Application of the cost curve approach to food supply in the context of water scarcity

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Linking water and food supply strategies

FS = FP + I - E - L +/- ΔS

• Options for national food supply:
  • Expanding cropped area (rainfed, irrigated)
  • Increasing yields (rainfed, irrigation)
  • Increasing cropping intensity (the number of times land is cropped over a year; rainfed, irrigated)
  • Importing food
  •Reducing losses in the food chain
→ total 8 options
Question:

Which option should we select?
Using a cost curve approach to food supply
Assessing cost and potential of each option
Producing the cost curve

- Yield increase for rainfed agriculture
- Yield increase for irrigated agriculture
- Cropping intensity increase in irrigated agriculture
- Area expansion of irrigated agriculture
- Reduction of losses in the food chain
The case of a food deficit country

- Yield increase for irrigated agriculture
- Area expansion of irrigated agriculture
- Reduction of losses in the food chain

Gap (to be filled through imports)
Aquaculture cost curves
e.g. inland water scarce areas

- Natural systems
  - probably less productive in water scarce inland areas,
  - but very productive in coastal areas

- Extensive
  - cages in reservoirs

- Semi-intensive
  - ponds

- Intensive
  - raceways

- Hyper-intensive

Cost

Food production