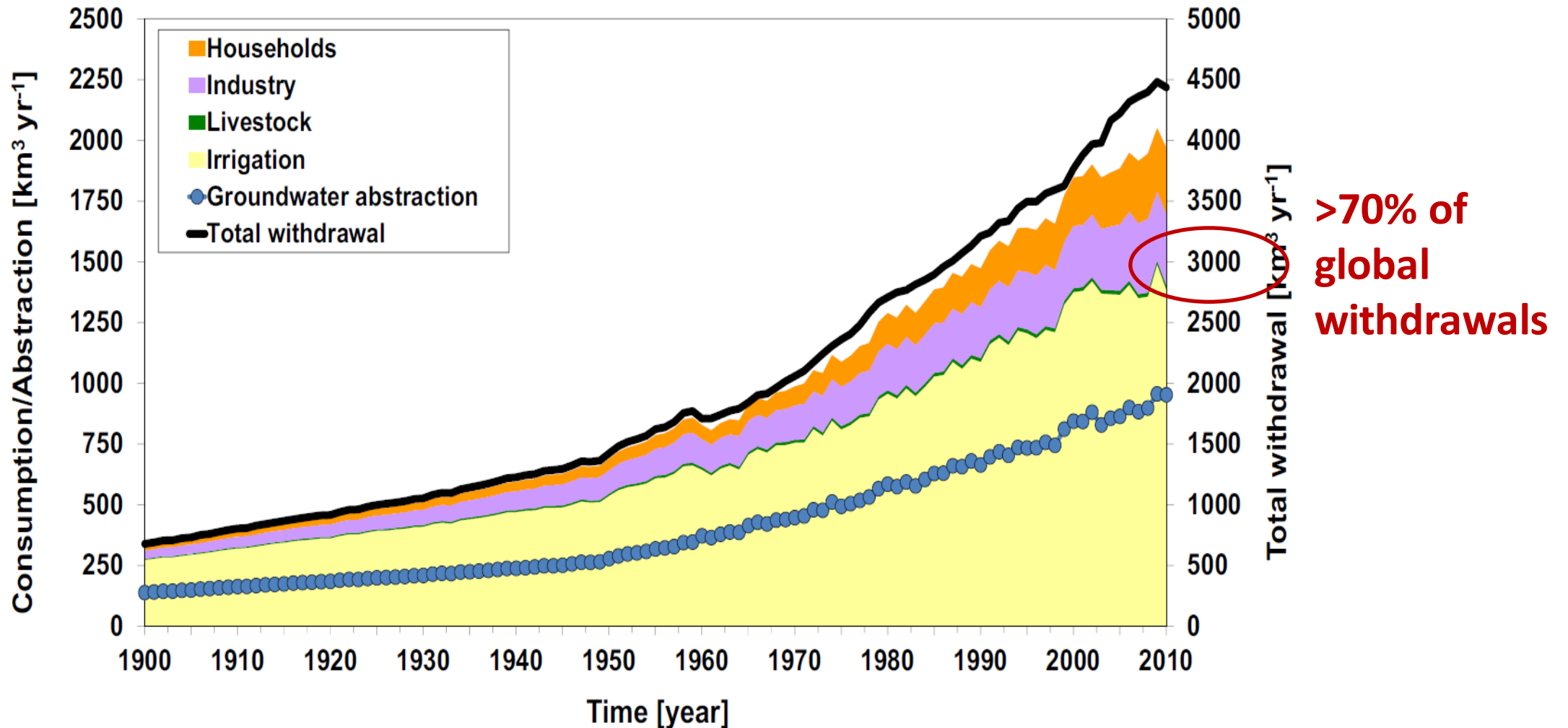


# Transformation within reach: Resilient food