

Water scarcity in rice environments

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Pressure to produce more food (rice) is getting greater because of ever increasing population



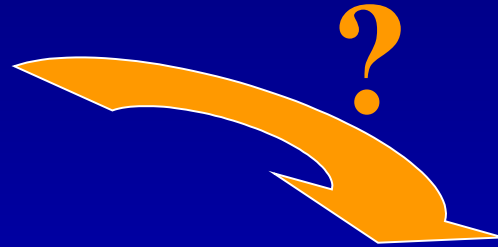
But also:

More people want

- more industry
- more drinking water
- more cities
- more swimming pools
- more....

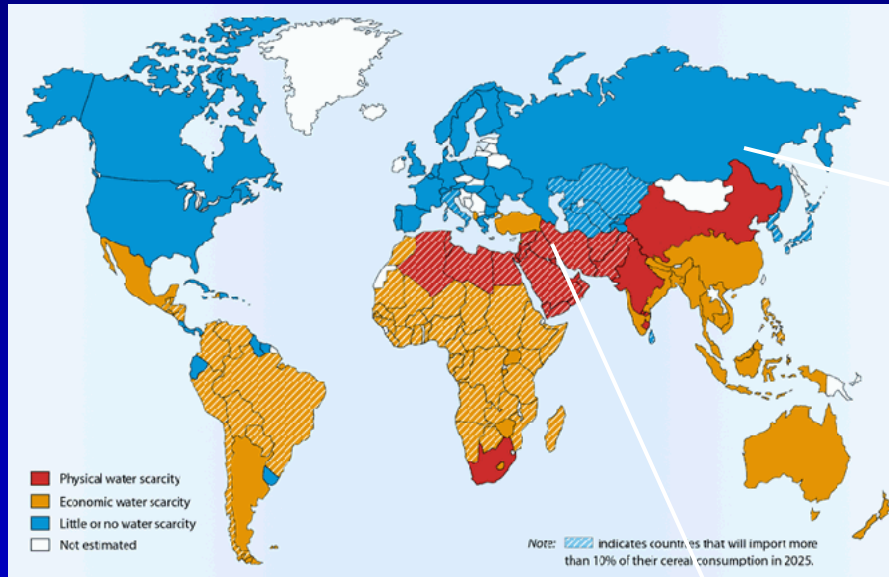
=> Water is getting scarce and expensive

Is this the future for rice production.....

