



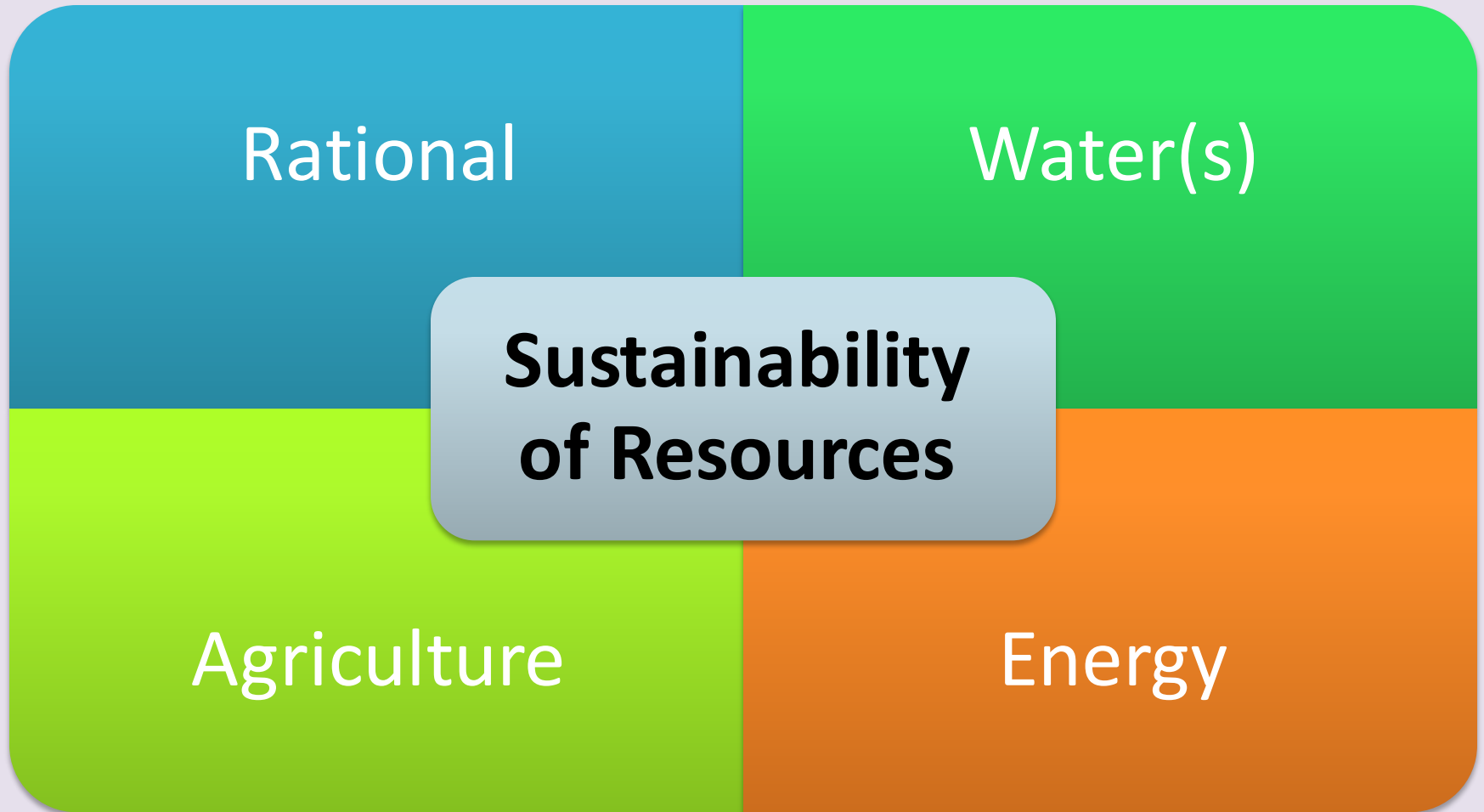
OCP Policy Center Conference series

## Realizing the Spatial & Temporal Variations in Blue & Green Agricultural Water in Jordan

Samer Talazi

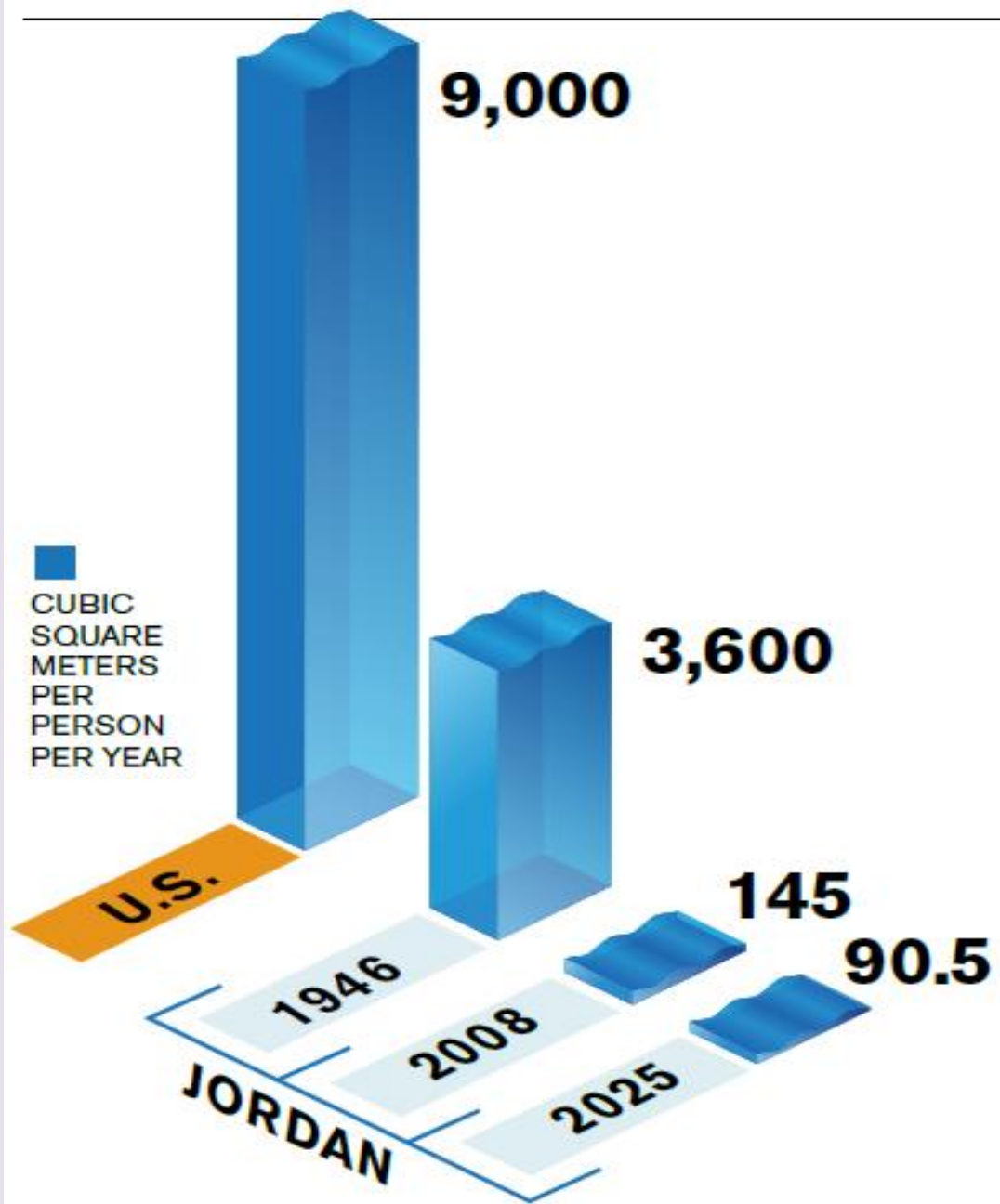
11-13 June 2014

# Dimensions & Scope of Presentation



# Water!

DECLINING JORDANIAN RENEWABLE FRESH WATER COMPARED TO THE U.S.



