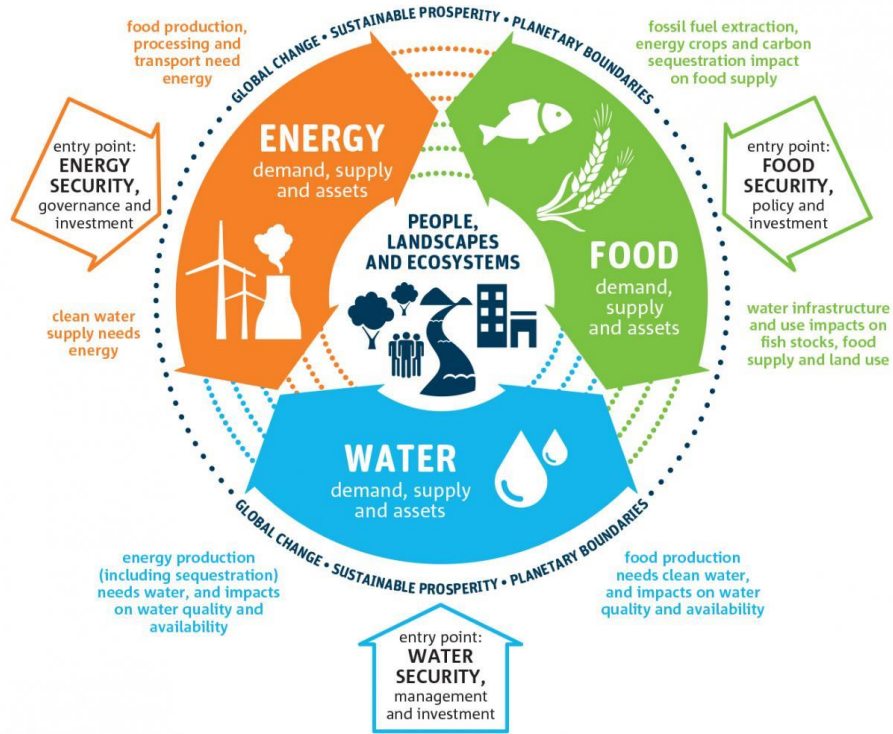


Name

Part 3 – The Food Energy Water Nexus



Watch	Read	Listen
www.youtube.com/watch?v=CKWux2Xow	www.unwater.org/water-facts/water-food-and-energy/	https://www.bbc.co.uk/sounds/play/p02kbhq0 First 14 minutes

Why do you think it is important to have a Nexus approach (interconnections) rather than view food, energy & water as individual 'problems to be considered and solved?'

Name

Carry out some research into the Gran Ethiopian Renaissance Dam.

Explain how the project demonstrates Nexus links. Additionally, explain how the project has resulted in global interactions occurring.

THE NILE | GRAND ETHIOPIAN RENAISSANCE DAM



ETHIOPIA AND SUDAN BENEFIT FROM THE DAM:

MORE ELECTRICITY OUTPUT INCREASES ENERGY SECURITY
A GROWTH OF DIRECT AND INDIRECT JOB OPPORTUNITIES
REGULATED FLOW OF THE NILE LIMITS RISK OF FLOODING



THE DAM COSTS **\$5BN** AND IS EXPECTED TO GENERATE **6,000 MEGAWATTS** OF ELECTRICITY

BUT EGYPT DEPENDS ON THE NILE FOR **85%** OF ITS WATER SUPPLY AND NOW FACES UP TO **25%** REDUCTION IN NILE WATER SHARE

THREE-WAY NEGOTIATIONS ONGOING SINCE MARCH '15:
WITH NO RESULT

DEADLINE AGREEMENT:
15 JANUARY '20

9 & 10 JANUARY '20
FOURTH AND FINAL ROUND OF THREE-WAY MINISTERIAL NEGOTIATIONS

INFOGRAPHIC BY
PROXIMITIES
RISK CONSULTANCY

Using the infographic above, identify one positive environmental effect the G.E.R.D will bring.

Name

Carry out some research into biofuel production and so-called land grabs. [This link](#) is a good starting point followed by the issues that this places on water supply in [this article](#).

Explain how the biofuel (Energy) production can have detrimental impacts on Food & Water supplies.

Biofuels in Europe

Biofuels are liquid or gaseous fuels made from biomass, which consists of plants or plant-based materials. They serve as alternative to fossil fuels in the transport sector in particular.

First-generation biofuels are produced from food crops such as maize, sugar cane and soybeans. Second-generation biofuels are made from feedstock that is generally not made from food crops and is not fit for human consumption. These include used cooking oil and waste from agriculture and forestry.

Quick facts

1900
At the World Exhibition in Paris, Rudolf Diesel, the inventor of the diesel engine, used peanut oil to demonstrate his invention. Early diesel engines were designed to run on vegetable oil.

2011
KLM became the first airline to use an alternative fuel based on used cooking oil for a commercial flight from Amsterdam to Paris. [1]

CO₂ -80%
Depending on the feedstock type and production process, using sustainable biofuels in aviation may reduce greenhouse gas emissions by as much as 80%. [1]

Primary production of key biofuels in EU-28 [1]

2015
Growing biofuels on existing agricultural land can displace food production to previously non-agricultural land such as forests. The EU strengthened its rules in 2015 to reduce this type of land use change.

2020
The EU aims to have 10% of the fuel used in transport coming from renewable sources, including biofuels.

Key biofuels at a glance

BIOETHANOL	BIODIESEL
One of the most widely used first generation biofuels, which can be made from common crops such as maize, sugar cane, hemp and potatoes. It is mainly used as a fuel additive in petrol vehicles.	Made of oils and fats, including animal fats, vegetable oils, nut oils, hemp and algae. It can be used, among other things, for heating, electricity generation and transport, including as a fuel additive in diesel vehicles.
Common uses include: 5 - 10% blend in gasoline	Common uses include: Heating 7% blend in petrodiesel

Global transport fuel mix

This IRENA (International Renewable Energy Agency) scenario anticipates a trajectory for energy related emissions that is consistent with a 66% probability of limiting the long-term rise in global temperatures to less than 2°C by 2050. Transport oil demand would fall drastically in favour of electricity and biofuels; use of ethanol for road travel would peak before 2040 as the conventional car fleet declines. [1]

FUEL CONSUMPTION

BIOFUEL DEMAND

Note: biofuel = million barrels of oil equivalent per day

Source: [1] European Aviation Environmental Report 2016 by EASA, EEA, EUROCONTROL; [2] Perspectives for the energy transition - Evidence & needs for a low carbon energy system, ICAO/ECED and IRENA publications, a.o., based on 2°C climate Scenario [3] EU-voas.

Inspect the graphic above more closely – [click here](#).

According to the fuel consumption chart, which form of energy will have the most significant impact on the reduction of oil power by 2050?

Name

Collaboration Time - Key Questions for Investigation

Working with a partner, each choose a different task (see below) and create a micro presentation to give to them with your response.

You could also work in groups of three.

- **Question:** To what extent are HICs mostly responsible for the negative effects experienced by those in LICs?
- **Question:** How can we reverse the effects of water-food-energy insecurities?
- **Creative Task** – Carefully choose two items from your house. Photograph them and then upload it to a Word document. Annotate around the photo the Nexus connections / implications involved in its manufacture.

Identify the SDG's below that are most impacted by the Food, Energy, Water Nexus.