systems

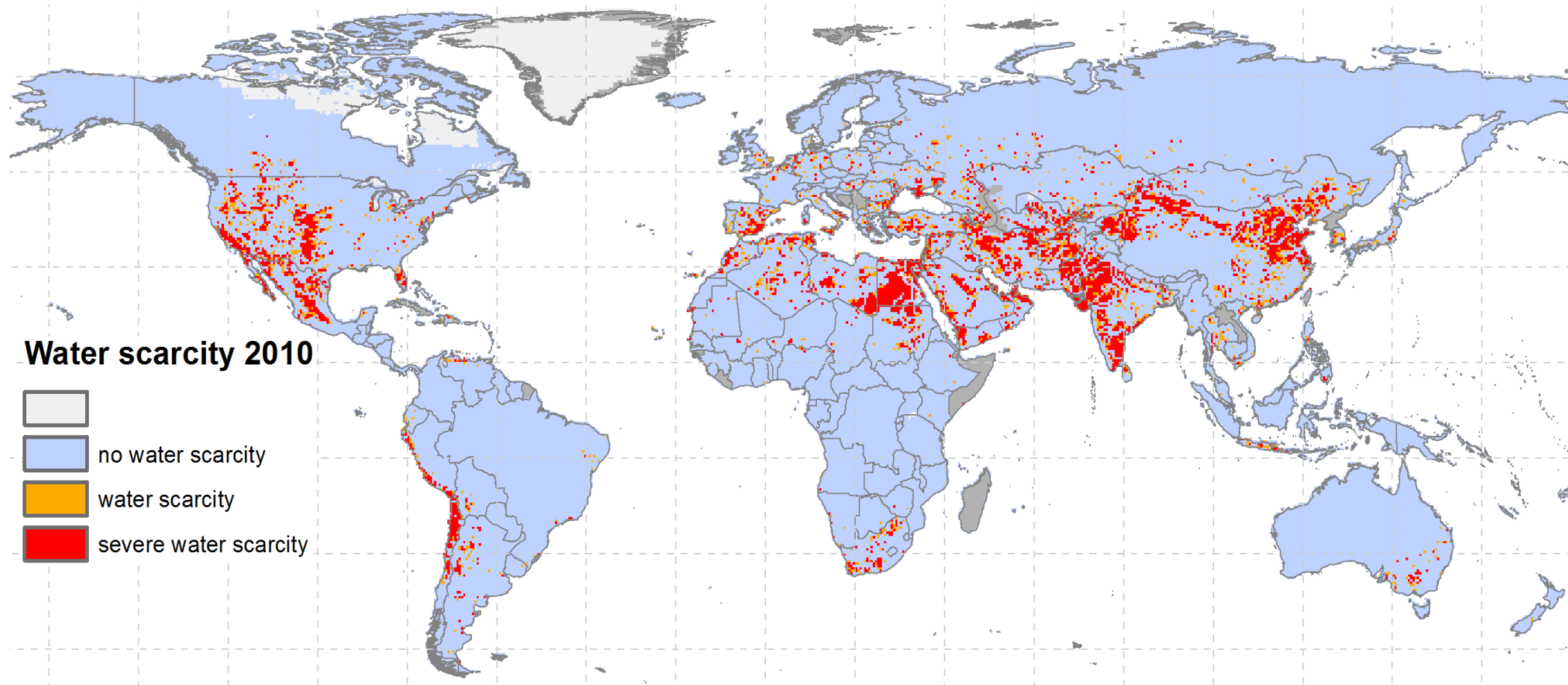
**Dr. Taher Kahil**  
**Water Program, IIASA**

