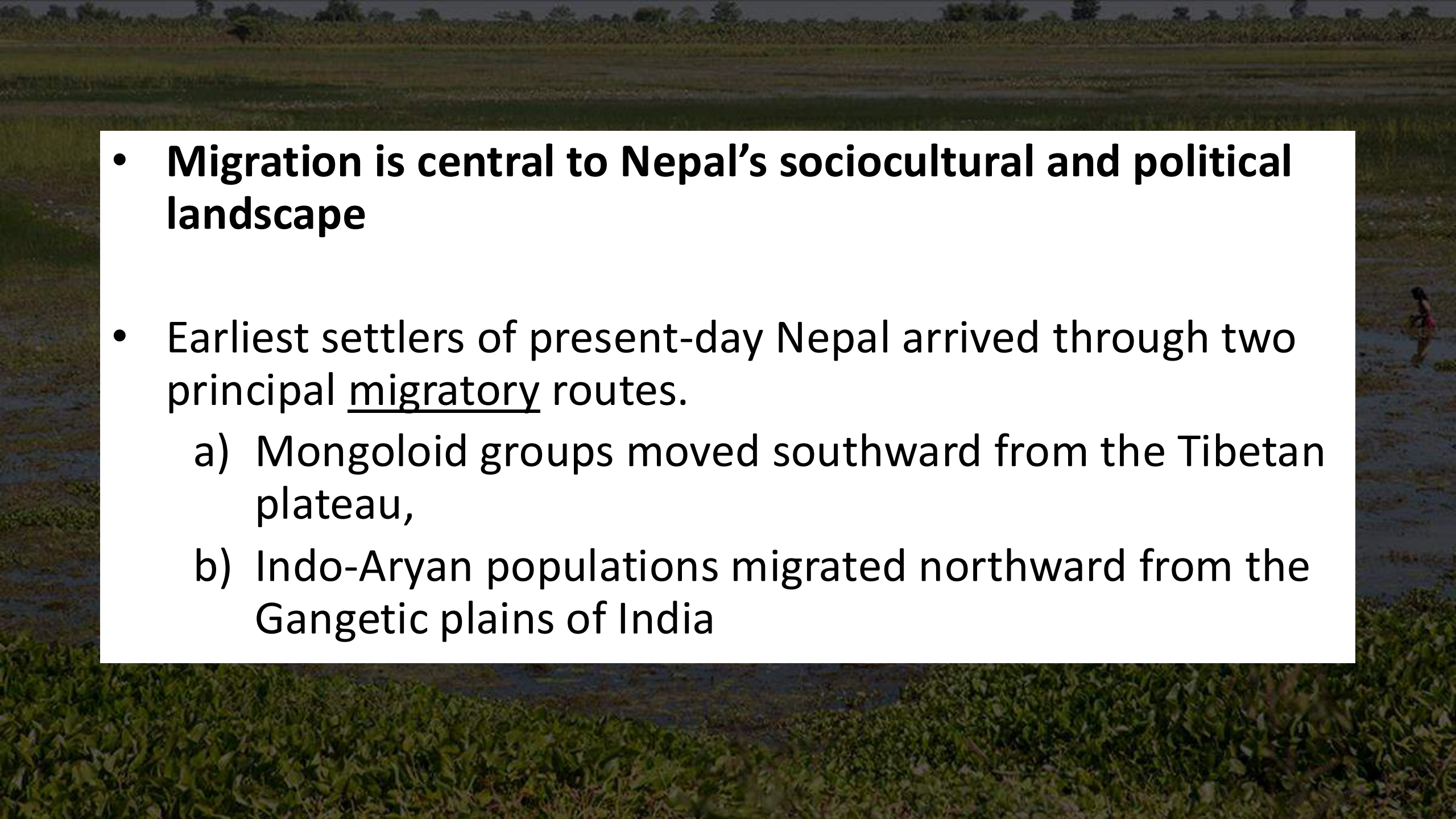
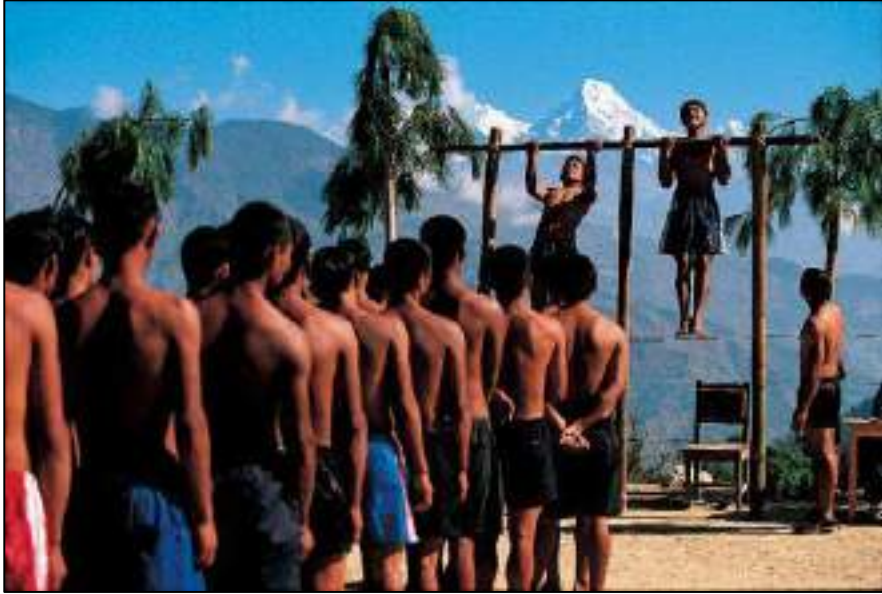


Migration and food security in Nepal



- 
- **Migration is central to Nepal's sociocultural and political landscape**
 - Earliest settlers of present-day Nepal arrived through two principal migratory routes.
 - a) Mongoloid groups moved southward from the Tibetan plateau,
 - b) Indo-Aryan populations migrated northward from the Gangetic plains of India



Nepali men's participation in military labor abroad - *Lahure*

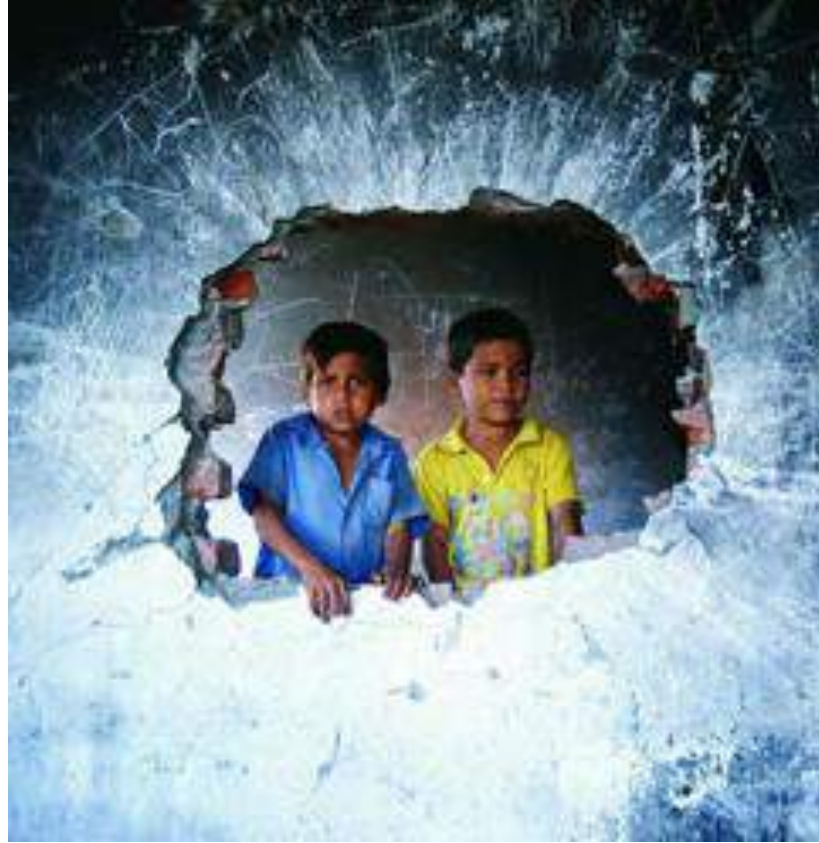


Seasonal migration to India – open border facilitated circular flows of labor.

Pro democracy movement

- Uprising against monarchy (1990) – end of absolute monarchy.
- Reinstatement of multiparty democracy
- First wave of migration





Nepalese civil war (1996-2006)

- Rebel faction (Maoists) took up arms against the armed forces (the police)
- Maoists controlled the rural areas – rural to urban migration
- Second wave of migration!

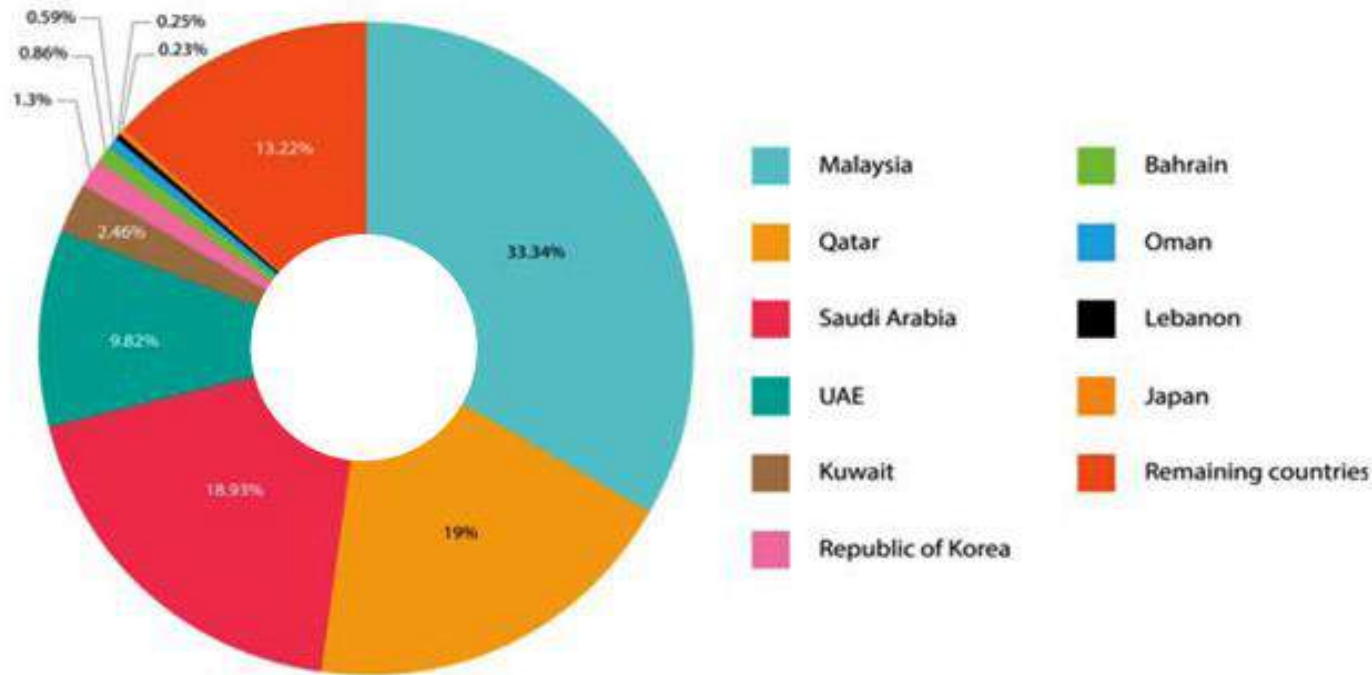
A photograph of a crowded airport terminal. In the foreground, several people are sitting on the ground with large backpacks and luggage. In the background, a large crowd of people is moving through the terminal. Signs for 'DEPARTURE' and 'ARRIVAL WITH IMMIGRATION' are visible. The text 'Tribhuvan International Airport' is partially visible on the left. A small orange rectangle is in the top left corner.