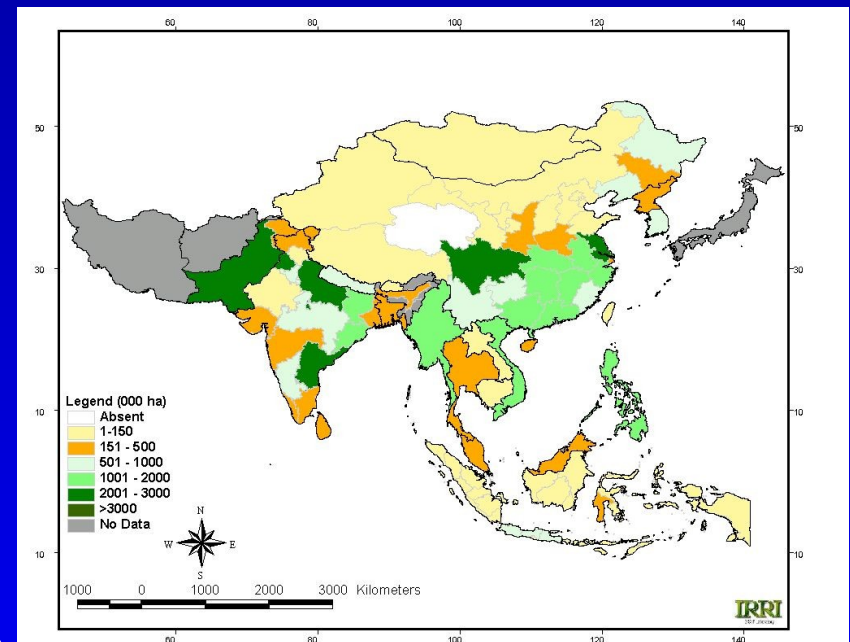


The Big Picture of water scarcity

Projected Water Scarcity in 2025



Asia WS irrigated rice



IWMI Global Water Scarcity Study, 2000

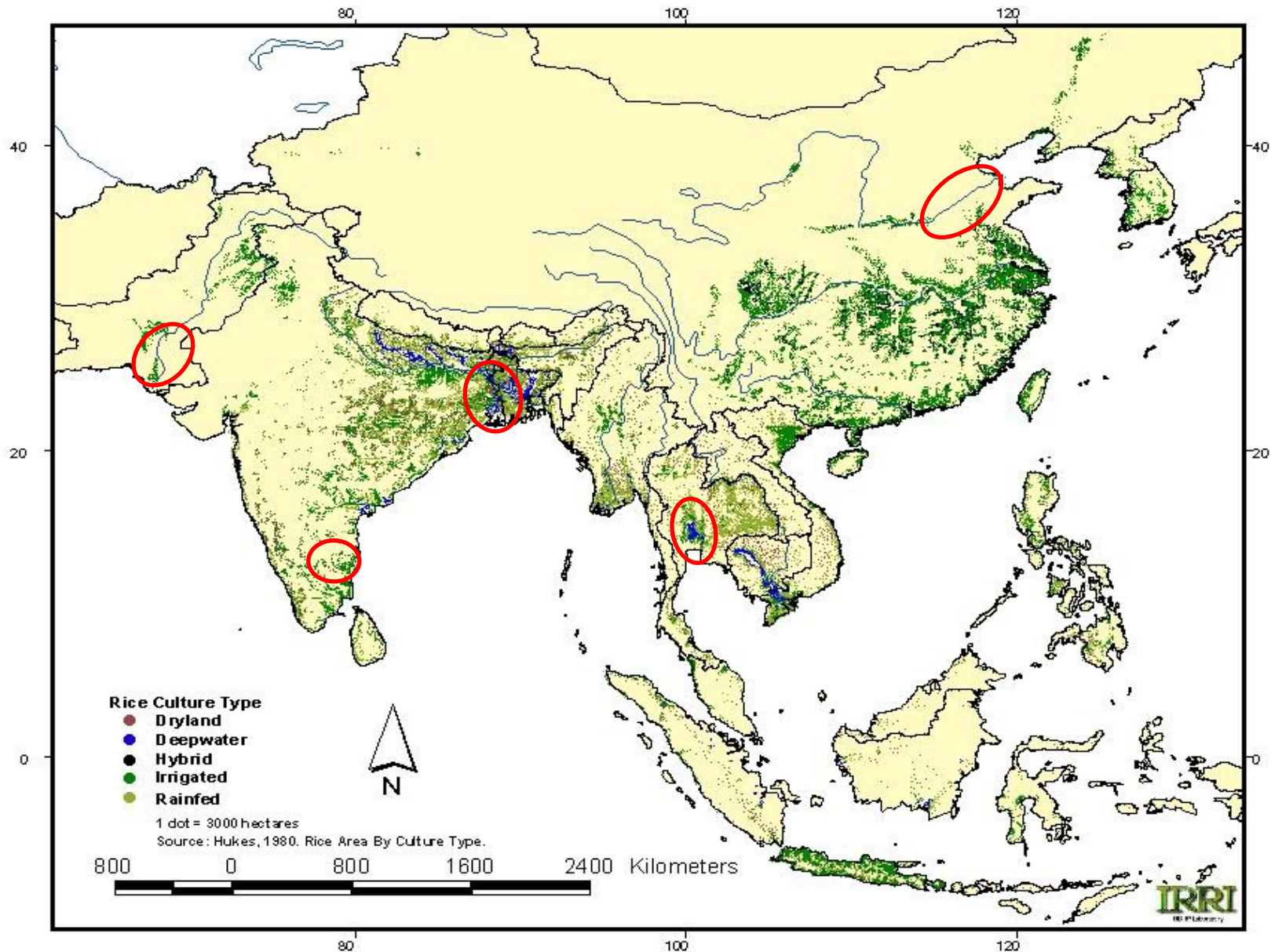
2025: 15-20 million ha irrigated rice will suffer some degree of water scarcity

IRRI Data base (GIS laboratory)

