and activate national, regional, and international cooperation