Impacts of the Maoist civil war

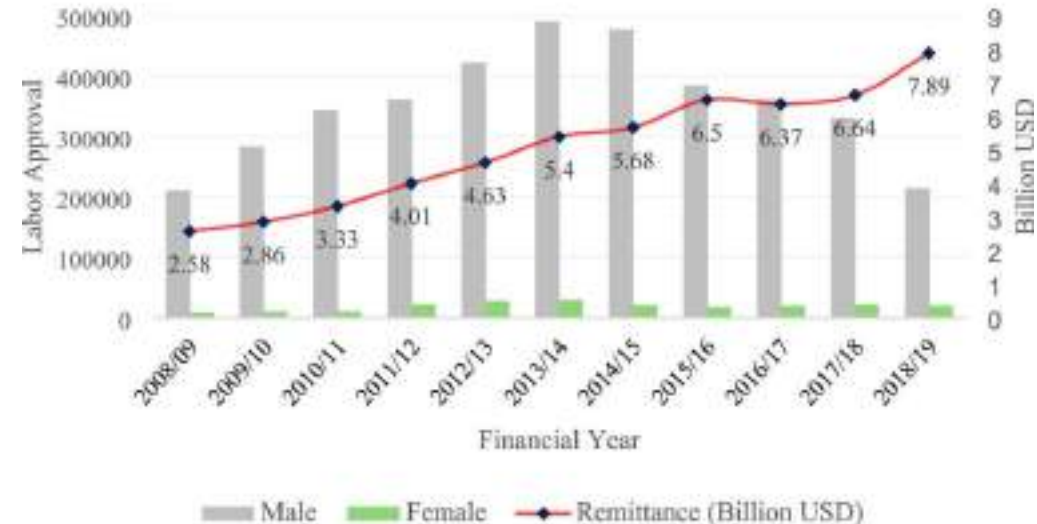
- Accelerated rate of migration – “culture of migration”
- Estimated 1500 – 2000 people leave Nepal every day
- Remittances amount to 25% of the GDP

Where are the migrants going?

Top-destination countries for foreign employment, 2008-09 - 2014-14

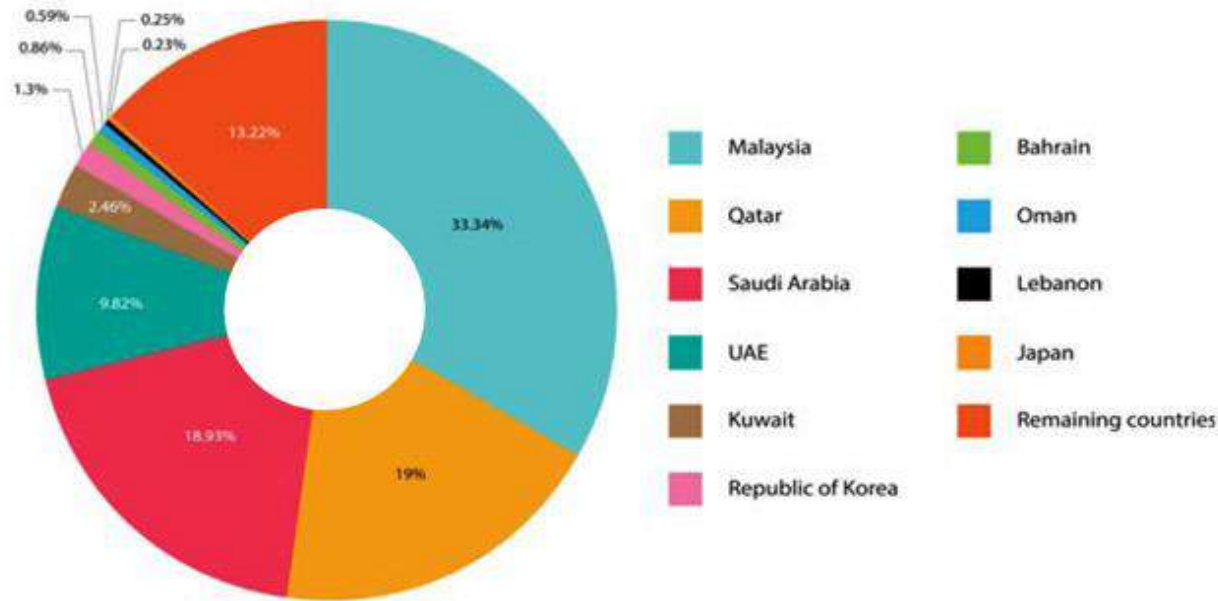


Trend in the number of labor approvals issued (disaggregated by gender) and remittance flow in Nepal (2008/09-2018/19)



Where are the migrants going?

Top-destination countries for foreign employment, 2008-09 - 2014-14



“Those flights that take migrants to their destinations are also bringing bodies of migrants”



Some good news?

An upside to globalization: International outmigration drives reforestation in Nepal

Johan A. Oldekop^{a b c}  , Katharine R.E. Sims^d, Mark J. Whittingham^{b 1},
Arun Agrawal^{a 1}

[Oldekop et al., 2018]

An upside to globalization: International outmigration drives reforestation in Nepal

Johan A. Oldekop^{a b c}  , Katharine R.E. Sims^d, Mark J. Whittingham^{b 1},
Arun Agrawal^{a 1}

“Effects of outmigration are higher in more agriculturally suitable areas, suggesting that migration-driven forest transitions are influenced by agricultural production systems. We provide new empirical evidence of forest transition driven by international migration and a generalizable analytical approach to the study of forest transitions using secondary global and national datasets.”

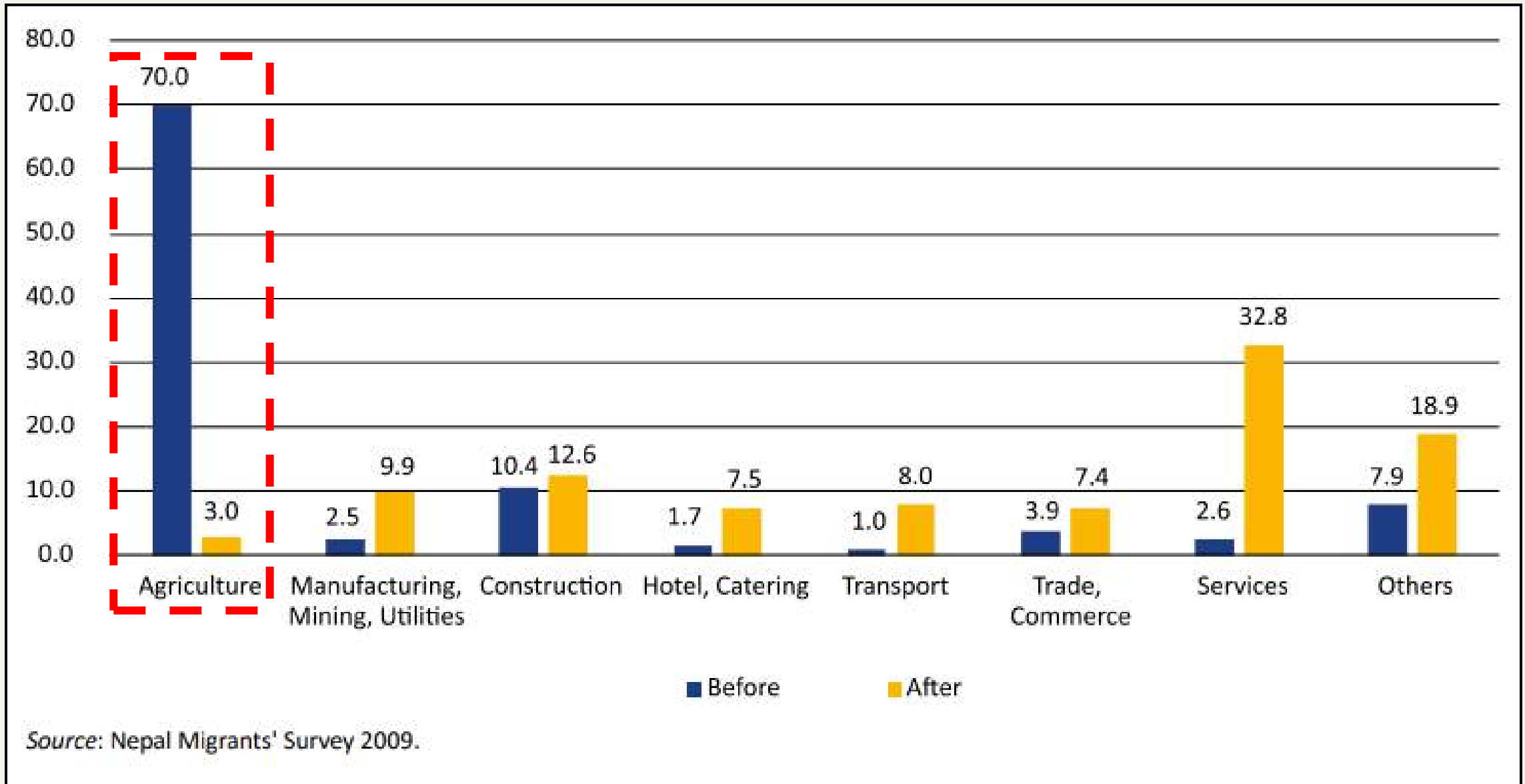
[Oldekop et al., 2018]