**THE KINGDOM'S 2008 WATER STRATEGY  
ASSUMED CONSISTENT  
POPULATION GROWTH, FROM ABOUT**

**5.87 MILLION**

**IN 2008 TO OVER**

**7.8 MILLION**

**BY 2022. BUT WITH THE INFLUX  
OF SYRIANS, THE POPULATION OF  
JORDAN IN DECEMBER 2013  
ALREADY APPROACHED**

**8 MILLION**

*Source: Mercy Corps, Tapped Out 2013*

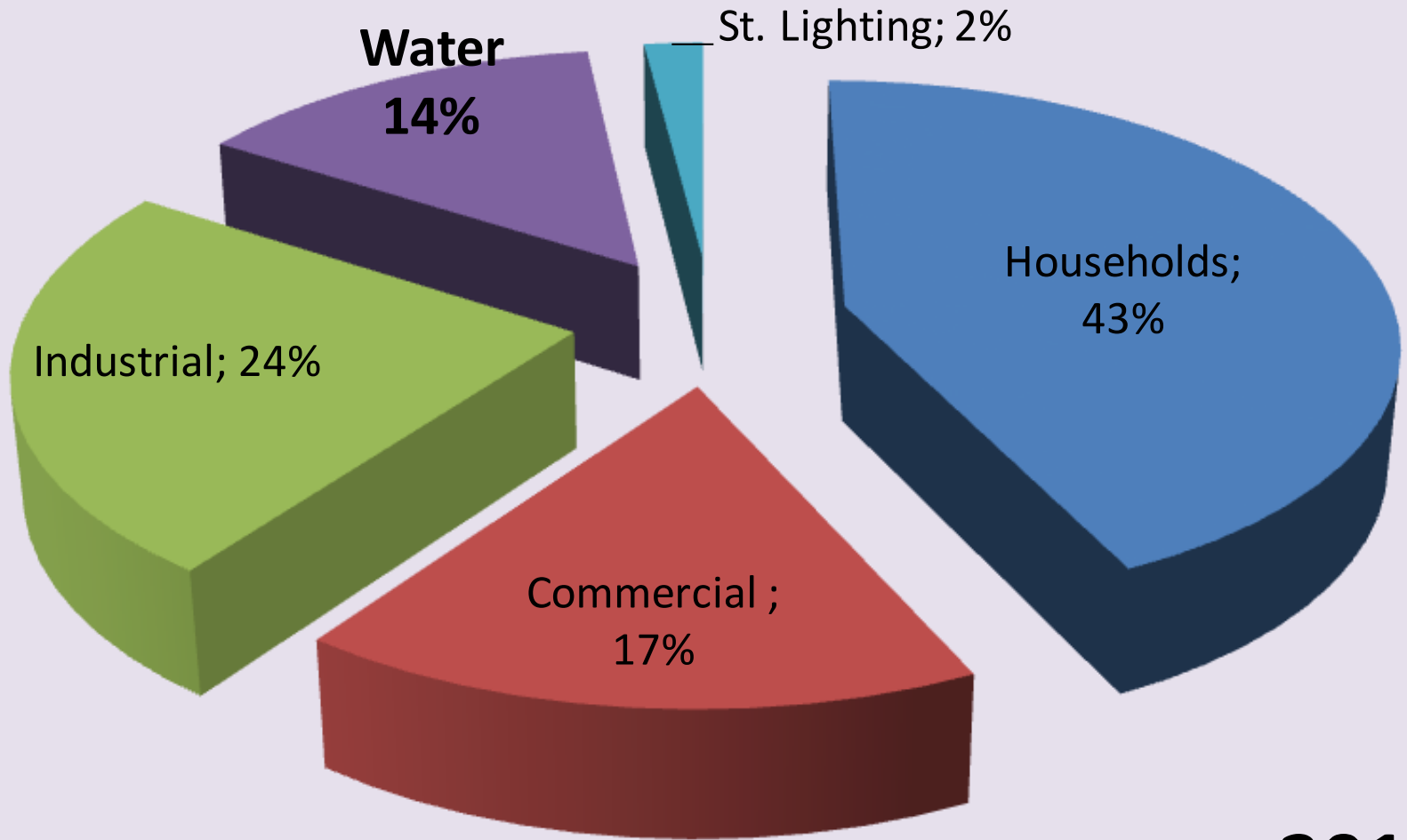
