Increasing Supply

Learning Objective:

-**Discover** strategies to increase water supply

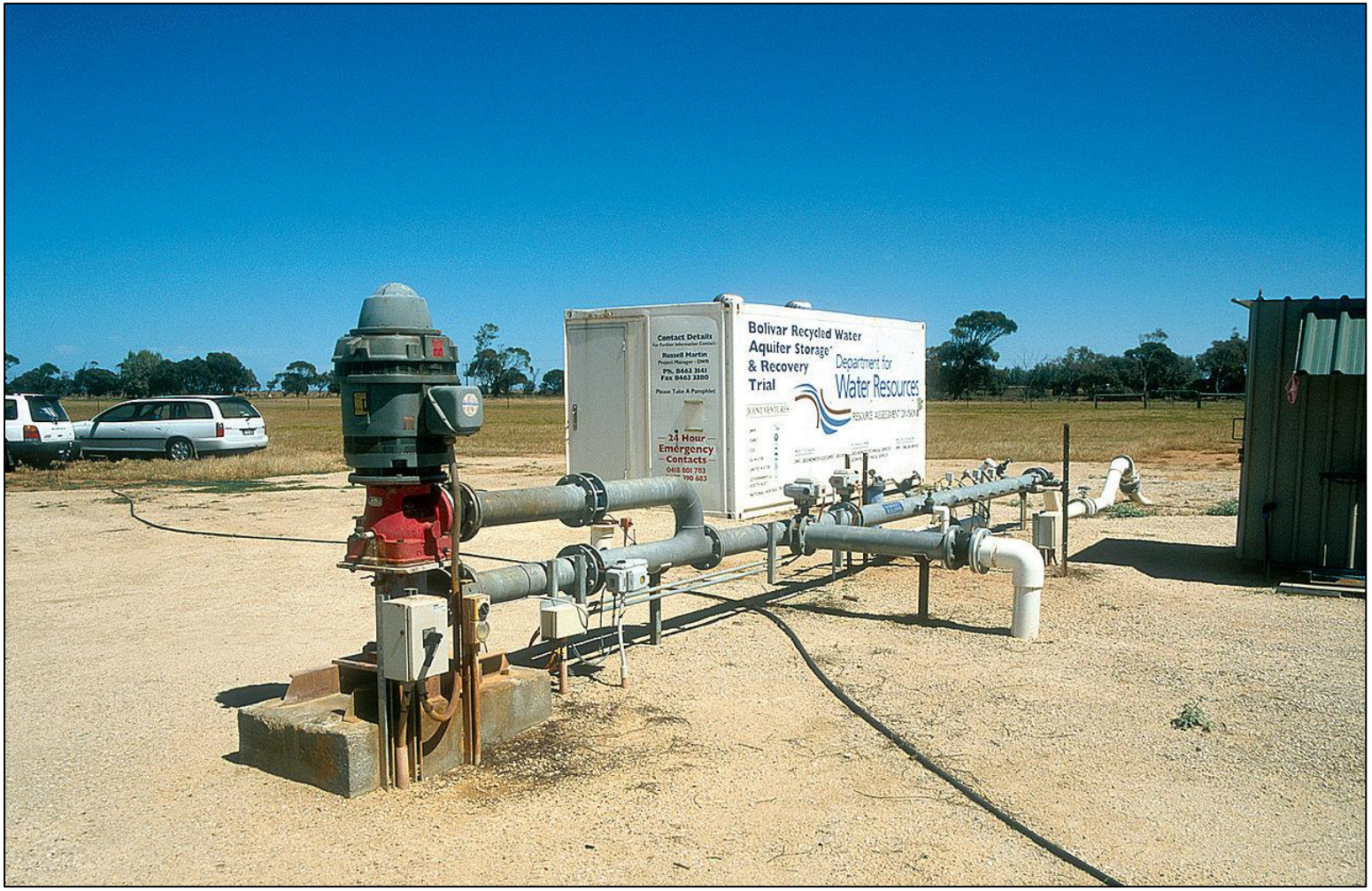
Learning Outcomes:

-**Describe** the ways that water can be stored

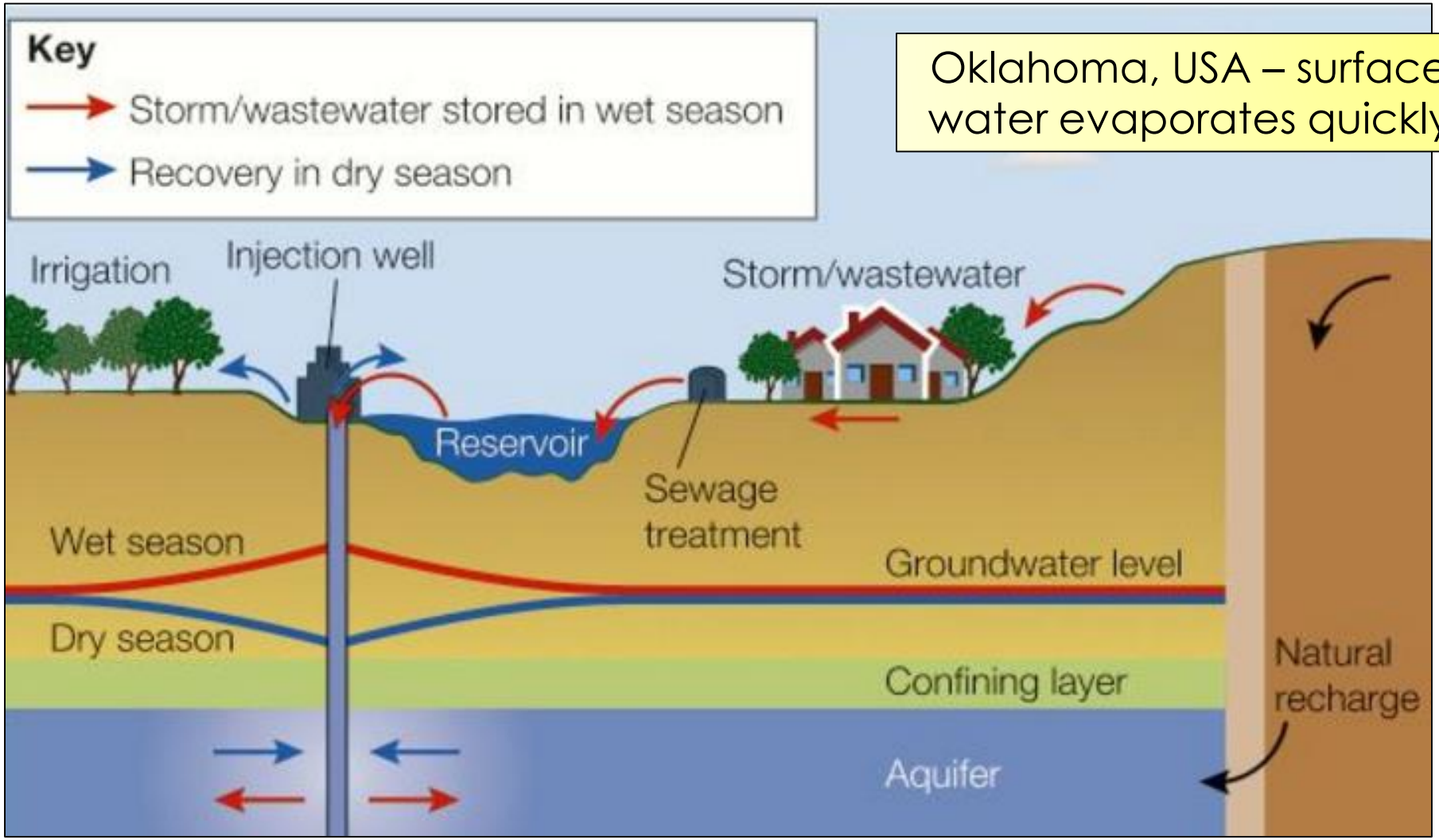
-**Judge** the success of a large-scale water transfer scheme in China

-**Evaluate** the impacts of desalinisation

Injection well



Aquifer storage and recovery



Artificially diverted and stored for a long period.
Which parts of the world is this best used?