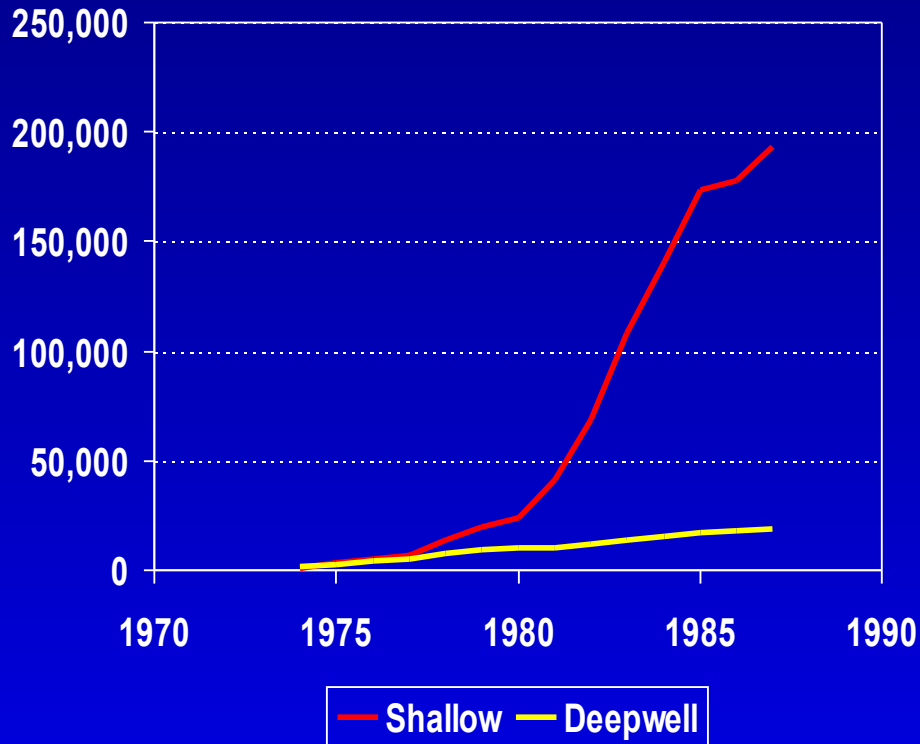
Physical scarcity: decreasing river flows