How Nepal Grew Back Its Forests

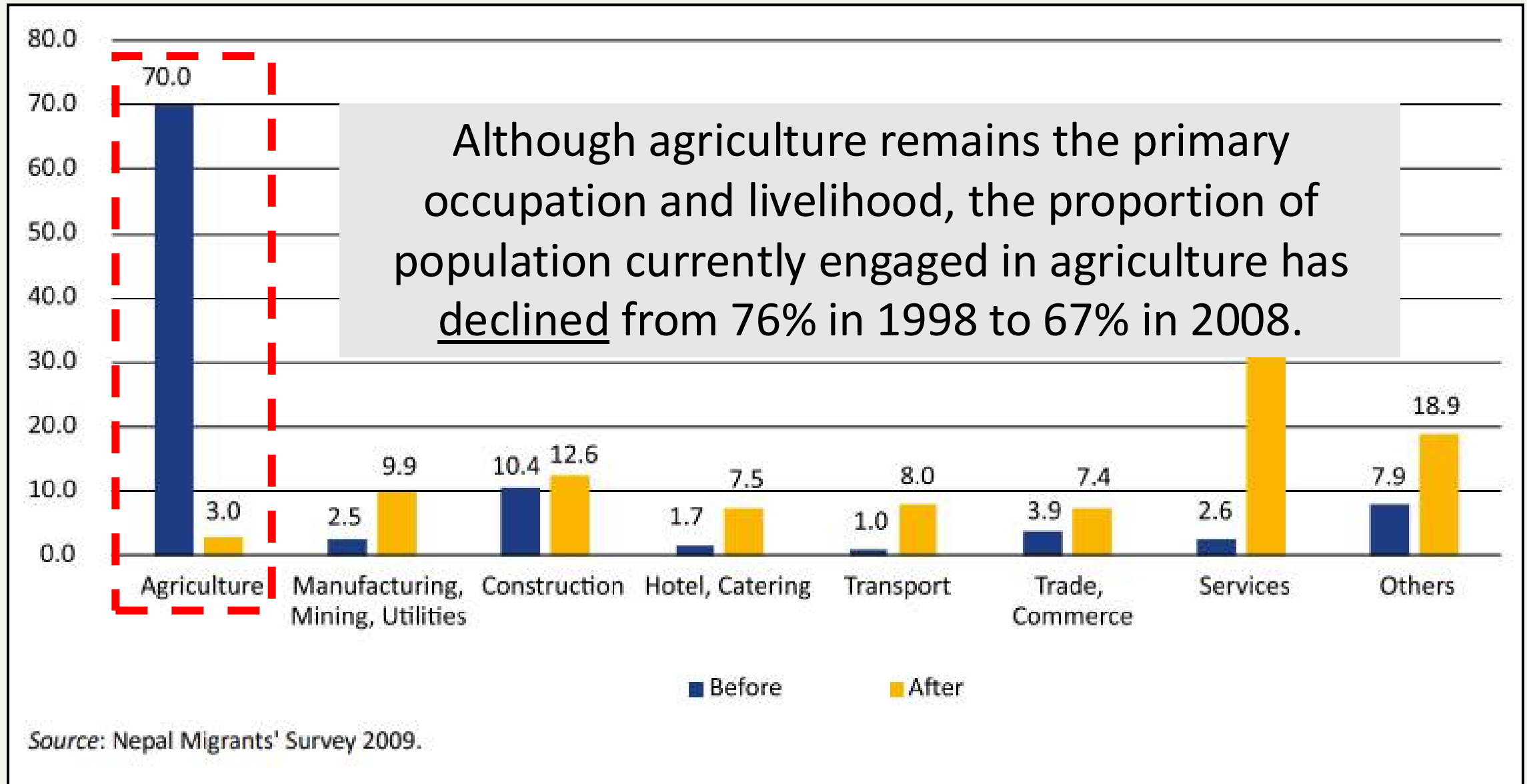
An effort decades in the making is showing results in Nepal, a rare success story in a world of cascading climate disasters and despair.



Majority of the migrants are engaged in agricultural activities



Majority of the migrants are engaged in agricultural activities



Food prices are on the rise again. Here's a look at the reasons

The central bank's report shows that vegetable prices rose 10 percent in mid-December compared to the same period last year.



Editorial

#Editorial

Nepal's Costly Drift from Agriculture

Nepal's rising dependence on agricultural imports—despite vast fertile land and production potential—reflects policy failure, labour migration and market distortions that together threaten food security and economic sustainability.

Climate crisis → drought → food deficit → migration

Half-century of eastern Nepal's rainfall data points to a link between chronic drought and depopulation

06 April 2024

Mohan Mainali in Taplejung

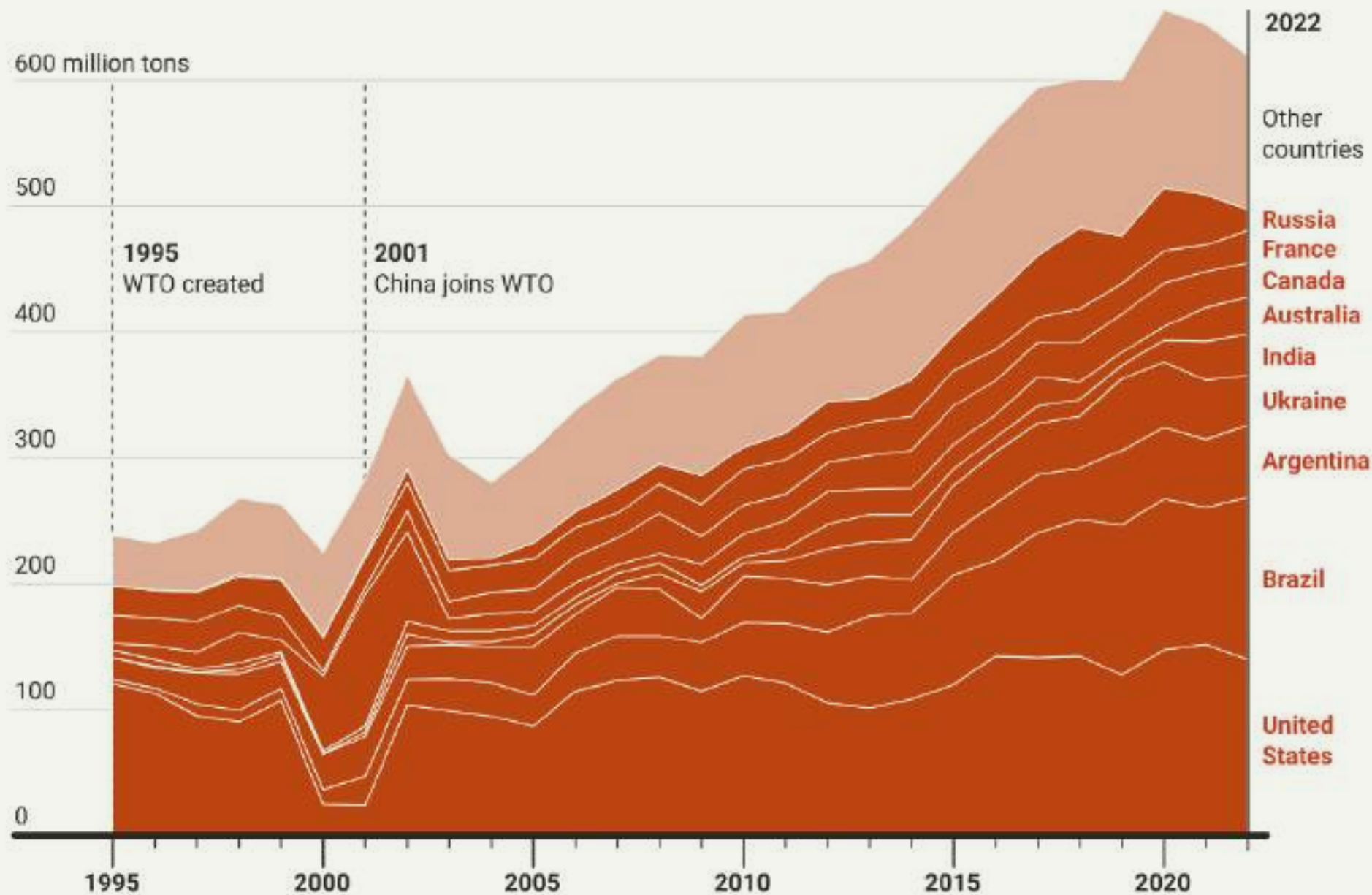


How does self-sufficiency and food production change due to high rates of migration in Nepal?



Keely Patelski,
MS in Geography & the Environment (2025)

Total annual exports of wheat, corn, rice, and soybeans



In 2022,
nine countries
exported

80%

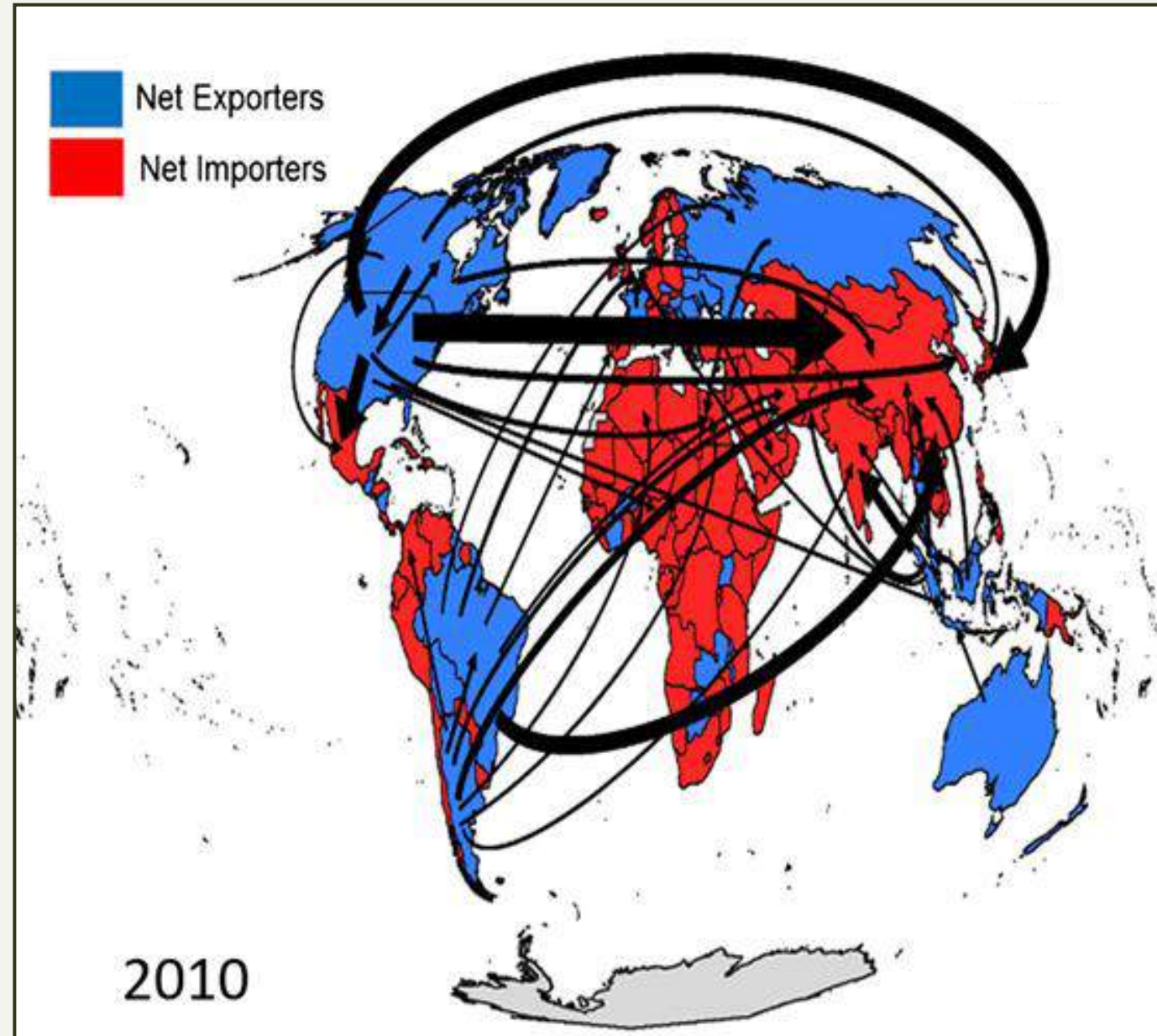
of the world's wheat,
corn, rice, and
soybeans.