Large multi-purpose dams

Kielder Dam and Reservoir

- Control water flow
- Prevents flooding
- Water for farming

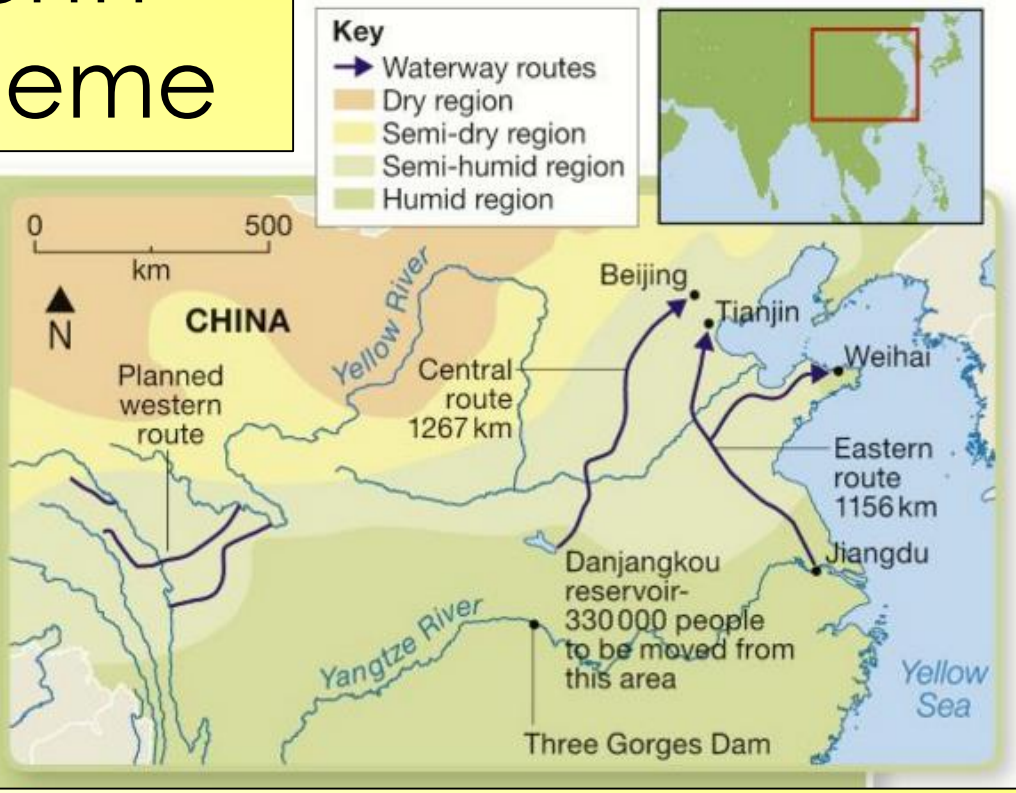
- Expensive to construct
- People are forced to move
- Areas downstream are affected

China's south-north water transfer scheme

China's south–north water transfer scheme

China is spending over US$79 billion on an ambitious project to transfer water from the Yangtze River in the south to the Yellow River Basin in the arid north (map **C**). The water will be transferred through three canal systems. The eastern and central routes were completed in 2015. The western route is due for completion by 2020.

The controversial western route involves building several dams and hundreds of tunnels through the Bayankela Mountains. The entire project could take 50 years. However, it is still uncertain whether the scheme will actually be completed.



The project map – note the three canal systems

Why is it controversial?

China's south-north water transfer scheme

Advantages	Disadvantages
Provides water to people in Beijing and Tianjin.	Large areas have been flooded, destroying habitats. Construction is damaging fragile ecosystems.
Allows industry to develop, bringing wealth to China.	345,000 people have been forced to move as the dam of the Danjangkou reservoir was made higher. Many people received little compensation and are now unemployed.
Provides water for irrigated farmland so crops can be grown.	Water stress in the south will increase because so much water is diverted. During droughts there won't be enough water for 30 million people.
The north of China will benefit hugely in an area that has previously suffered droughts.	The water it supplies to Beijing is very expensive as the project cost so much – the poor can't afford it.

Assess the extent that China's south-north water transfer scheme has been a success.

(8 marks)

Hints:

- Discuss the positives and negatives
- Use data to support your points
- **CATT** to develop your points
- Use whereas / although / however
- Give an overall conclusion

Model Answer

China's south north water transfer scheme is considered controversial. The project is due to be completed by *2020*, with some sections having already been completed. China's scheme has been considered successful to an extent. One example of an advantage of the scheme is that it is an important source of water for farmers, **therefore** land can be irrigated and crops can be grown. **Consequently**, this provides local people with an important source of income in order to develop and improve their standard of living.

However, the project has some negatives. The project will cause disruption to local villages, because around *330,000* people will be displaced. **This means that** people will have to leave their homes and land leaving many people unhappy. People received little compensation and some are unemployed so they cannot earn any money.