Reduced river flows



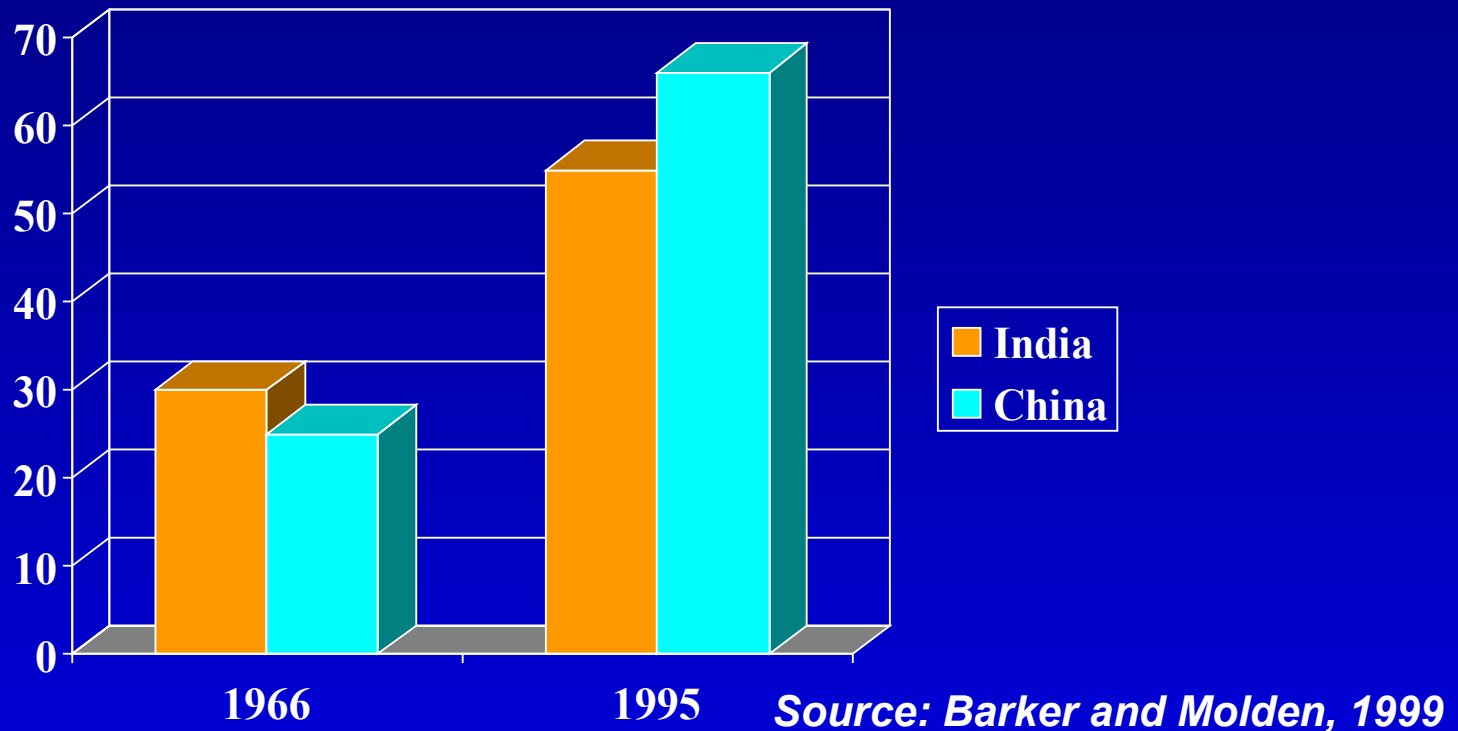
Tubewells and pumps for irrigation



Bangladesh; Source: Pitman, 1993



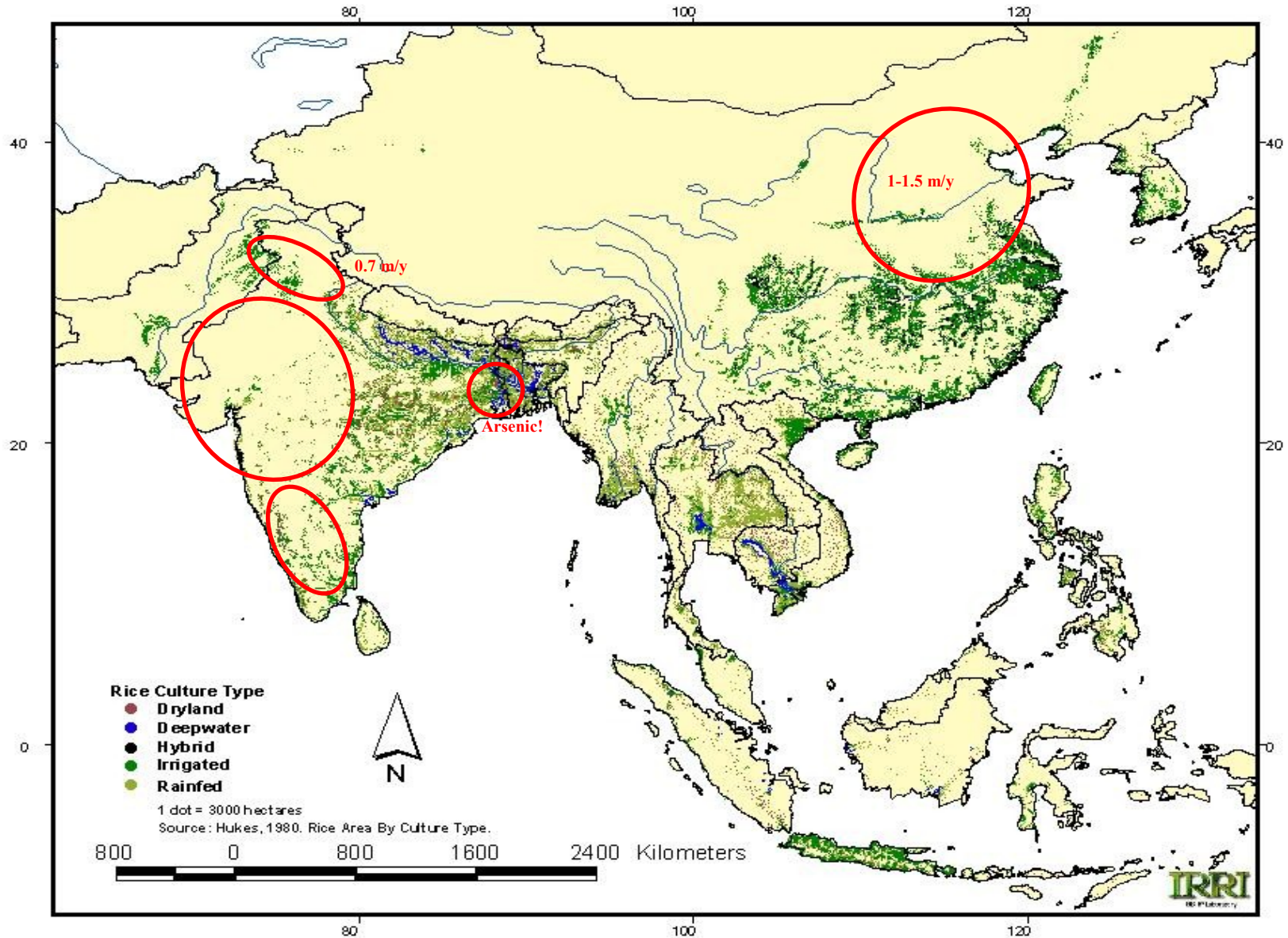
Percentage well (pump) irrigation



India (2000): 5-6 million irrigation tubewells