134
countries

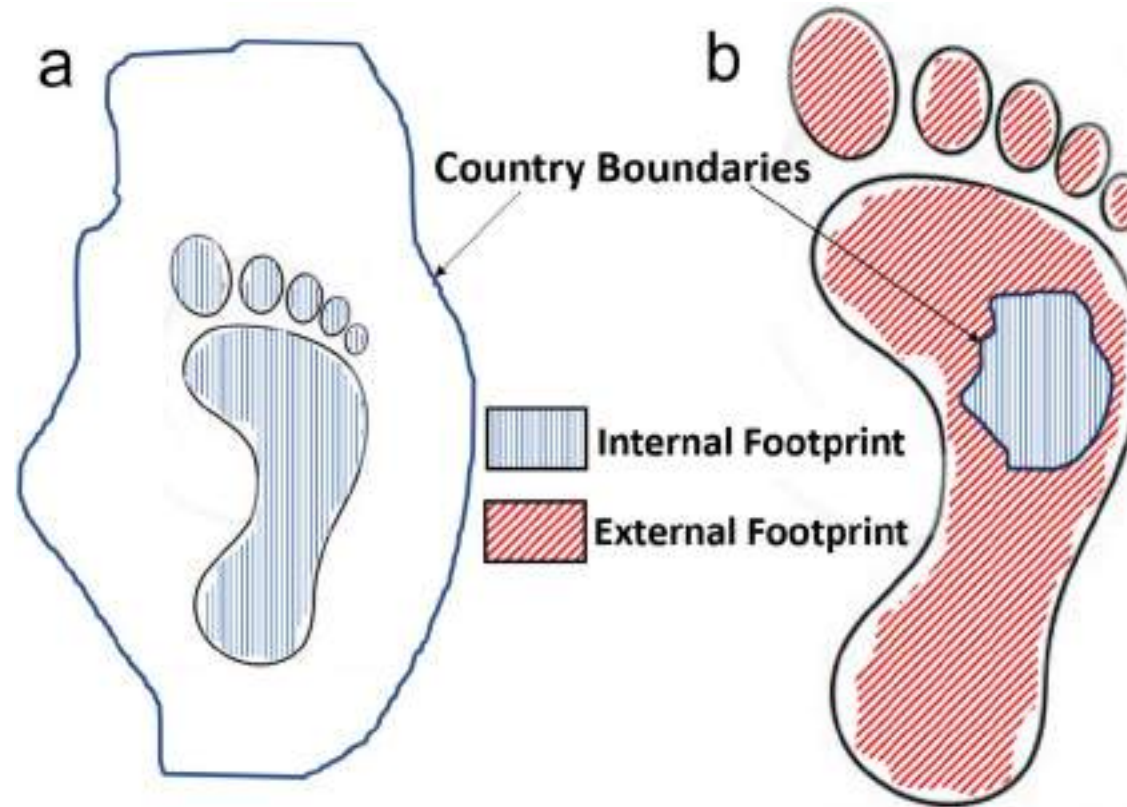
relied on those
nine exporters
for more than half their
imports of those crops.

Global Food Trade

- In 2023, 52.3 million tons of rice and 199.1 million tons of wheat were traded globally
- Food trade allows water-scarce regions to rely on water-rich regions, reducing worldwide water inequality and increasing the carrying capacity of the planet.



Water and land footprints



Global food trade allows for a displacement of natural resources use/extraction to other countries

78% of countries are not self-sufficient in wheat & rice production

Self-sufficiency: the extent to which a country can satisfy its food needs from its own domestic production



Rice



Wheat



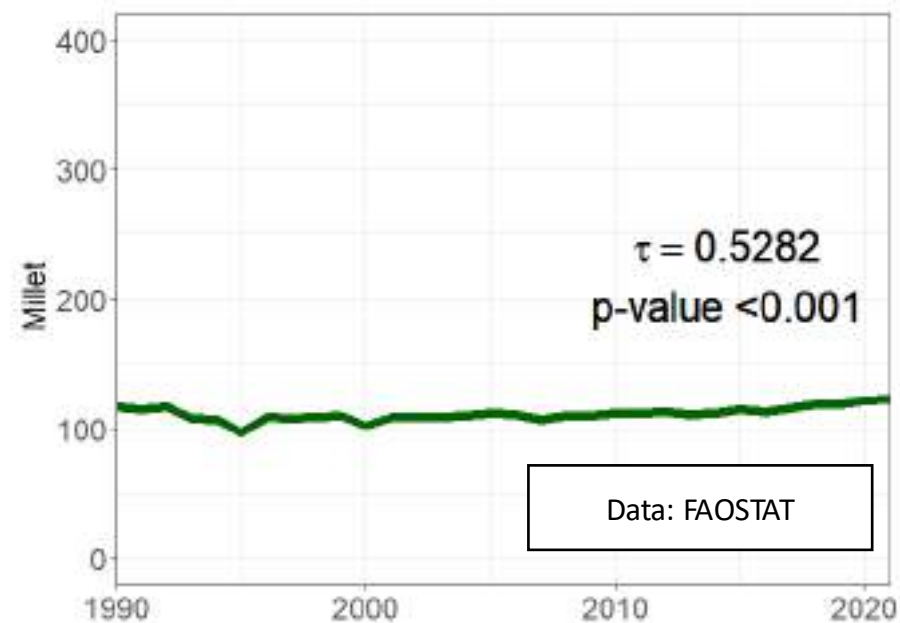
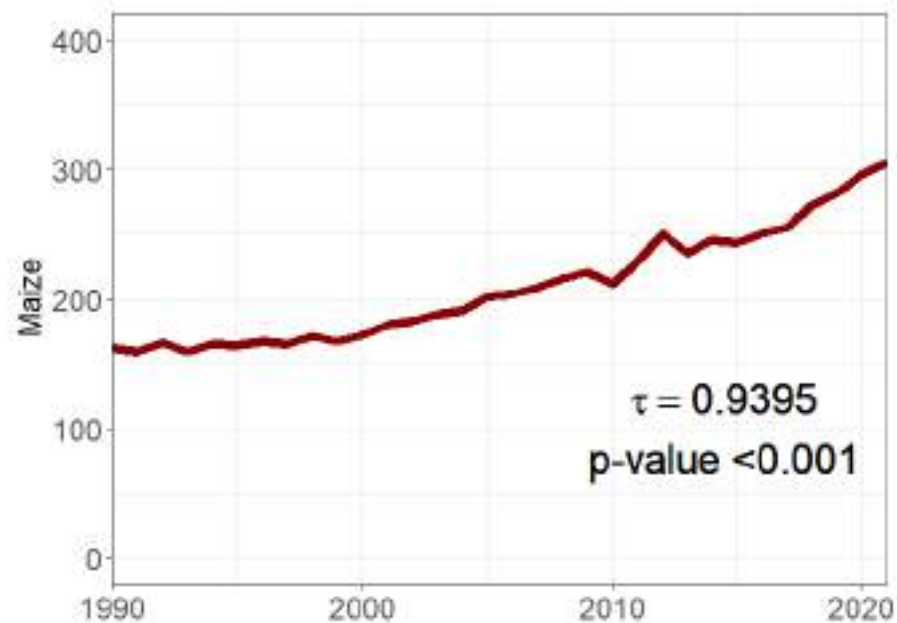
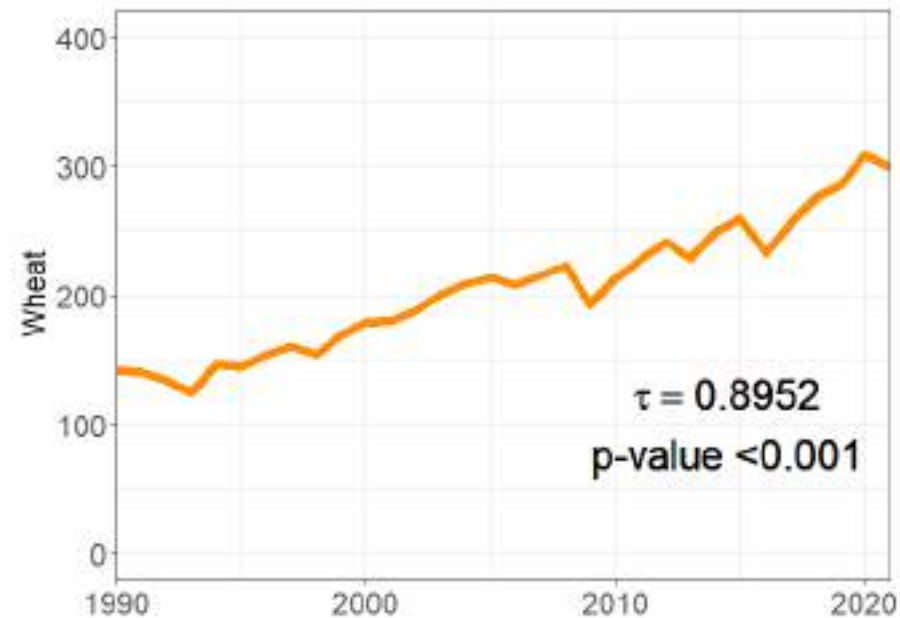
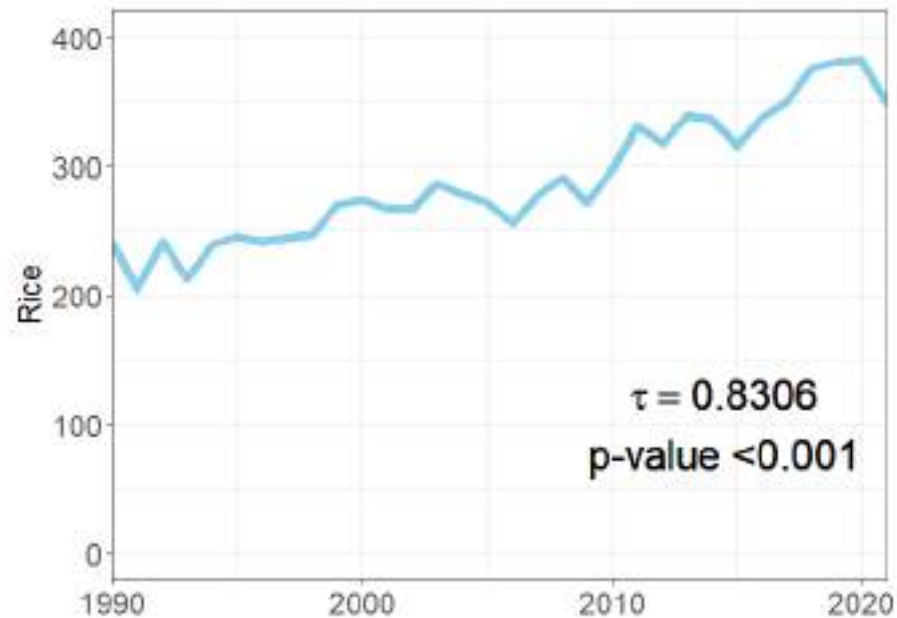
Maize



Millet

- Staple crops
 - more than half of global dietary energy
- ~70% of the diet in Nepal