# Disi Ground Water



# Red-Dead Project(s) ?







**2012**

# Distribution of Electricity Consumption by Sector



# Transboundary Surface Water



# Floods – Amman January, 2013



# Floods – Irbid January, 2013



# Snow, December 2013



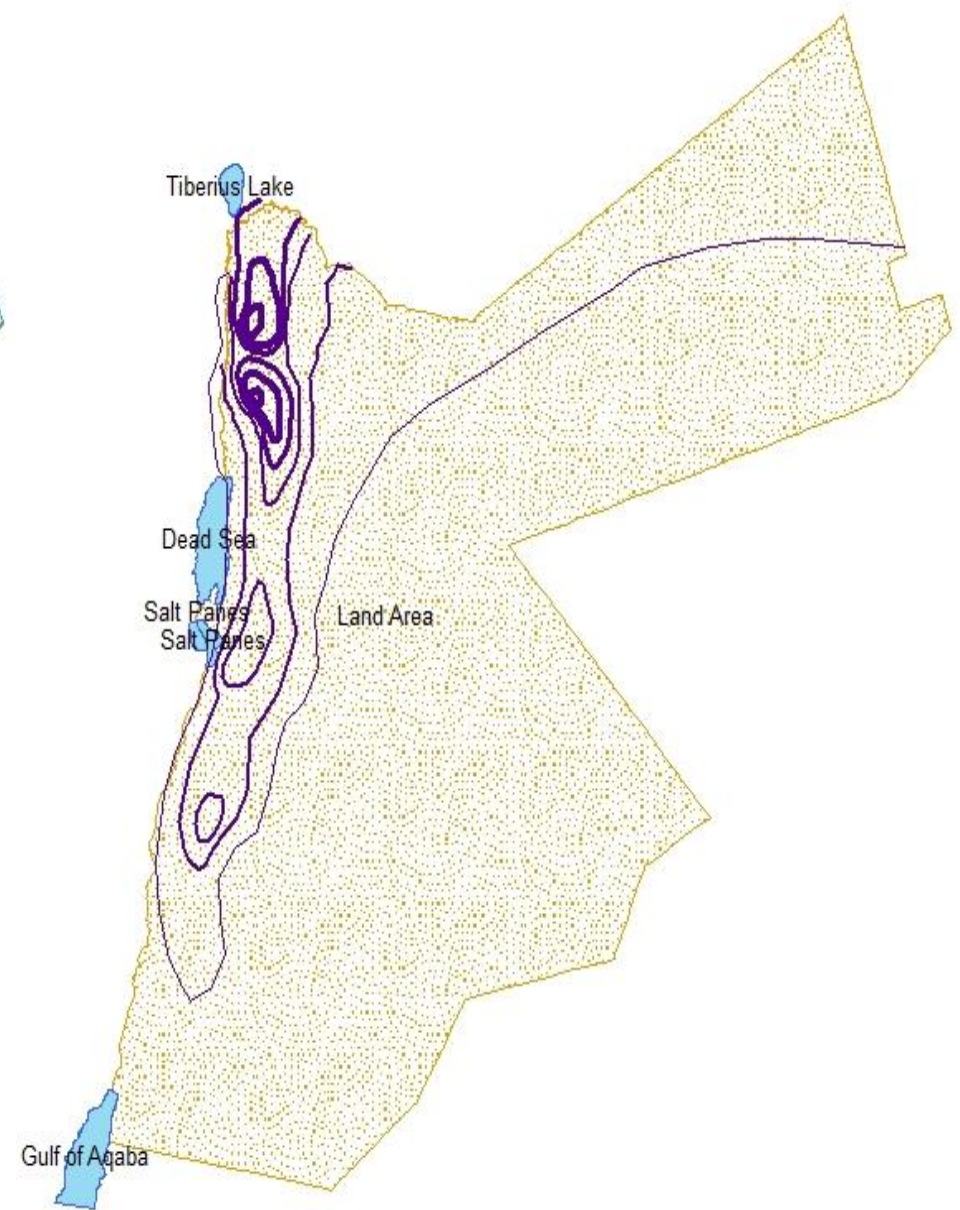
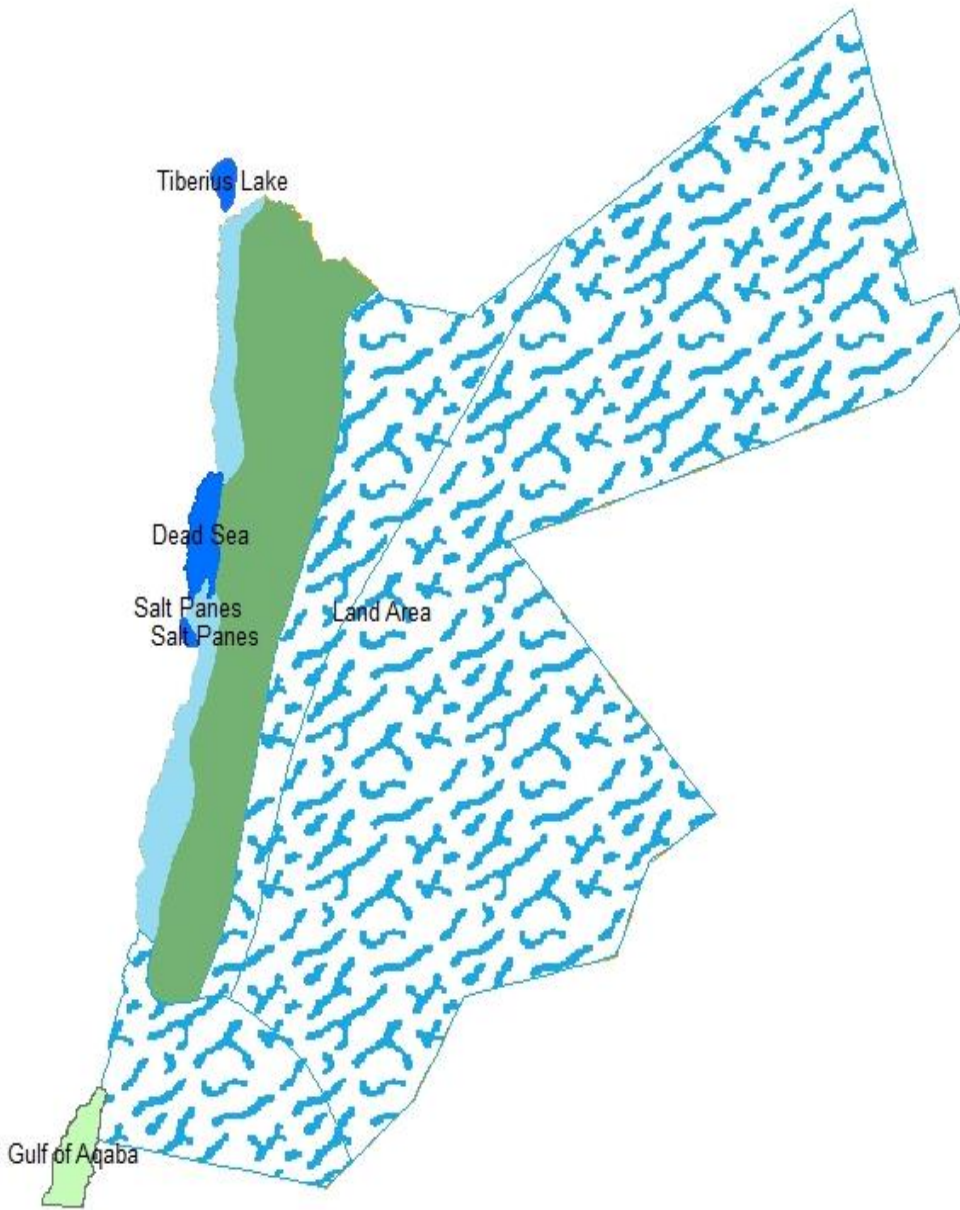
**Water**