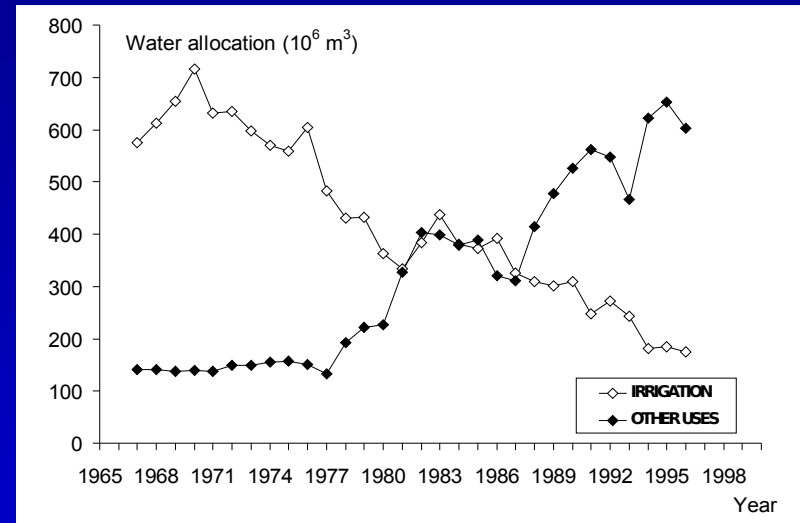
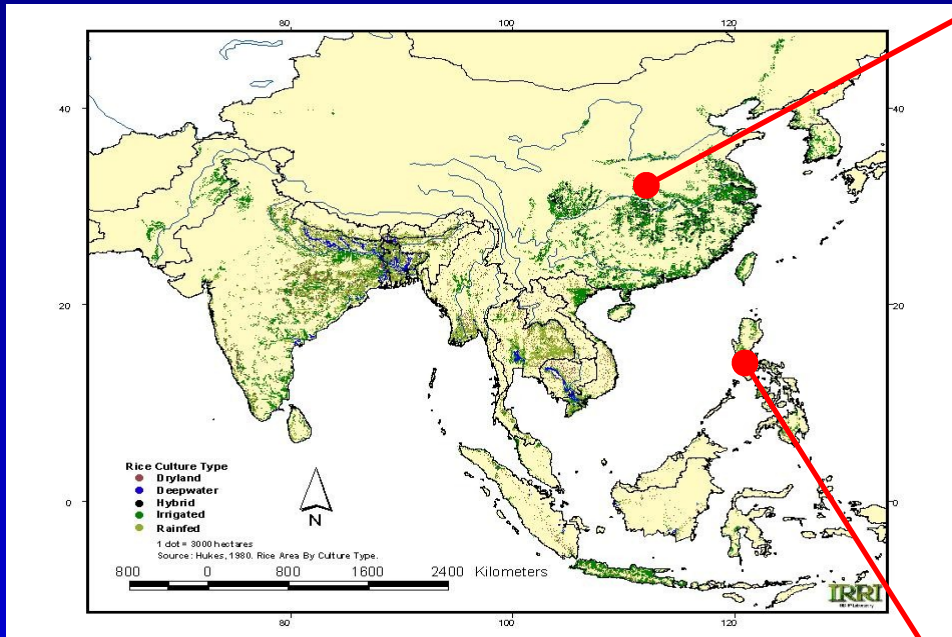
N China (2001): 3-4 million irrigation tubewells

Groundwater depletion

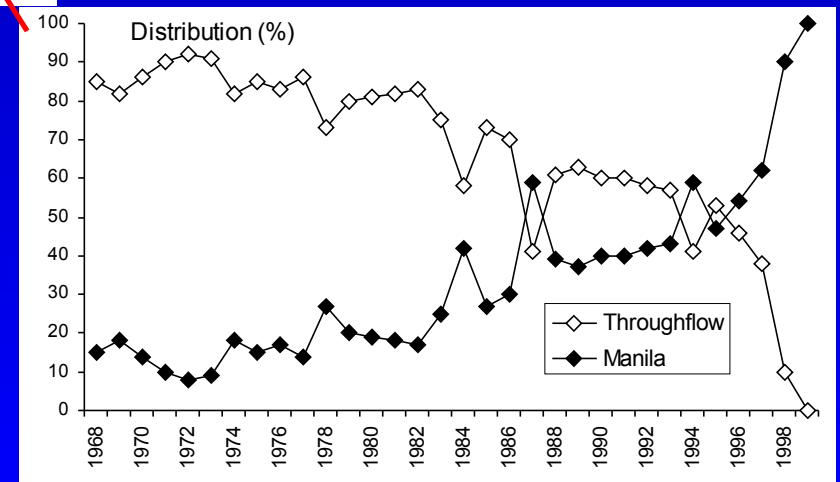


Competition, some examples in rice areas....