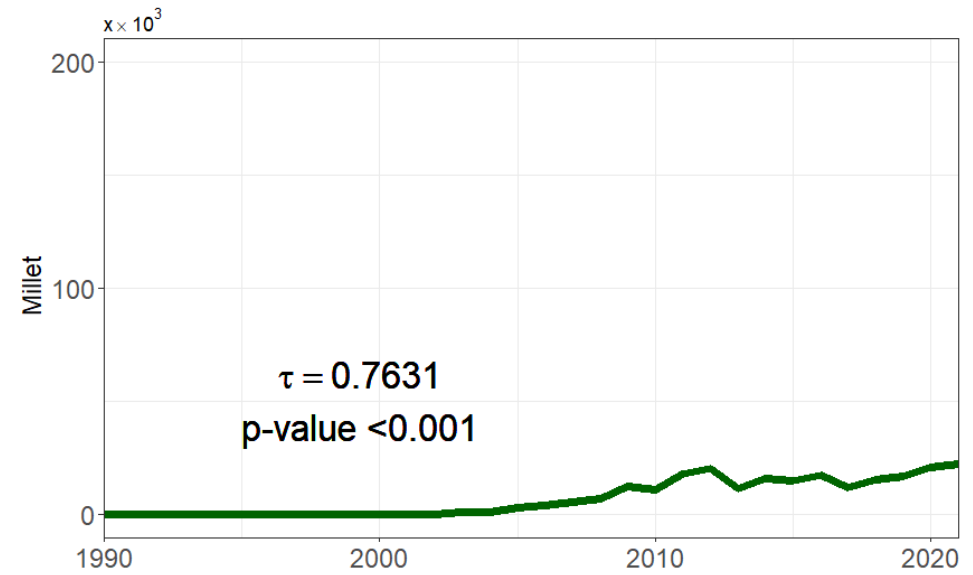
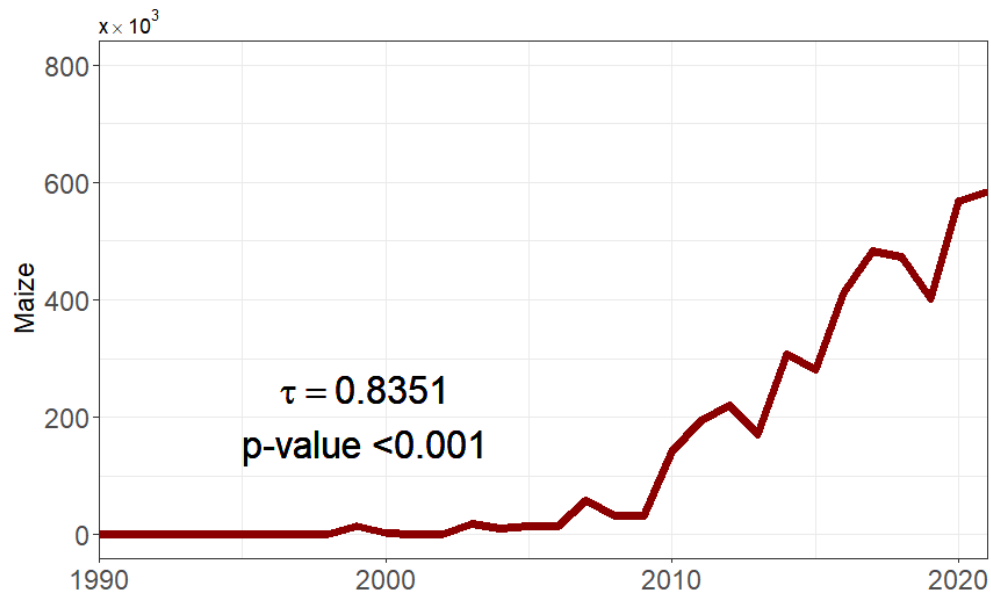
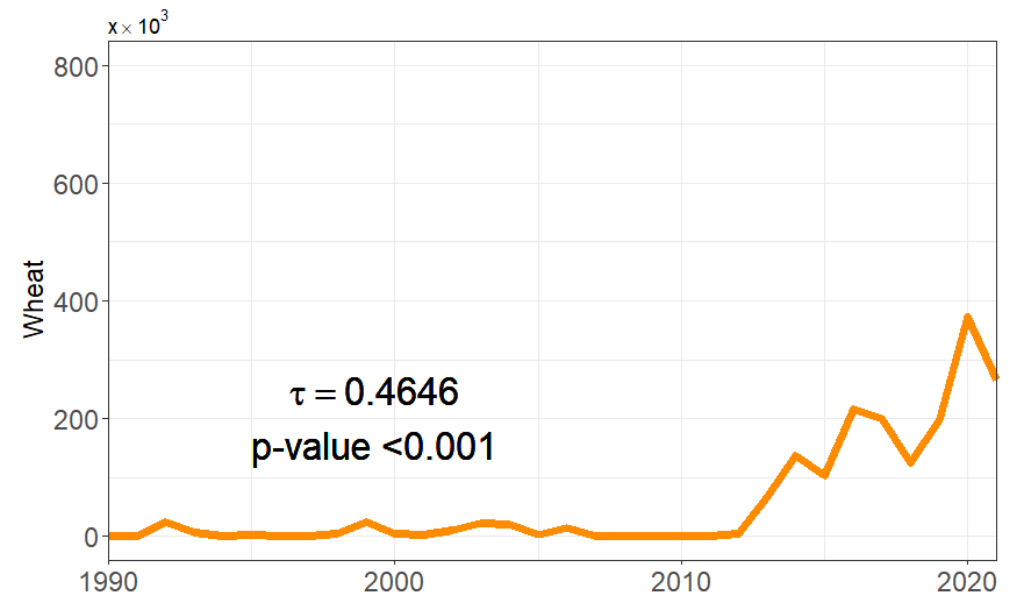
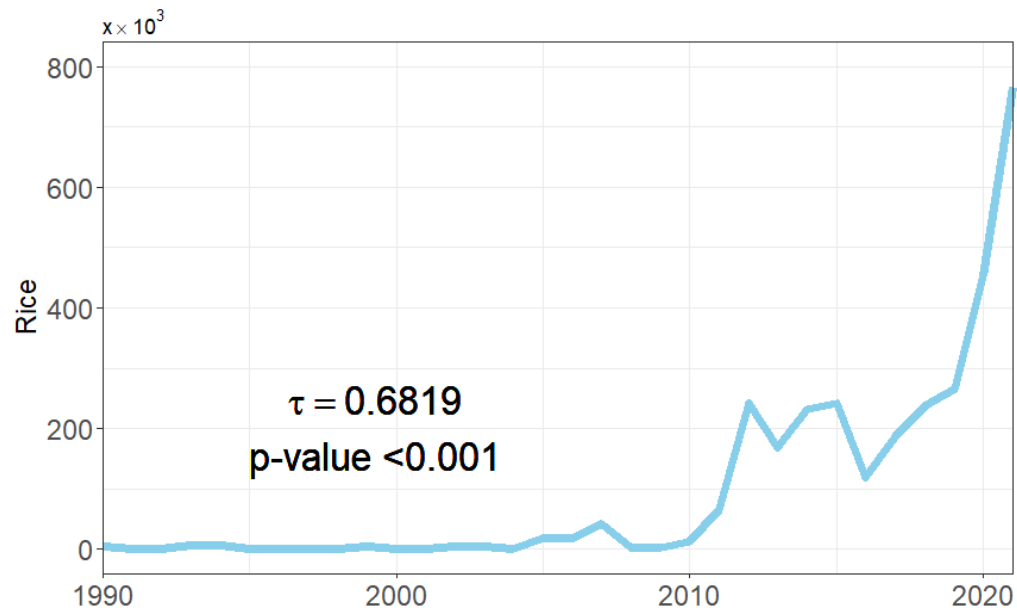
Yield (t/km²)

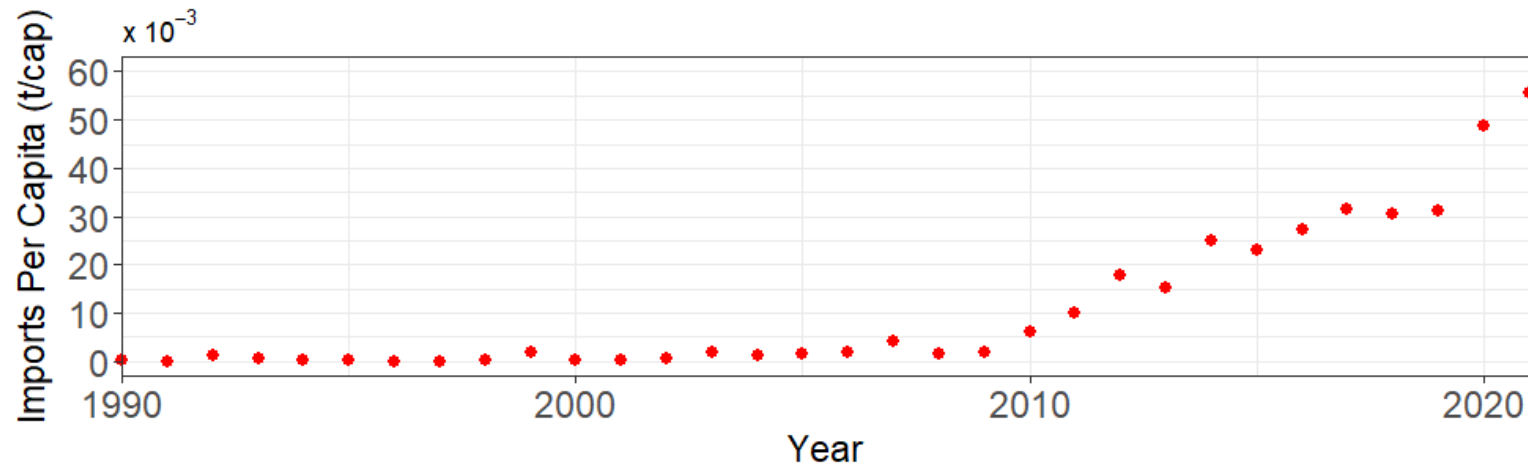
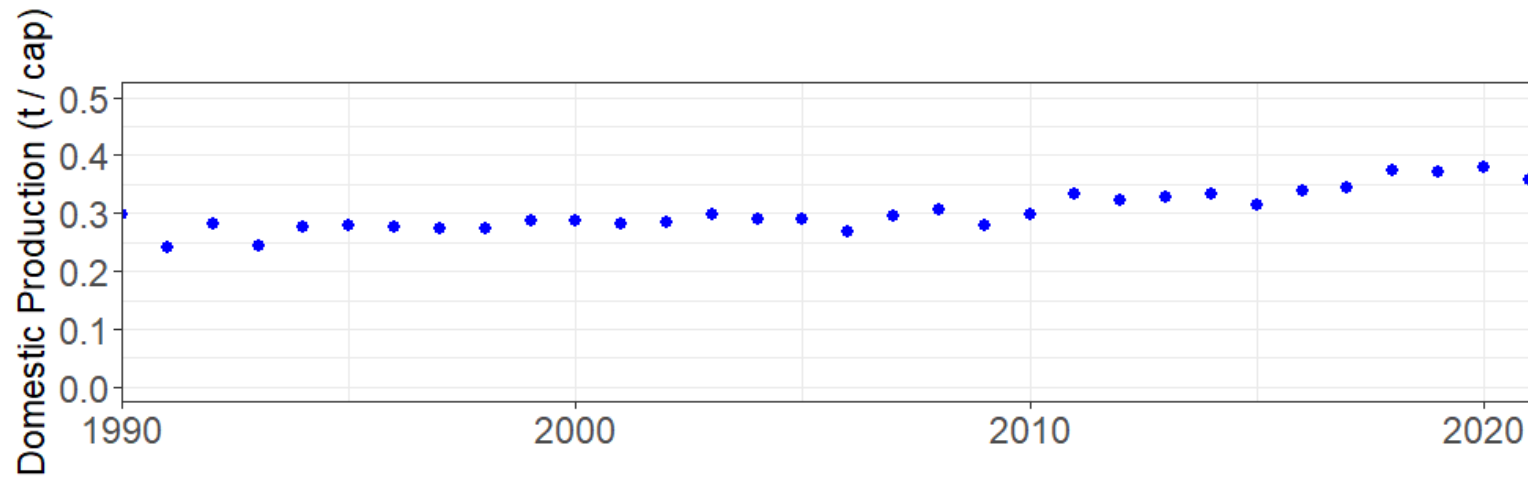


