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Transforming agriculture and resource use: Solutions for a changing world.

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Getting agriculture “right”.



Why does agriculture matter?

1 NO POVERTY



Agr

By Agriculture is an engine of pro-
inc poor economic growth in rural
dev areas. Entrepreneurship across
cro rural and food sectors can
use generate employment and
trip growth.
use.

4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



By 2030, ag
mitigation
7.5% of tot
depending
carbon and
productiv
the food worldwide

Improving the efficiency of
farmland can help meet the
world's growing consumption
demand while minimising the
loss of natural habitats and
forests for additional cultivation.

7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND





But first, we have to deal with some serious issues...

Inability to provide for all

- Since 1960: global food production grown by 145%, outpacing population growth.¹
- Still, 870 million people suffering from chronic undernourishment in 2010-12 (FAO).
- 1/3rd of the food produced globally every year – 1.3bn tonnes – gets wasted (UNEP).

Unsustainable practices

- Conventional agri. is resource intensive – e.g. water & fossil fuels to make fertilisers.
- Soil erosion, nutrient runoff, waterway sedimentation, GHGs, pesticide poisoning.²
- Externalities don't affect only food security, but limit ability of future generations to meet their requirements.



¹Hazell and Wood (2008) | ²Pretty (2008)

Picture 1: africacartoons.com/damien-glez-food-waste/

Picture 2: [www.panda.org/what we do/footprint/agriculture/impacts/soil_erosion/](http://www.panda.org/what_we_do/footprint/agriculture/impacts/soil_erosion/)



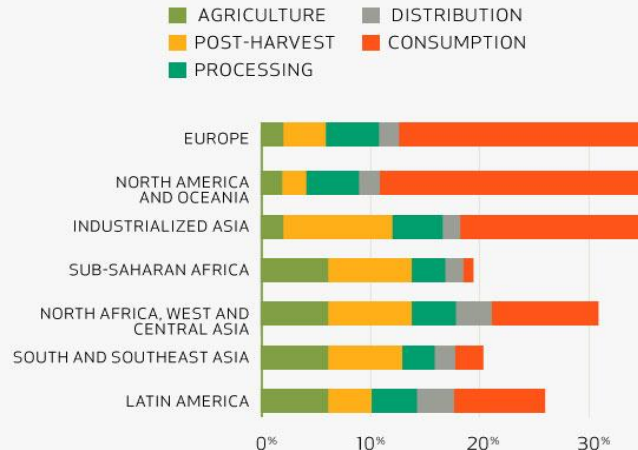
Where should we look for solutions?

Given equal access to resources as men, women would achieve the same yield levels, boosting total agricultural output in developing countries by

2½-4%

This additional yield could reduce the number of undernourished people in the world by
100-150m
OR 12-17%

FOOD WASTE BY REGION



INVESTMENT

Investment in agricultural extension services yields **80% annual rates of return** and can help farmers to **double** their crop yields.

80%

ANNUAL RATES OF RETURN

2x

CROP YIELD INCREASE



What should we be doing instead?

Food Security:

- Strengthening policy and infrastructure to improve food access.
- Increasing small farmers' access to crop & market information through technology.
- Building capacity for on-farm storage and improving transport infrastructure to avoid waste.
- Targeting policies towards small farms: 525 million small farms produce 70% of global food.¹

Protecting Ecosystems:


- Changing incentives to ensure long-term sustainability of our eco-agri-food systems complex.
- Stopping fertiliser subsidies: 30-80% of nitrogen escapes to contaminate water and air.²
- Stopping water subsidies: Lead to inefficient water use, causing logging & salinisation.³
- Green Farming: Reduces need for external inputs & subsidies; increases yield by 79% on avg.⁴

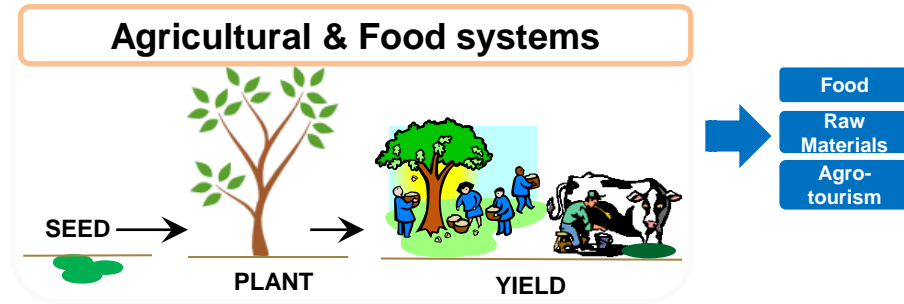
¹www.sustainabledevelopment2015.org/index.php/uncsd-official-docs/sdgs-news/1322-draft-inputs-from-the-food-and-agriculture-cluster-of-the-ngo-major-group-2

²Pretty (2008) | ³Leach (1976), Stout (1998) | ⁴Pretty et al. (2006)