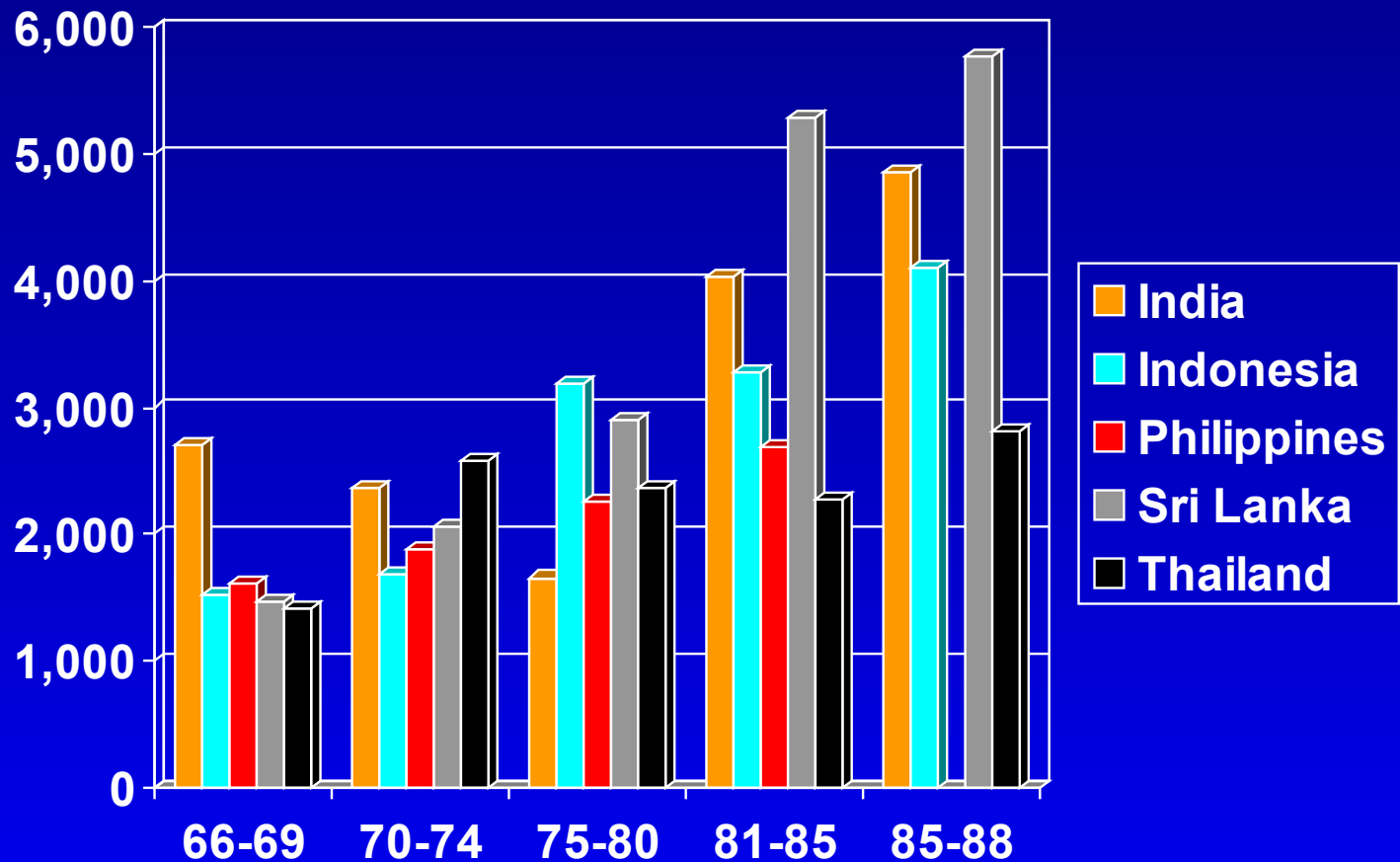
Zanghe Reservoir, China



Angat dam, Philippines



Capital cost (\$/ha) new irrigation systems



Source: Rosegrant, 1997

Conclusion: how scarce is water in rice areas?