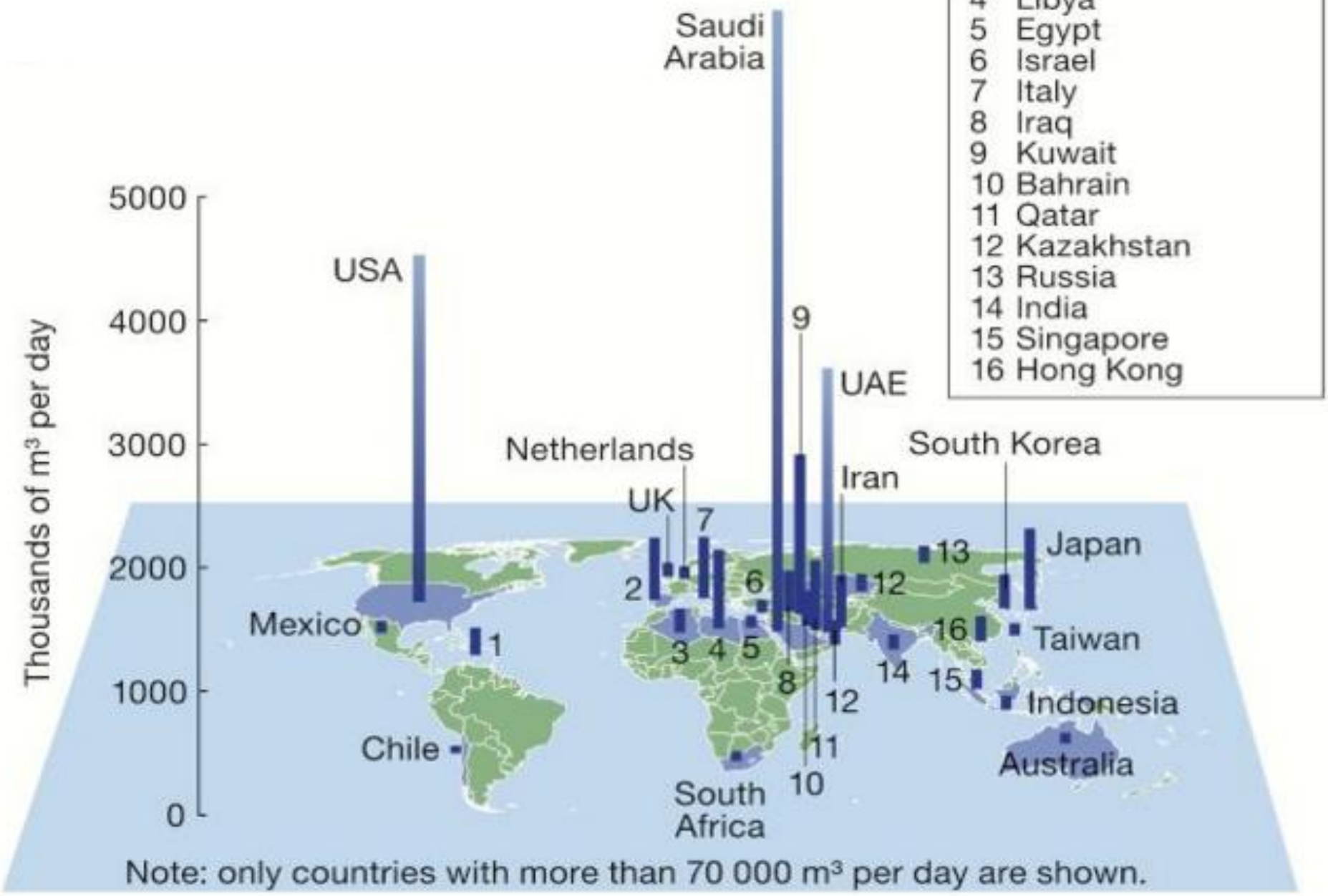
Another major advantage of the scheme is that North China will hugely benefit as it has previously suffered droughts, **however** the south of the country will be prone to more droughts as water is being transferred away from the area to the north.

Overall, I believe that China's transfer scheme will solve some of the water problems within the country, but overall the problem will be shifted. The scheme has worked to an extent and will provide more water for major cities like Beijing, but will cause problems in the south of the country where water will also be needed.

From this …

To this …?

Global desalinisation



Seawater is either:

- Heated to evaporate it – condensation is the freshwater.
- It passes through a filter to remove the salt.

Dubai = 98% is desalinised water

Explain the ***environmental*** issues with desalinisation ?

- *Think about what happens to the salt waste? Where does it go?*
- *The energy to make it work*

Why might Dubai be more efficient at desalinisation than the UK?