**Side event of the International Borlaug Dialogue 2020**  
**October, 2020**

# Global water withdrawals increased significantly in the last century



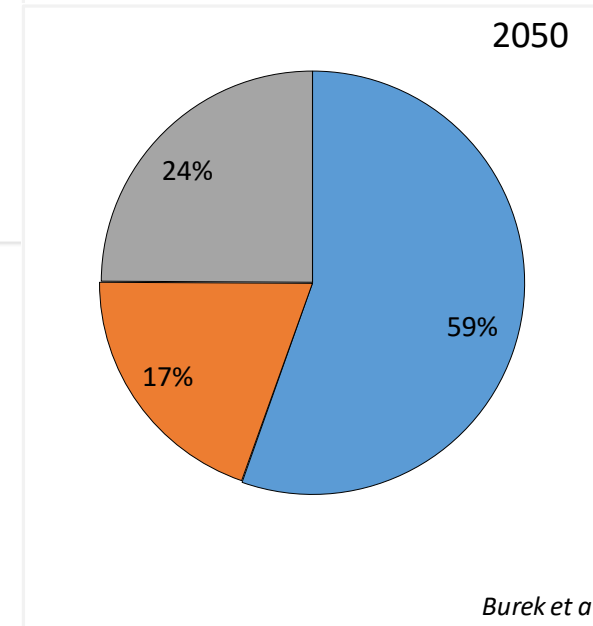
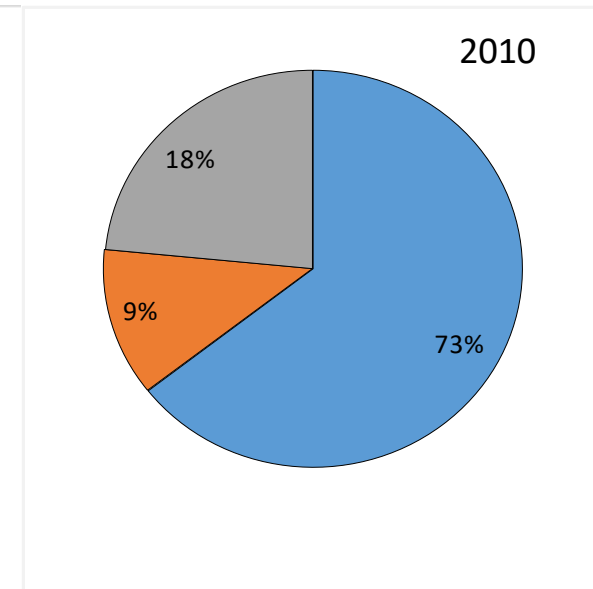
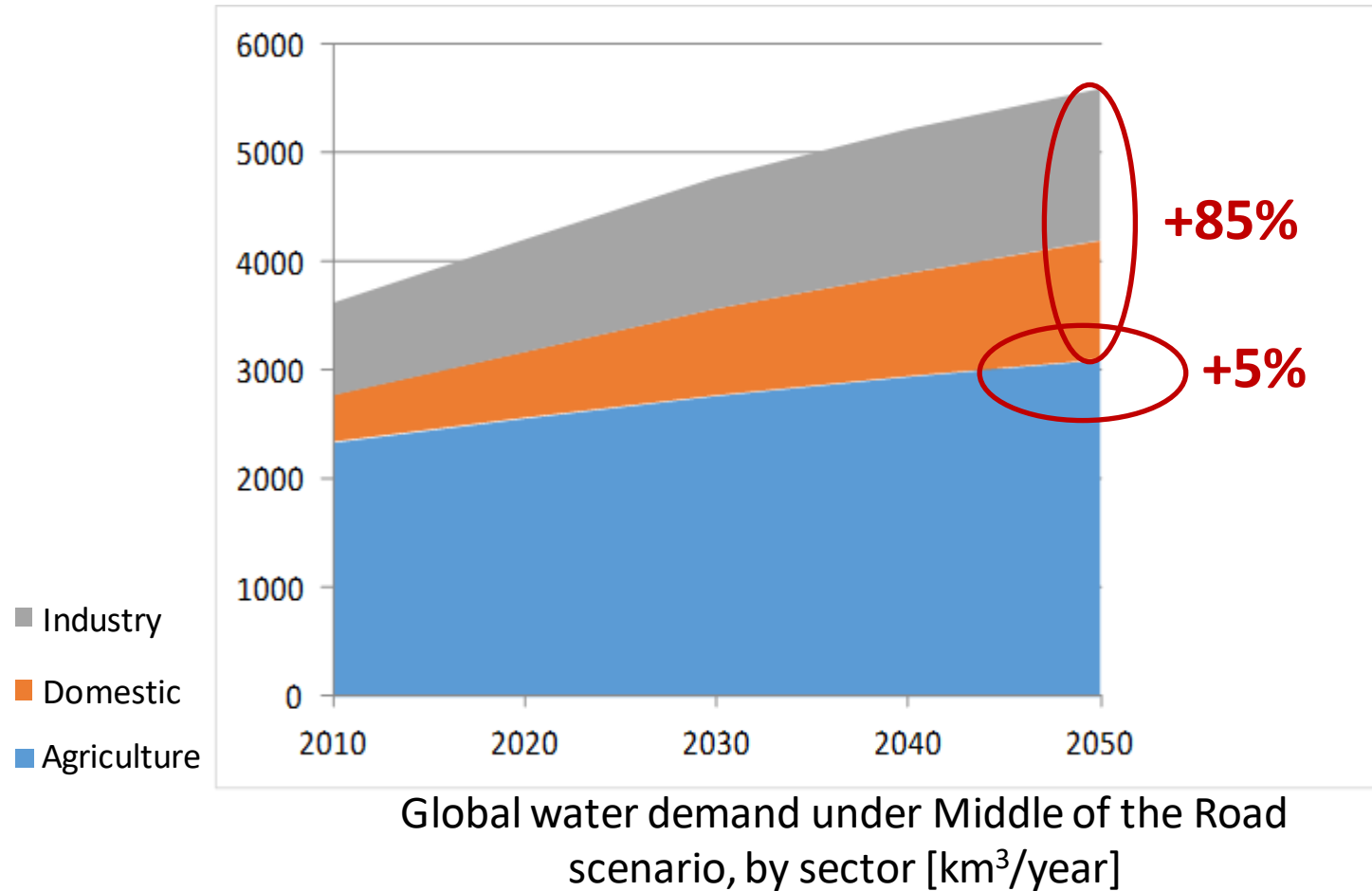
# Water scarcity (imbalance between demand and supply): a widespread problem in many regions around the world