- **Most notorious water-scarcity 'hot-spots' encroach upon irrigated rice growing areas**
- **Local cases of severe shortage and competition**
- **All dry season areas: water is present but extremely expensive to exploit**
- **Need to develop technologies to help farmers cope with water shortage**

The concept of “Water saving”

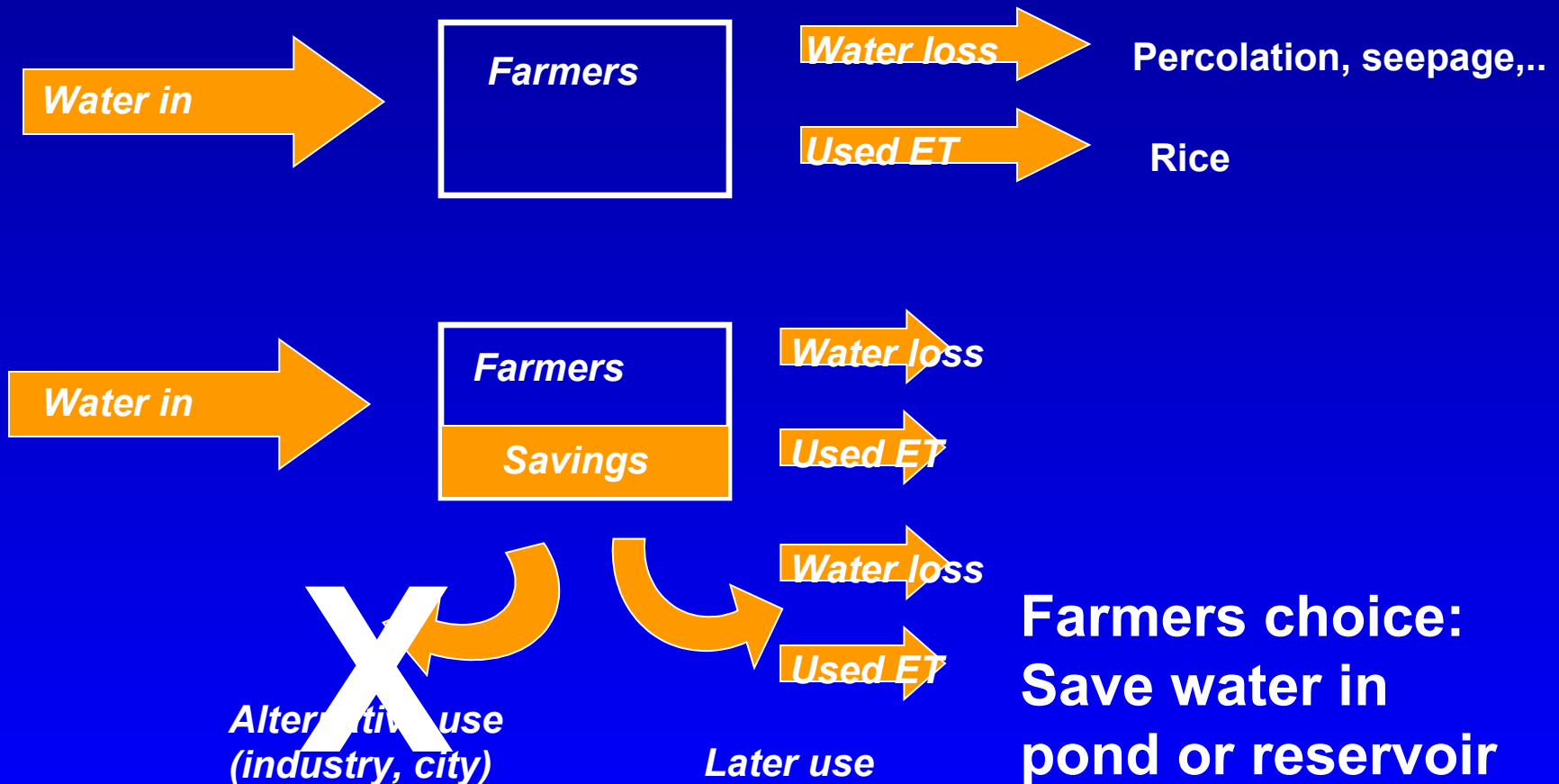
Implies to many that there is a deliberate choice to ‘save’ water, suggesting there is enough water but users can opt to save it.

Do farmers have this choice?

Why would they do it?