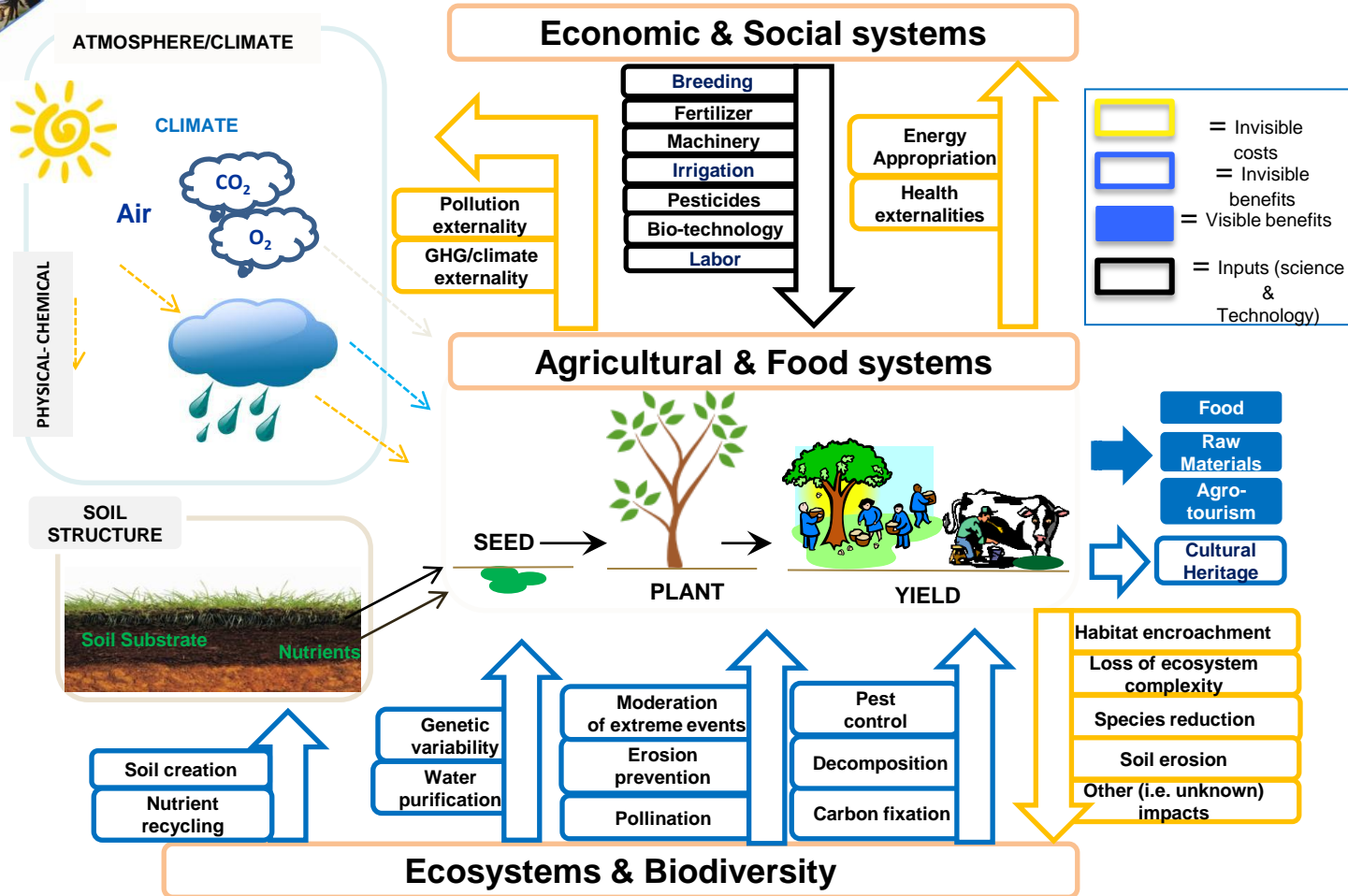
Agricultural & Food Systems: Layperson's view

 = Visible benefits





Agricultural & Food Systems: “TEEB-Ag-Food” view





Decoupling resources from growth.

Resource-led growth...





Example: Resource taxation in Ireland

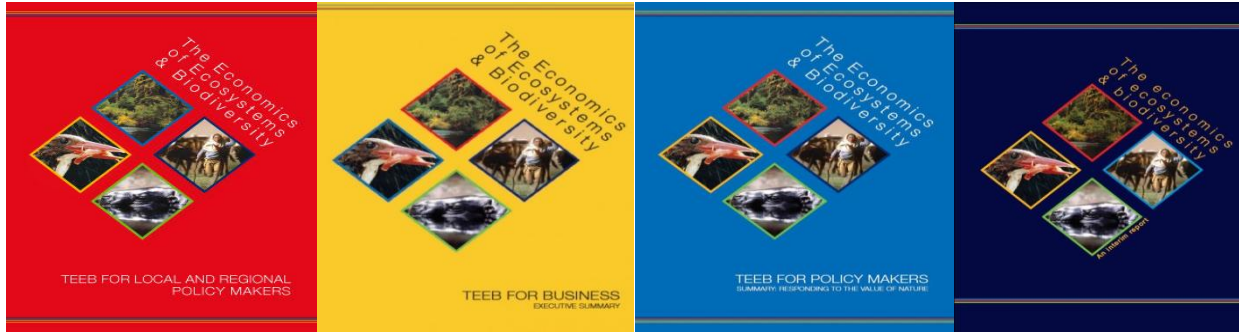
- In 2010, Ireland levied a carbon tax on use of **fossil fuels** by homes, offices, vehicles, and farms; purchase taxes and yearly registration fees on **automobiles**, and per-weight taxes on **residential garbage**.
- *“We ... set up a price signal that raised significant revenue and changed behavior. Now, we’re smashing through the environmental targets we set for ourselves.”* – Eamon Ryan, Irish Energy Minister (2007-11)



Raised almost \$1.3 billion in new revenue over 3 years.



Reduced emissions by 15% between 2008 and 2012.



Thank You!

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