Data: FAOSTAT

Year

Import Quantity (t)





- Domestic production per capita increased by ~20%
- Imports per capita increased by 16685%

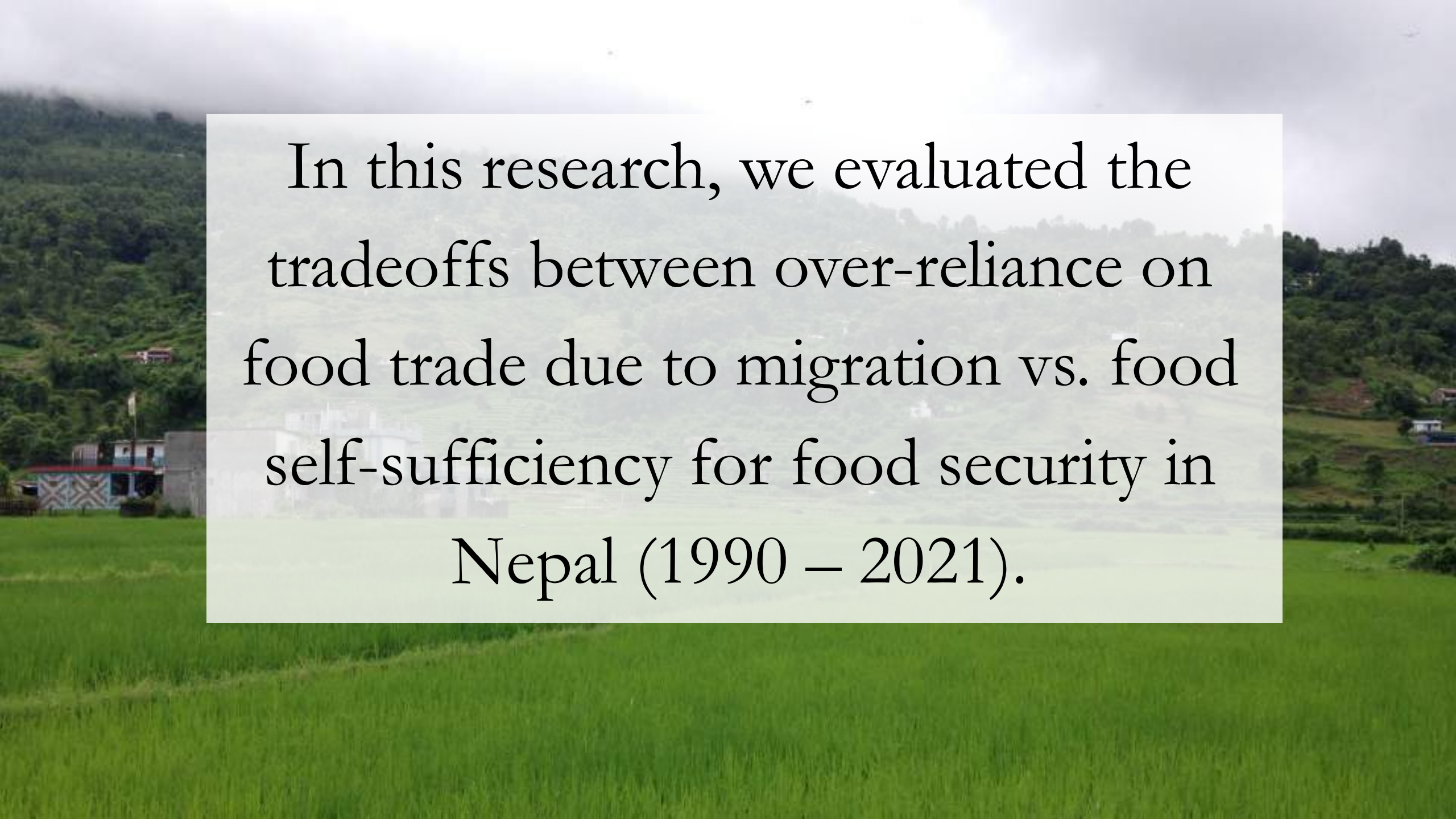
What does a country need to be self-sufficient?



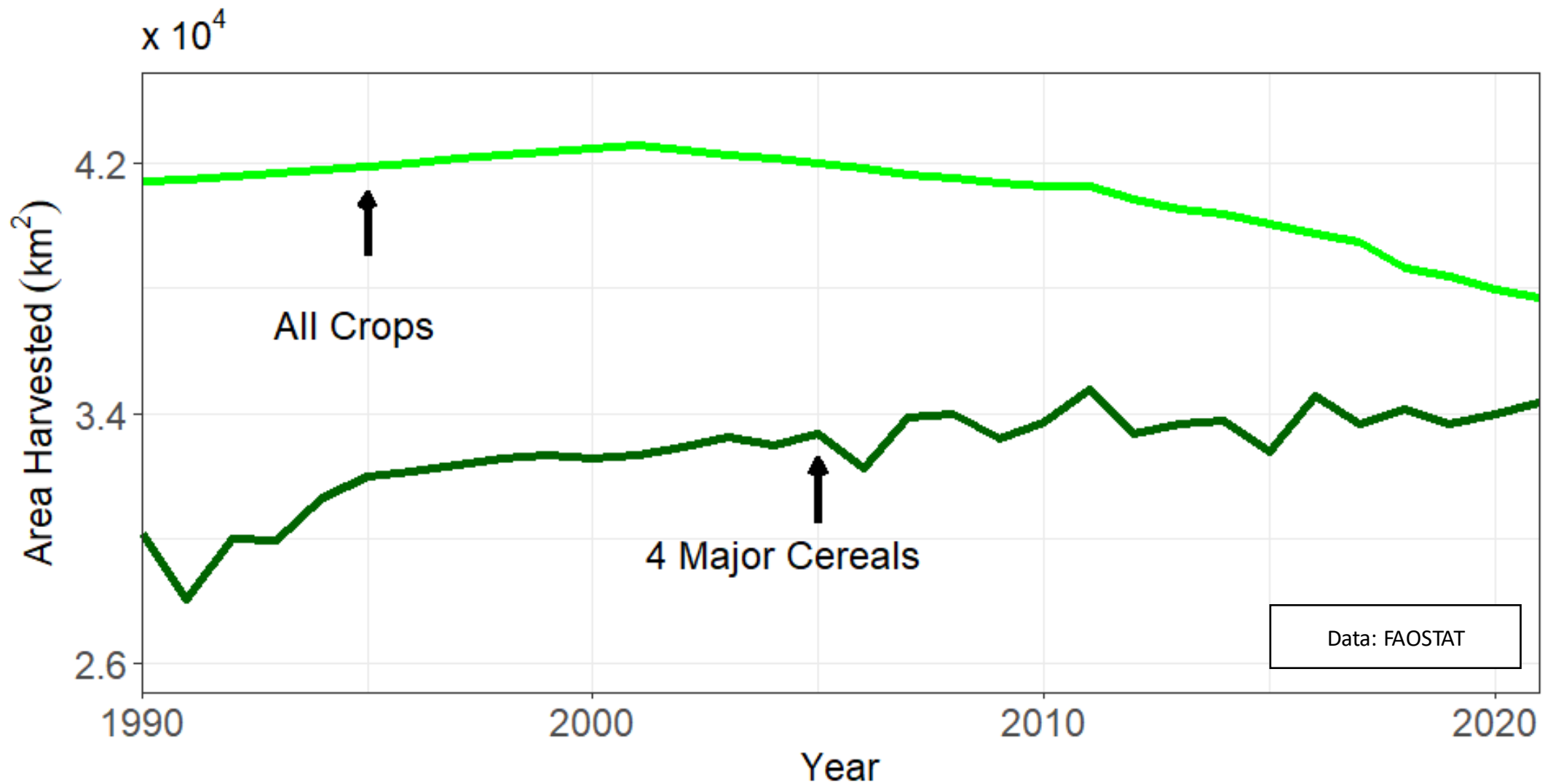
Land

Water

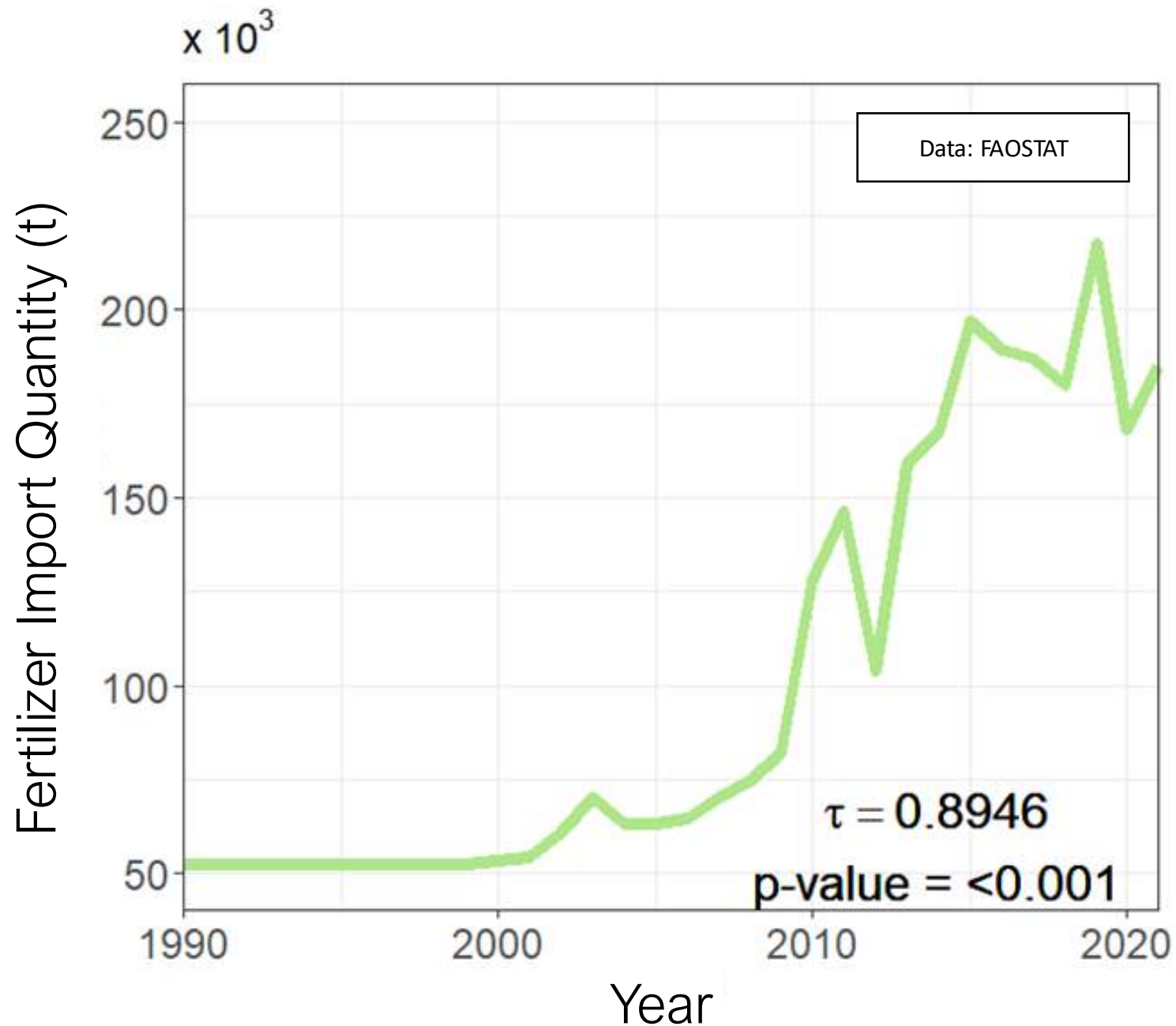
Labor



In this research, we evaluated the tradeoffs between over-reliance on food trade due to migration vs. food self-sufficiency for food security in Nepal (1990 – 2021).