**Blue Water vs.  
Green Water**

**Groundwater**

**Marginal water**

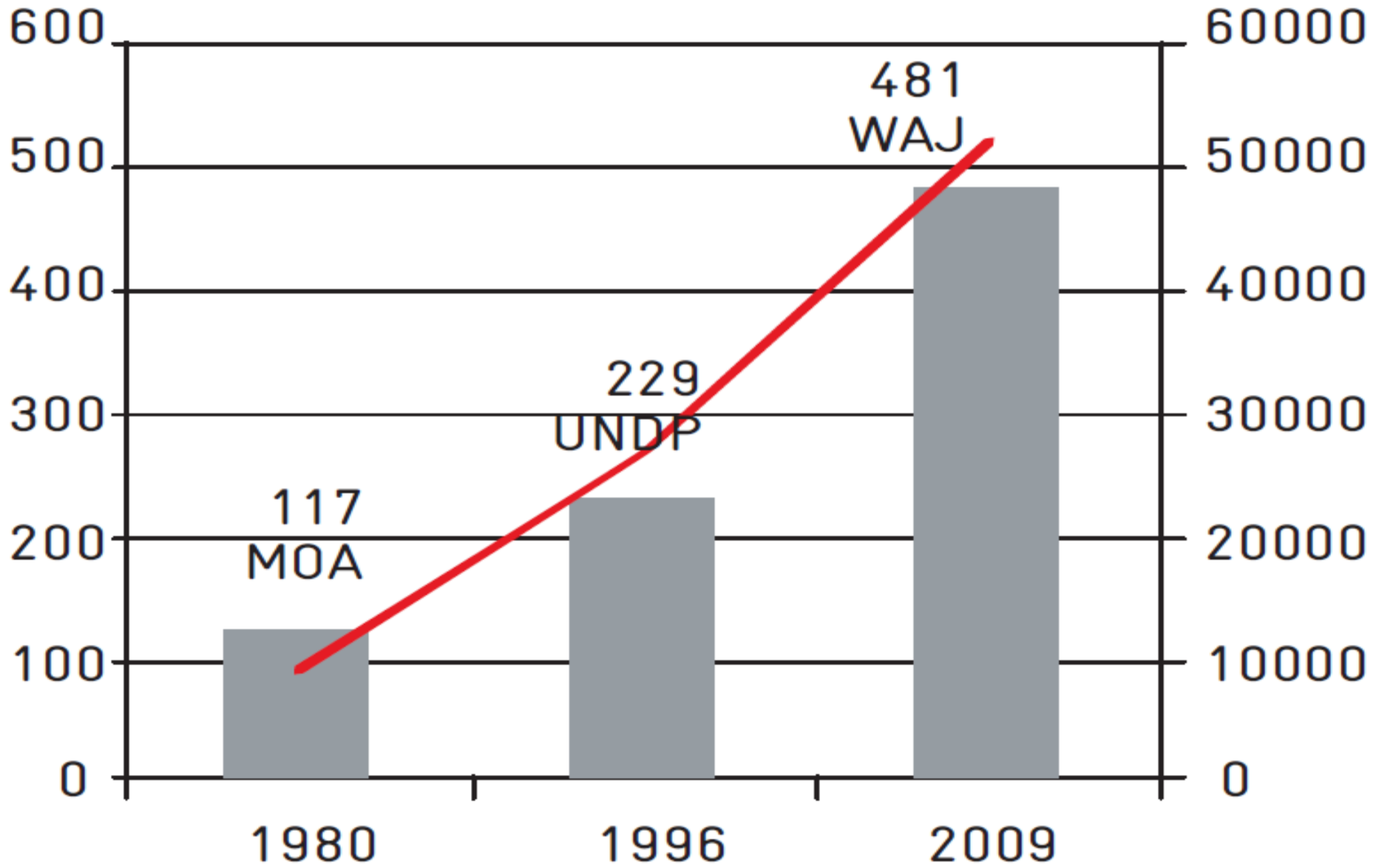




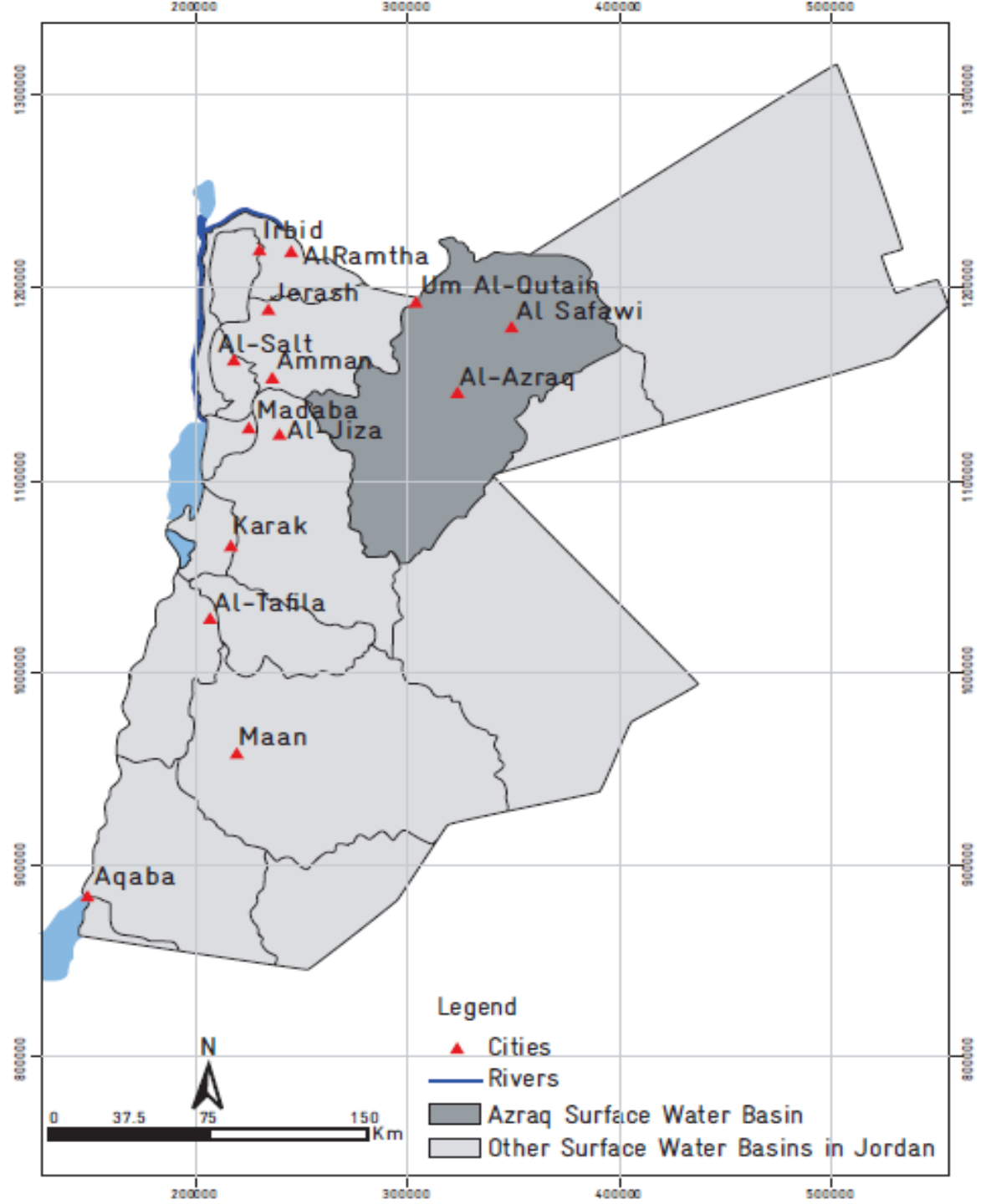
**Agro-climatic Zones**

**... Precipitation Map**

# Farming in the Desert



# Azraq Basin





# Farming system

# Mixed family farms – vegetables and trees



Tomatoes in open field on rented land



Stone fruits planted on owned land

| Repartition of production costs | Average costs = 300 JD/du | % water cost | % energy cost | % labour cost | % input cost |
|---------------------------------|---------------------------|--------------|---------------|---------------|--------------|
|                                 | Average for all farms     |              | 8%            | 36%           | 18%          |

# Farming system

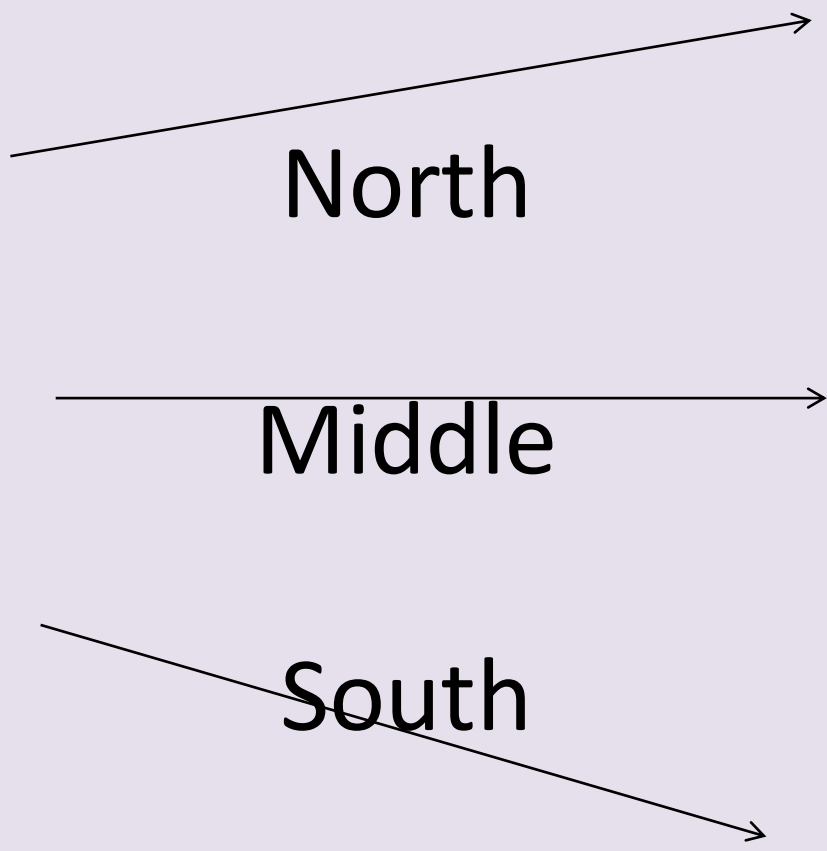
# Professional farms. Olive tree + alfalfa (+ fruit trees)



Alfalfa is planted as a cash crop in many farms

| Repartition of production costs | Average costs = 240 JD/du | % water cost | % energy cost | % labour cost | % input cost |
|---------------------------------|---------------------------|--------------|---------------|---------------|--------------|
|                                 | Average for all farms     | 4%           | 47%           | 25%           | 25%          |
|                                 | working on diesel         | 1%           | 71%           | 15%           | 13%          |
|                                 | working with electricity  | 4%           | 53%           | 15%           | 28%          |

# Agricultural Zones in Jordan River Valley



The map illustrates the Jordan River Valley, showing the river and various wadis. The agricultural zones are color-coded: North (light green), Middle (dark green), and South (medium green). Key locations marked include Ajlun, Salt, and Madaba. Wadis shown include Wadi al Ghoul, Wadi at Tayyiba, Wadi al Khusheiba, Wadi al Jurm, Wadi al Yabis, Wadi al Rajib, Wadi an Nimr, Wadi ar Ramleh, Wadi al Kafraya, Wadi al Hisban, Wadi al Hari, Wadi al Ma'lik, Wadi al Shuwayb, Wadi al Zaqlab, and Wadi al Araf.