*Burek et al. (2014), IIASA-WP-16-006*

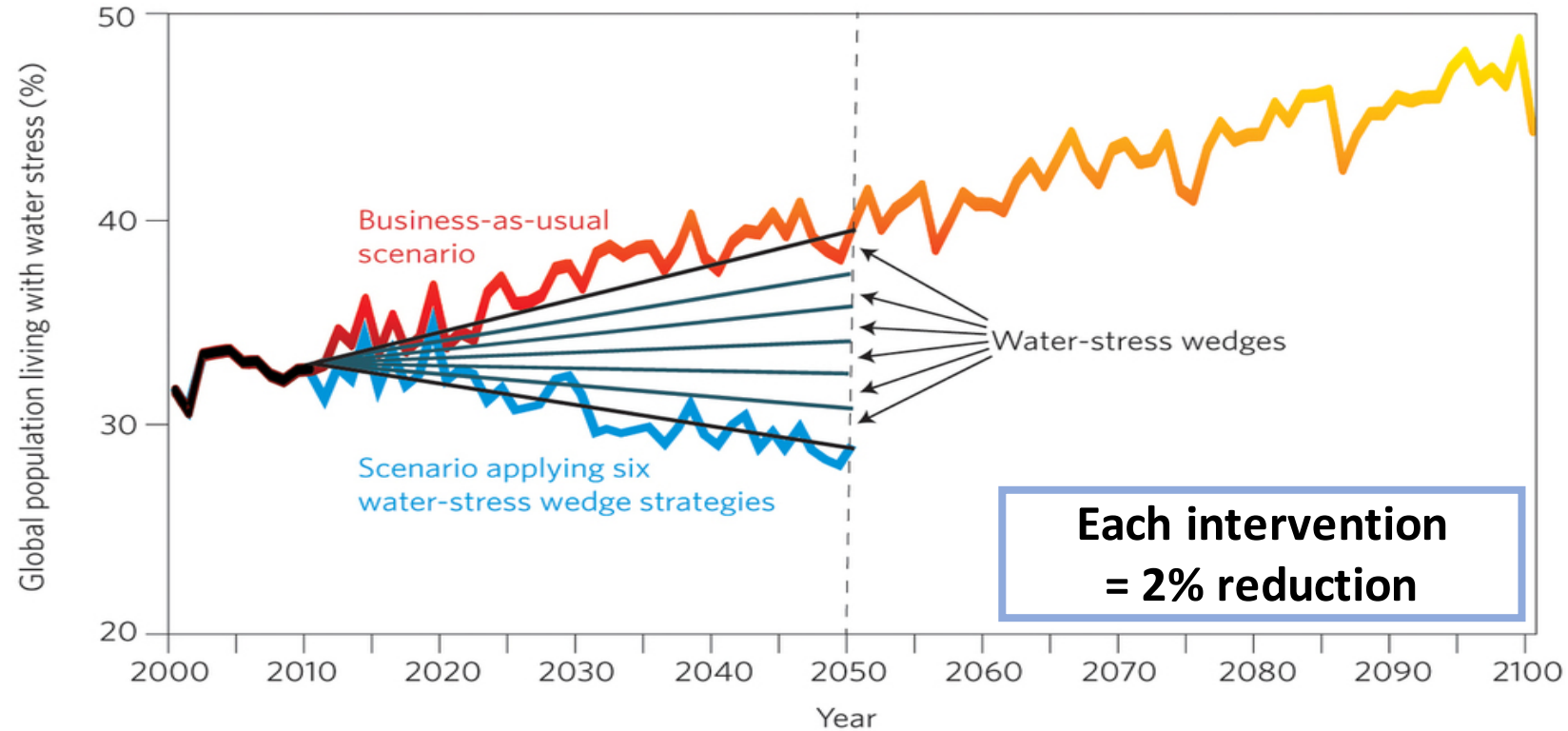
**Water scarcity could reduce GDP growth rates by 6% by 2050 (World Bank, 2016)**

# Water demand is projected to further increase in the coming decades driven by population and income growth



**Intersectoral competition for water is intensifying**

# Reducing water scarcity is possible by 2050



We present six interventions, or water-stress wedges, that collectively lead to a reduction in the population affected by water stress by 2050, despite an increasing population.

- Water productivity – crop per drop (0.5%/yr, 20% by 2050)
- Irrigation efficiency – decrease losses (1%/yr, 40% by 2050)
- Water use intensity – industry and domestic (0.5%/yr, 20% by 2050)
- Population (limit population growth by 0.5 billion, to 8.5 billion by 2050)

- Reservoir storage (additional 600 km<sup>3</sup> by 2050)
- Non-conventional water (x50 capacity)

Soft path vs. Hard path

# Seven strategic interventions for keeping the food system within water sustainability limits

1/ Improving water management in rainfed lands

2/ Sustainable agricultural intensification

3/ Sourcing water for irrigated agriculture from nature-based and non-conventional sources

4/ Increasing water use efficiency in irrigation

5/ Reducing food loss and waste

6/ Adopting sustainable diets

7/ Virtual water trade

Farmer  
level

Farmer and consumer level

Consumer level

Government level



Furrow-enhanced rainwater harvesting, Syria



Drip irrigation system



Wastewater treatment

# Thank you very much

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