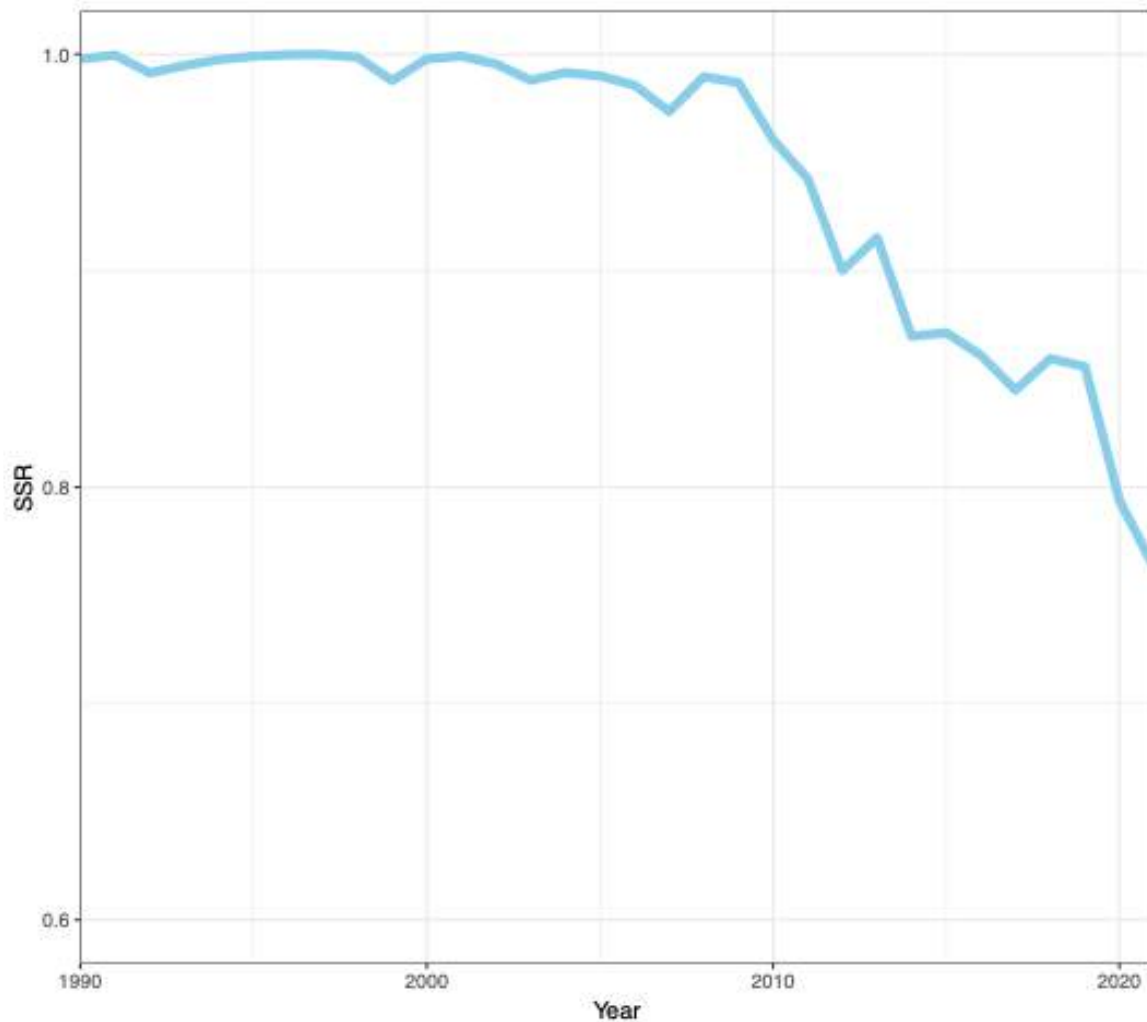


- 1990: 72% of agricultural land used for 4 major cereals
- 2021: 91% of agricultural land used for 4 major cereals

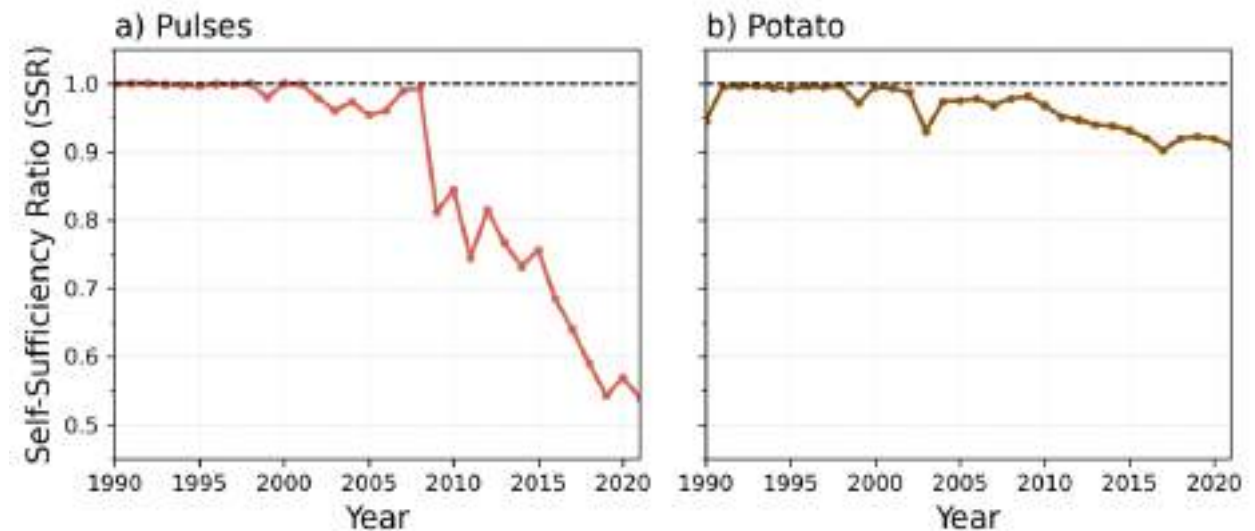


Evidence of agricultural intensification

Nepal's domestic production is supported by imported fertilizers



- Outmigration is a predictor of declining self-sufficiency of food production in Nepal (harvested area and domestic yields were not)
- For every 10,000 migrants, self-sufficiency declined by 1.2%.