Wadi Arab Dam – North JV



Treated Waste Water



# Cropping Pattern (ha) in The Jordan River Valley

| District | Citrus | Bananas | Dates  | Olives | Others | Total   |
|----------|--------|---------|--------|--------|--------|---------|
| North    | 5662.3 | 212.6   | 137.3  | 327.8  | 358.2  | 6698.2  |
| Middle   | 835.8  | 1.9     | 480.6  | 74.6   | 199.2  | 1592.3  |
| Karameh  | 151.7  | 1423.2  | 403.4  | 86.7   | 70.4   | 2135.4  |
| South    | 6.1    | 324.0   | 49.3   | 18.1   | 81.6   | 479.1   |
| TOTAL    | 6655.9 | 1961.7  | 1079.6 | 507.2  | 709.4  | 10905.0 |

# Cropping Pattern (ha) in The Jordan River Valley

| Districts     | Irrigated winter vegetables | Open field surface | Open field drip | Plastic tunnels drip | Plastic houses drip | Irrigated summer vegetables |
|---------------|-----------------------------|--------------------|-----------------|----------------------|---------------------|-----------------------------|
| Shouneh North | 2185.7                      | 74.8               | 1363.2          | 59.9                 | 688.5               | 1551.0                      |
| Dair Alla     | 5052.4                      | 34.4               | 2773.7          | 178.3                | 2066                | 728.7                       |
| Shouneh South | 3196.3                      | 35.3               | 2785.4          | 100                  | 276.1               | 821.8                       |
| Ghor Safi     | 3974.7                      |                    | 3919.7          | 5.1                  | 49.9                | 851.4                       |
| <b>Total</b>  | <b>14409.1</b>              | <b>144.5</b>       | <b>10842.0</b>  | <b>343.3</b>         | <b>3081.5</b>       | <b>3952.9</b>               |