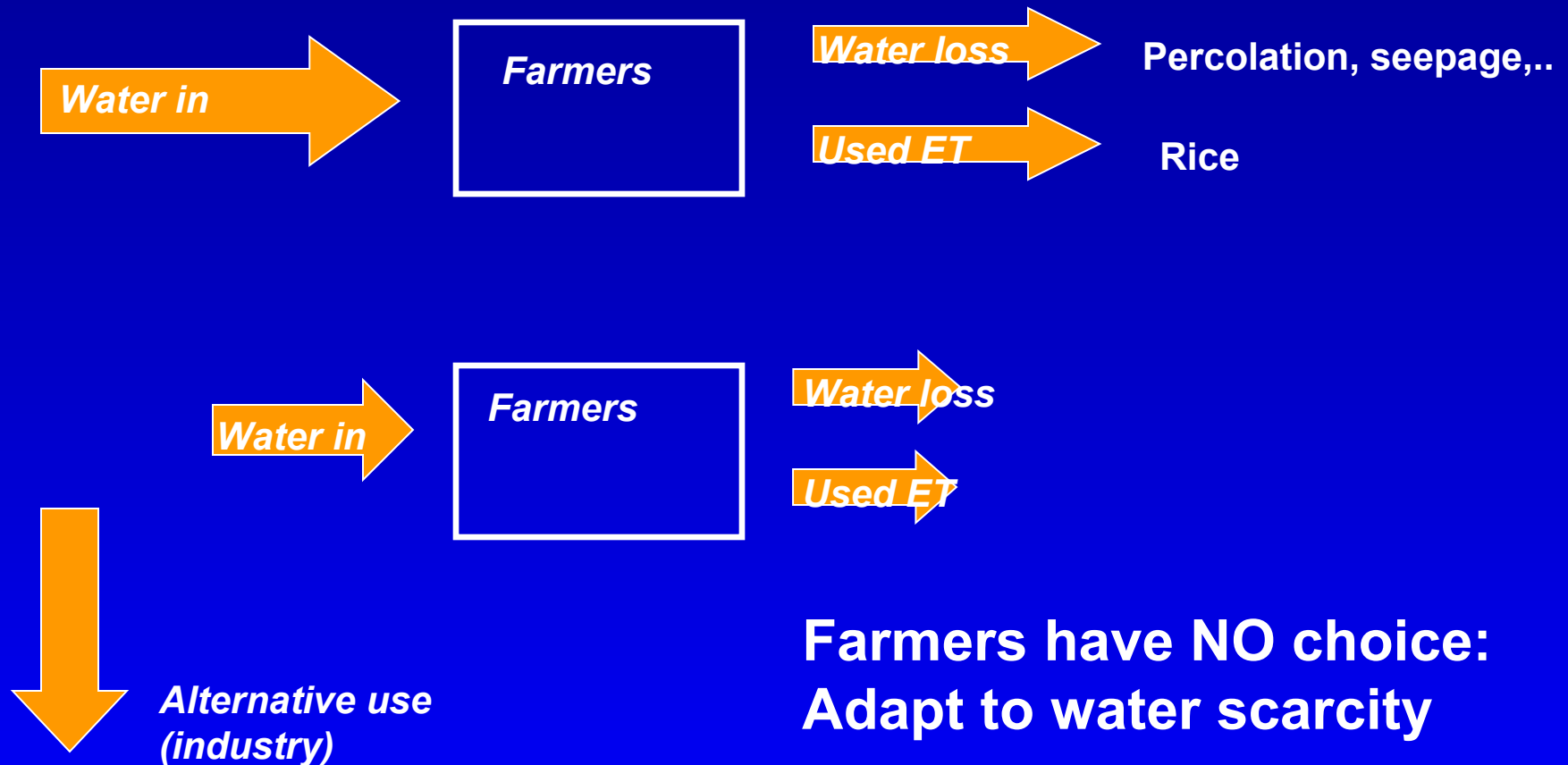
Why saving water ?

1: reduce current expenditures to allow for increased future expenditures or for redirected expenditures



Why saving water ?

2: reduce current expenditures because of reduced income



Why saving water ?

3: reduce current expenditures to reduce cost and increase profit



Farmers choice: reduce water losses to reduce water use and water costs

Conclusion on “Water saving”

Few farmers will deliberately “save water” for other use (no water market for farmers to industry city,..)

Few farmers will deliberately “save water” to reduce costs (only if they pay, such as pumping)

Few farmers will deliberately “save water” at one time to use it at another (own ponds, reservoirs)

Most farmers have no choice but to accept “imposed water scarcity” by decision makers “higher up”

⇒ Need to develop technologies to help farmers cope with water scarcity (ie, not enough water to keep rice fields continuously flooded)

Water-saving technologies

Though better term would be:

Technologies to cope with water scarcity