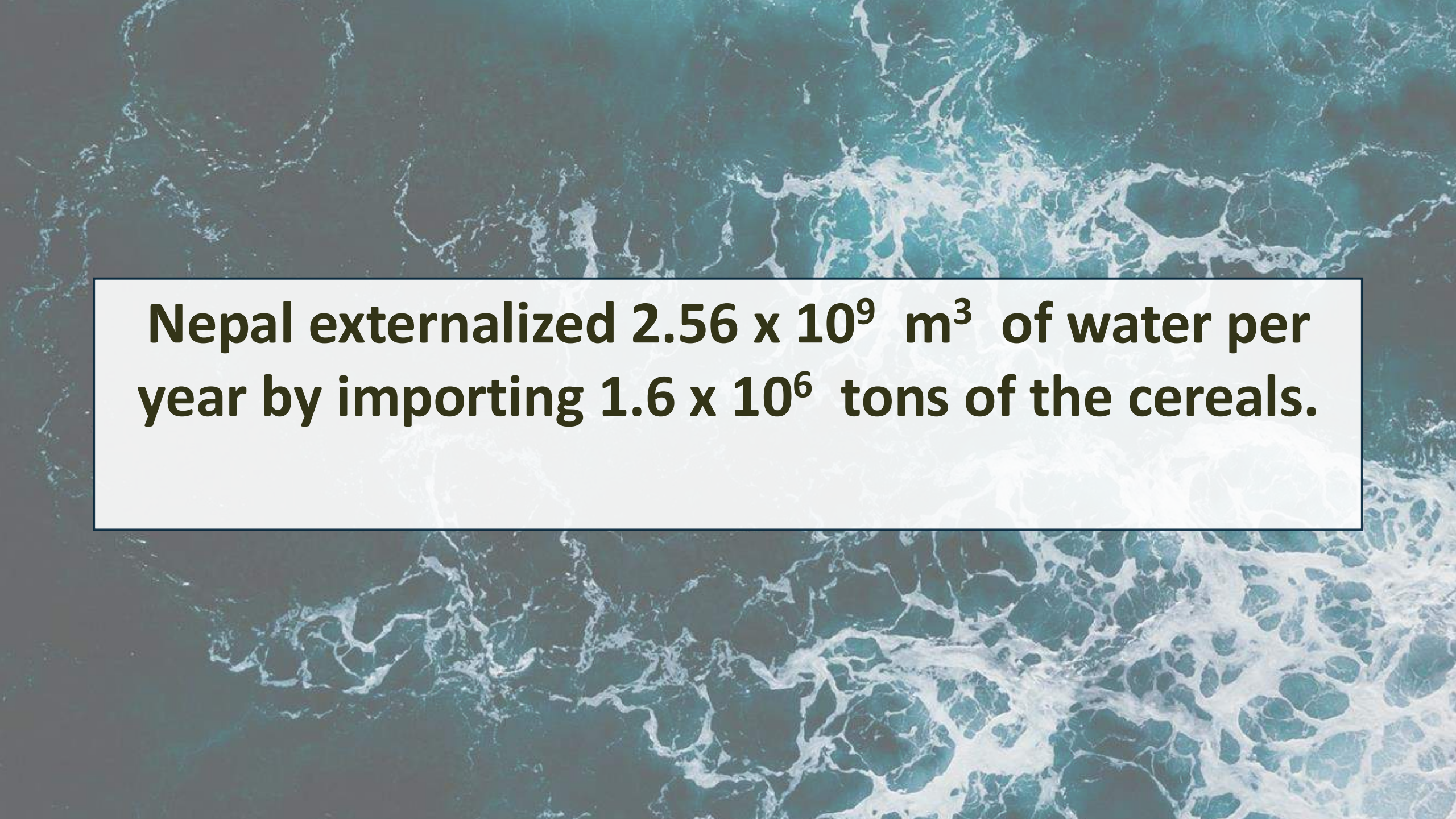




**Nepal would need 53% more
cereal land (5179 km²) to achieve
self-sufficiency.**



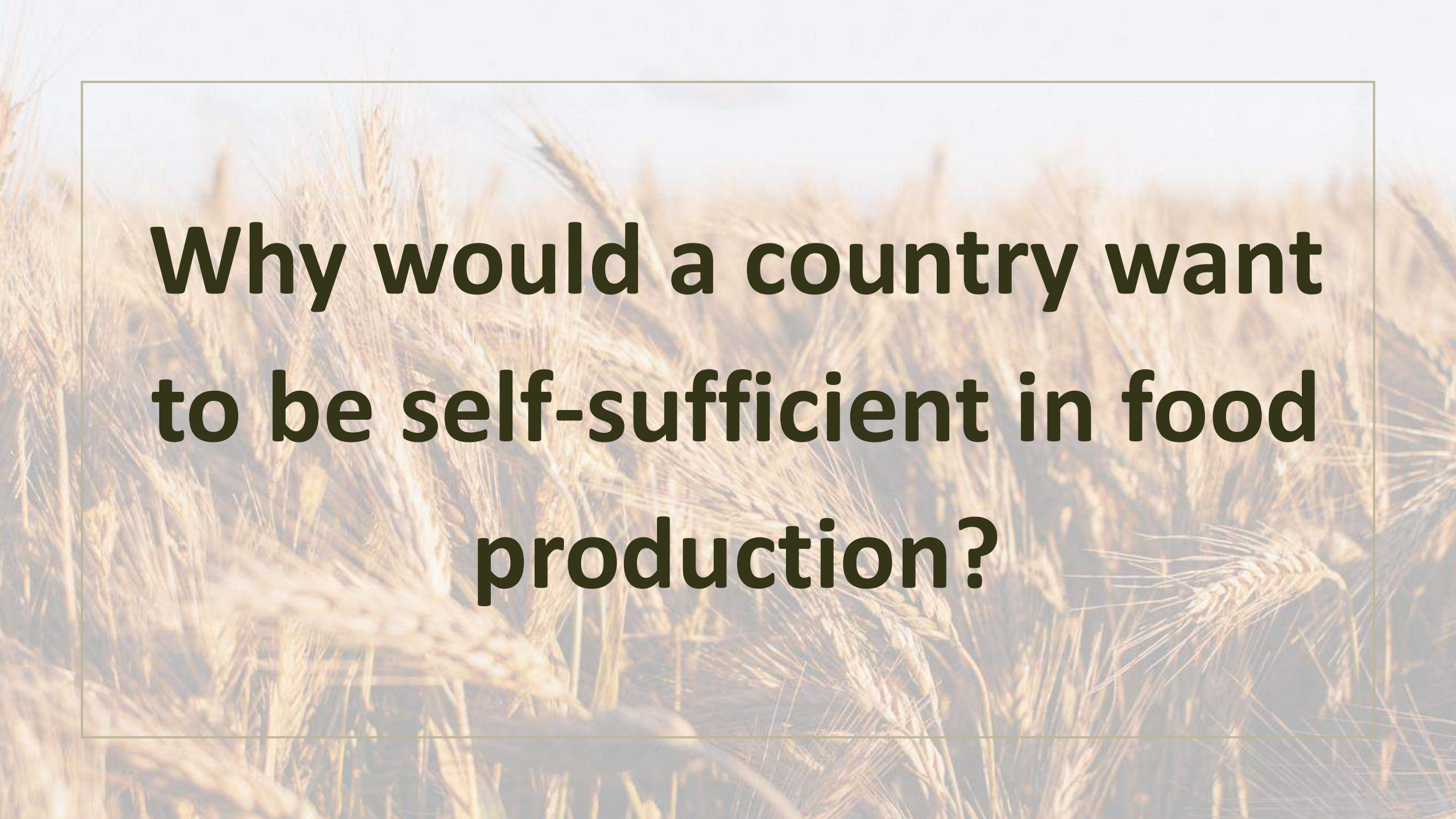
x 960,853



Nepal externalized 2.56×10^9 m³ of water per year by importing 1.6×10^6 tons of the cereals.



x 2,000,000



**Why would a country want
to be self-sufficient in food
production?**

Self-sufficient

ability to control trade and less affected by world market prices

Reliant on imports

vulnerable to disruptions in food trade like price spikes, geopolitical conflicts, and changing climatic conditions

Is agricultural expansion for self-sufficiency possible?



Land

- Not all land suitable for agriculture
 - Terai plains vs mountainous regions



Water

- 4 billion people face water scarcity
 - Expansion of irrigation unsustainable



Even with unlimited land and water...

Labor

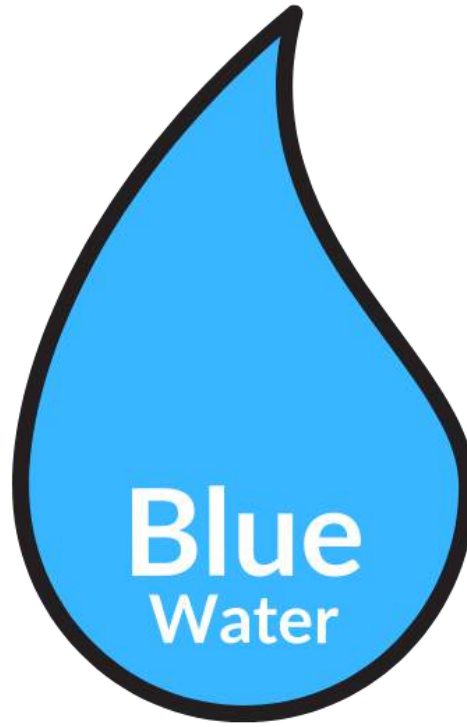
- Migration causes labor deficit
 - evidence of agricultural land abandonment in Nepal
- Remittances are used for consumption, not investments
 - Imported food is more expensive





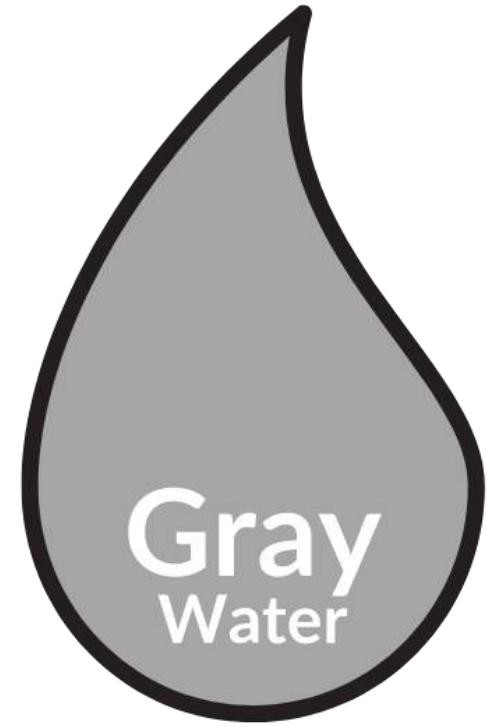
Rain water

Water from precipitation that is stored in the root zone of soil and used by plants.



Irrigation water

Surface or groundwater found in lakes, rivers, and aquifers.



Pollution Management

The amount of fresh water needed to dilute pollutants from crop growth to maintain groundwater quality standards.

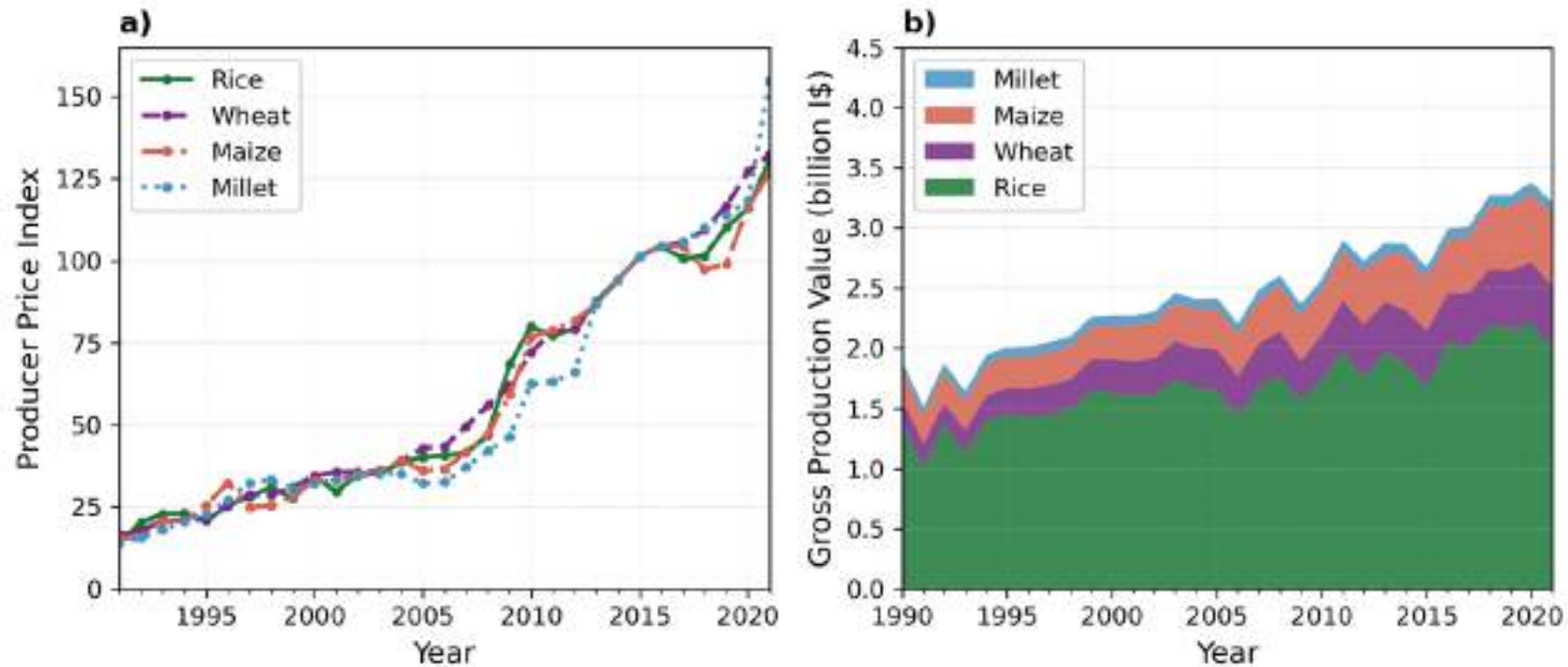
Nepal

India

Crop	Green	Blue	Grey	Total	Green	Blue	Grey	Total	% difference
Rice	2798	313	28	3139	2190	710	352	3252	-3%
Wheat	1292	1860	49	3201	643	1162	294	2099	+53%
Maize	2897	2	39	2938	2225	103	195	2523	+16%
Millet	3085	0	85	3170	3719	76	233	4028	-21%

If Nepal were to become self-sufficient in wheat and maize production → total water demand ↑
 Food imports externalize water demand and relieves pressure on domestic water resources.

Exit from farming



- Crop prices have risen, yet large number of migrants moved away from agriculture
- Price incentives were not the driver of agricultural decline. Opportunities abroad were simply more attractive regardless of rising crop prices.

Summary

- Outmigration is a predictor of declining self-sufficiency of domestic food production in Nepal
- Food imports externalize water demand and relieves pressure on domestic water resources.
- Attaining food security through domestic production may not be feasible or environmentally sustainable
- Crop prices have risen, yet large number of migrants moved away from agriculture.
- While imports buffer Nepal against production shortfalls, over-reliance on trade exposes the country to price shocks during geopolitical disruptions and climate-induced variability.