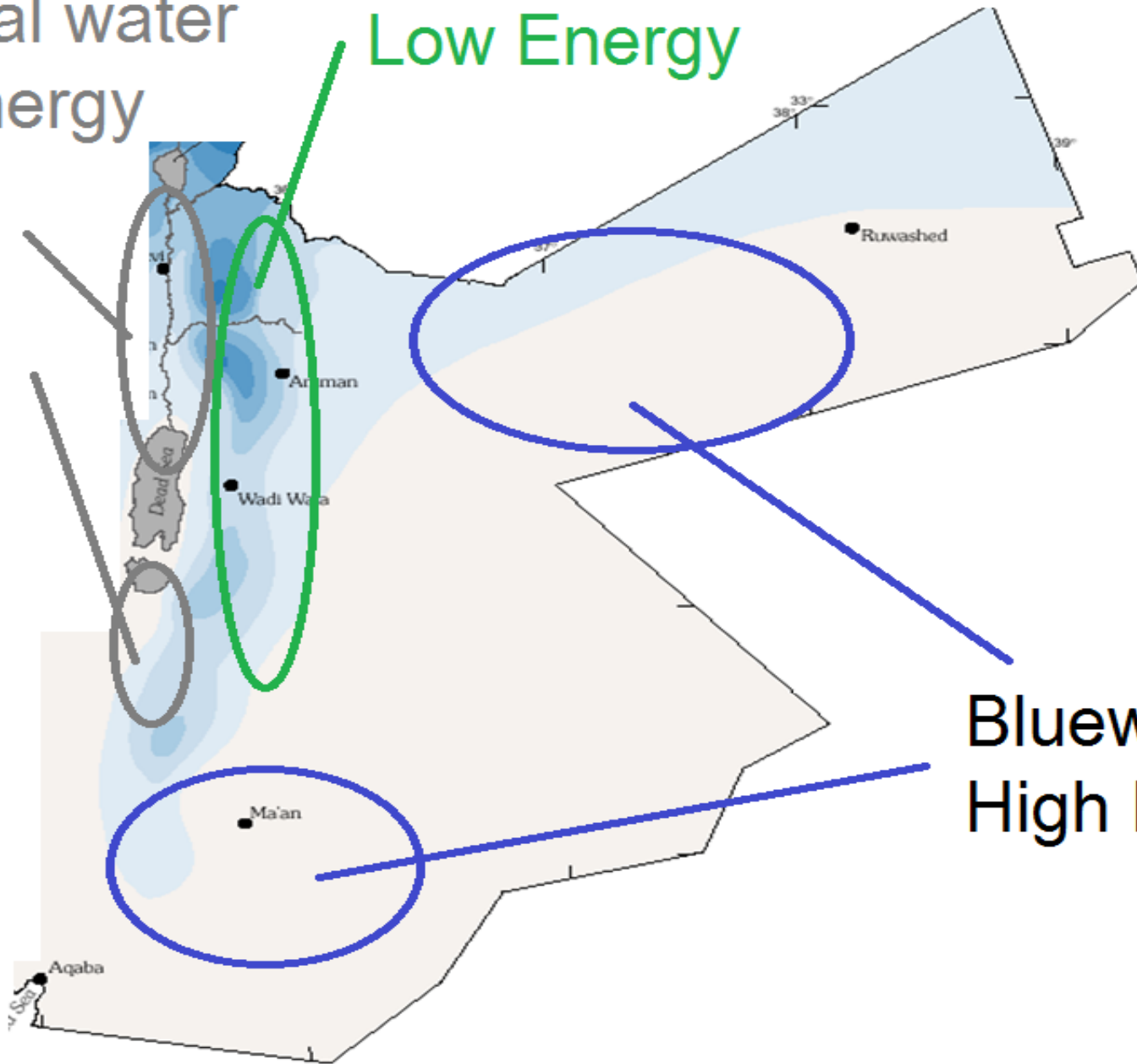


# Irrigation Requirements for The Different Zones

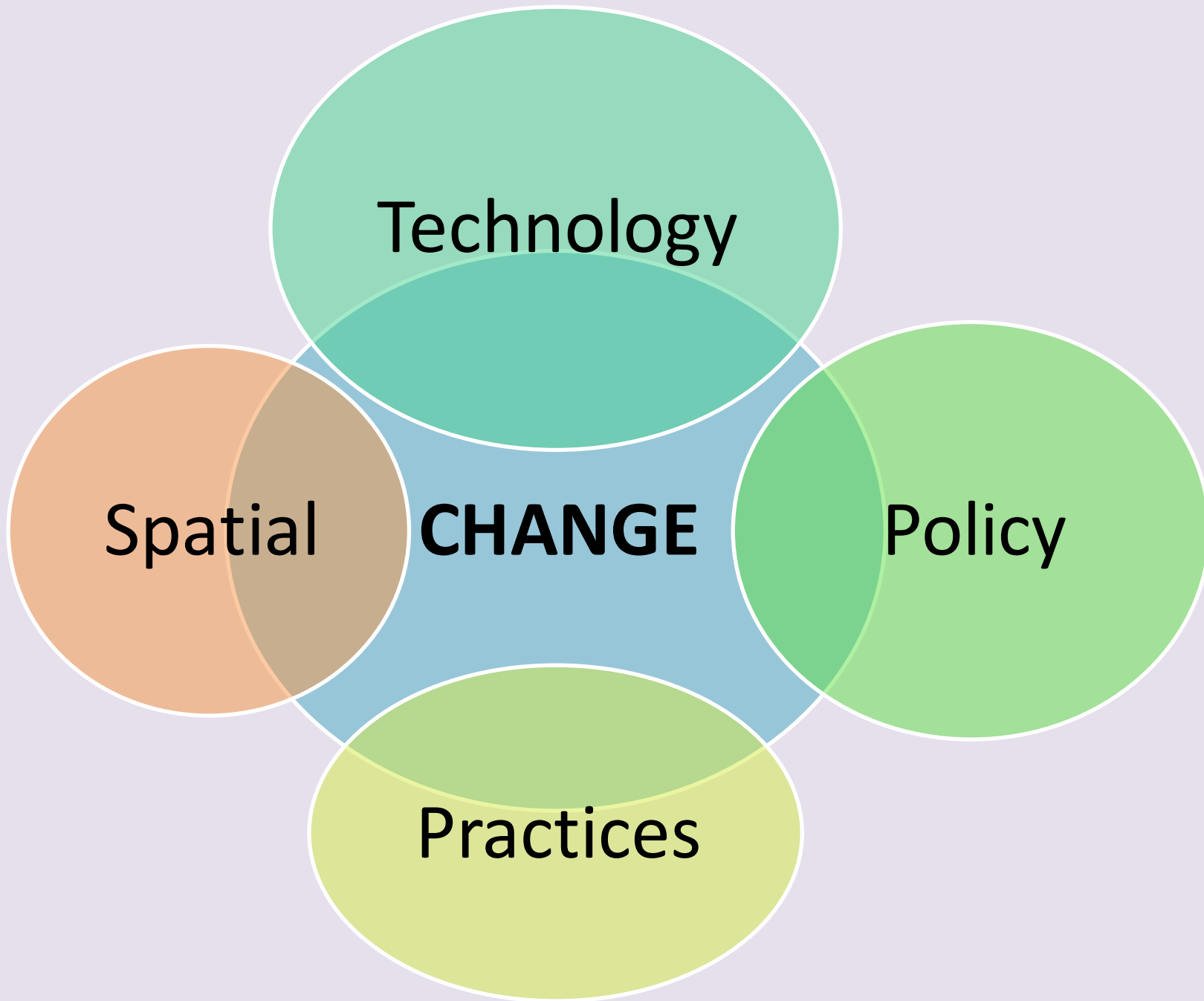
| Name                             | Dunums        | m <sup>3</sup> per dunum | MCM/Yr       |
|----------------------------------|---------------|--------------------------|--------------|
| Zone 1 - Vegetables Open Field   | 27633         | 681                      | 18.8         |
| Zone 1 - Vegetables Green Houses | 9187          | 600                      | 5.5          |
| Zone 1 - Fruit Trees             | 66982         | 1,342                    | 89.9         |
| Zone 1 - Field Crops             | 11501         | 707                      | 8.1          |
| Zone 2 - Vegetables Open Field   | 34634         | 757                      | 26.2         |
| Zone 2 - Vegetables Green Houses | 21246         | 540                      | 11.5         |
| Zone 2 - Fruit Trees             | 15923         | 1,332                    | 21.2         |
| Zone 2 - Field Crops             | 3156          | 785                      | 2.5          |
| Zone 3 - Vegetables Open Field   | 33015         | 647                      | 21.4         |
| Zone 3 - Vegetables Green Houses | 6828          | 543                      | 3.7          |
| Zone 3 - Fruit Trees             | 21354         | 1,276                    | 27.3         |
| Zone 3 - Field Crops             | 6193          | 926                      | 5.7          |
| Zone 4 - Vegetables Open Field   | 45378         | 708                      | 32.1         |
| Zone 4 - Vegetables Green Houses | 2810          | 362                      | 1.0          |
| Zone 4 - Fruit Trees             | 4791          | 1,339                    | 6.4          |
| Zone 4 - Field Crops             | 466           | 926                      | 0.4          |
| <b>Total</b>                     | <b>311097</b> |                          | <b>281.8</b> |

Marginal water  
Low Energy

Greenwater  
Low Energy



Bluewater  
High Energy



Technology

Spatial

**CHANGE**

Policy

Practices

THE END

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## References

**GIZ, DoS, JVA, MWI, Mercy Corps, USAID**