

# *SDGs in a Himalayan context: What has been achieved so far?*

**Georg Gratzner**, Institute of Forest Ecology, Department of Forest – and Soil Sciences and Commission for Interdisciplinary Ecological Studies (KIÖS)

Back in November 2017....



## Could the Agenda 2030 inform and contribute to local development processes?



Die SDGs encompass „all economic, social and peace political problems that the international community has attempted to solve in the last 70 years“ (Köhler, 2015)



# SDGs in 2021 ... where do we stand?

## The world



Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development*, (United Nations, New York, 2019)

Table 1-1  
Projected distance from reaching selected targets by 2030 (at current trends)

GOAL	WITHIN 5%	5-10%	>10%	NEGATIVE LONG-TERM TREND
Goal 1		1.1. Eradicating extreme poverty	1.3. Social protection for all	
Goal 2		2.1. Ending hunger (undernourishment)	2.2. Ending malnutrition (stunting) 2.5. Maintaining genetic diversity 2.a. Investment in agriculture*	2.2. Ending malnutrition (overweight)
Goal 3	3.2. Under-5 mortality 3.2. Neonatal mortality		3.1. Maternal mortality 3.4. Premature deaths from non-communicable diseases	
Goal 4	4.1. Enrolment in primary education	4.6. Literacy among youth and adults	4.2. Early childhood development 4.1. Enrolment in secondary education 4.3. Enrolment in tertiary education	
Goal 5			5.5. Women political participation	
Goal 6		6.2. Access to safe sanitation (open defecation practices)	6.1. Access to safely managed drinking water 6.2. Access to safely managed sanitation services	
Goal 7		7.1. Access to electricity	7.2. Share of renewable energy* 7.3. Energy intensity	
Goal 8			8.7. Use of child labour	
Goal 9		9.5. Enhancing scientific research (R&D expenditure)	9.5. Enhancing scientific research (number of researchers)	
			10.c. Remittance costs	Inequality in income*
			11.1. Urban population living in slums*	
				12.2. Absolute material footprint, and DMC*
				Global GHG emissions relative to Paris targets*
				14.1. Continued deterioration of coastal waters* 14.4. Overfishing*
Goal 15				15.5. Biodiversity loss* 15.7. Wildlife poaching and trafficking*
Goal 16			16.9. Universal birth registration **	

“...despite the initial efforts, the world is not on track for achieving most of the 169 targets that comprise the Goals.” (Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*)

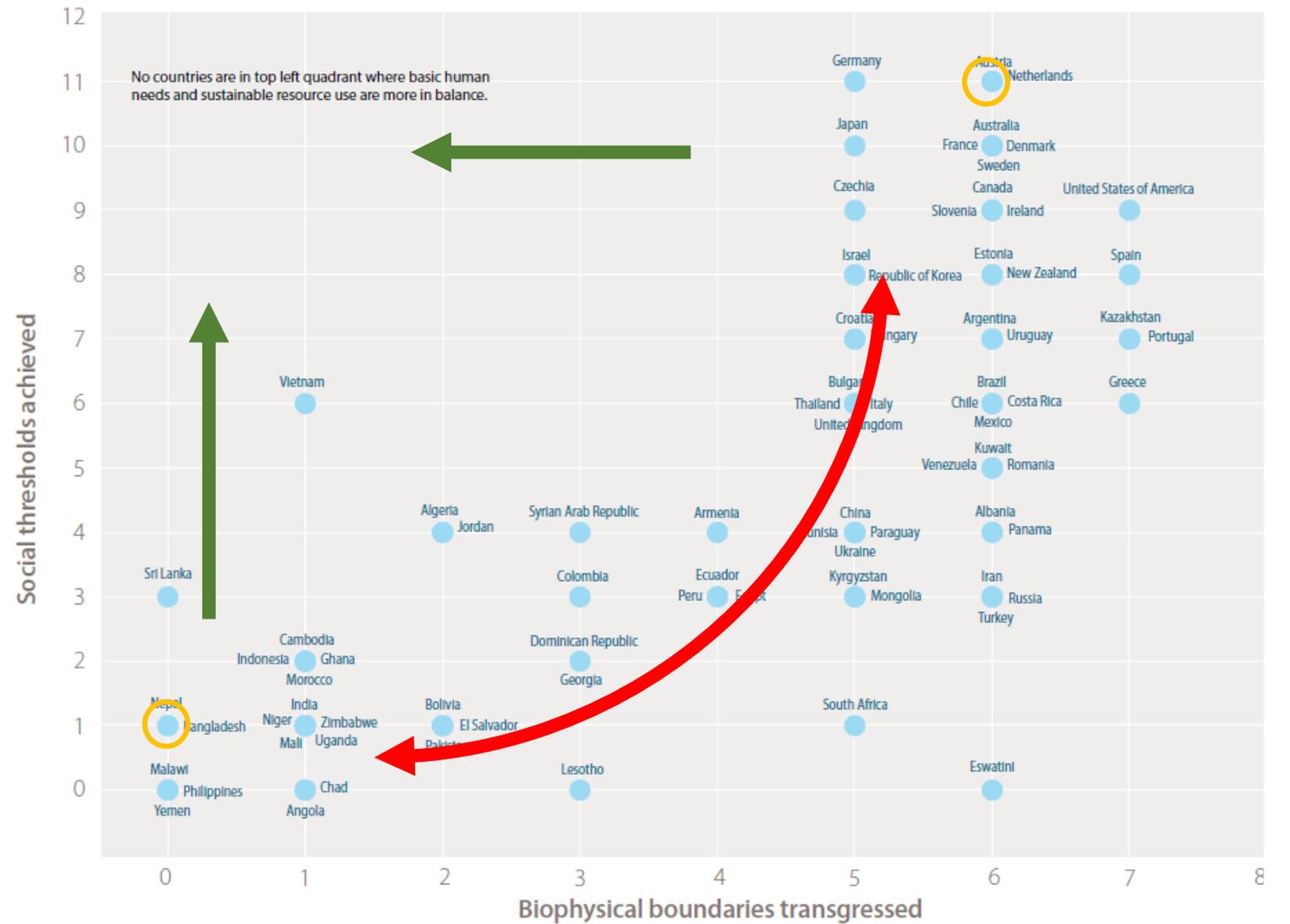
Striking the balance: no country is meeting basic human goals within biophysical boundaries

SDGs in 2021  
 ... where do we stand?

The world

Social thresholds are assessed with respect to the following indicators: life satisfaction, healthy life expectancy, nutrition, sanitation, income, access to energy, education, social support, democratic quality, equality and employment.

Biophysical boundaries are assessed on a per capita basis relative to currently established limits (e.g., a 2°C limit to global warming) and include the following indicators: CO2 emissions, phosphorus, nitrogen, blue water, eHANPP, ecological footprint and material footprint.



SDGs in 2021  
... where do  
we stand?

## The Himalayas

**Part of one of the tipping elements in Earth's climate system**

HKH: 210 million people (Bolch et al. 2012)

Source of freshwater for at least 800 million people living downstream  
(together with the Hindu Kush, ICIMOD 2017)

Consistent and stronger warming than lowlands (Liu et al 2009),  
3 x greater increase in temperature than the global average (Xu et al 2009)

Increased risk for monsoon failures (Schewe and Levermann 2012)

Saroi Pandey

SDGs in 2021  
... where do  
we stand?

# Himalayas

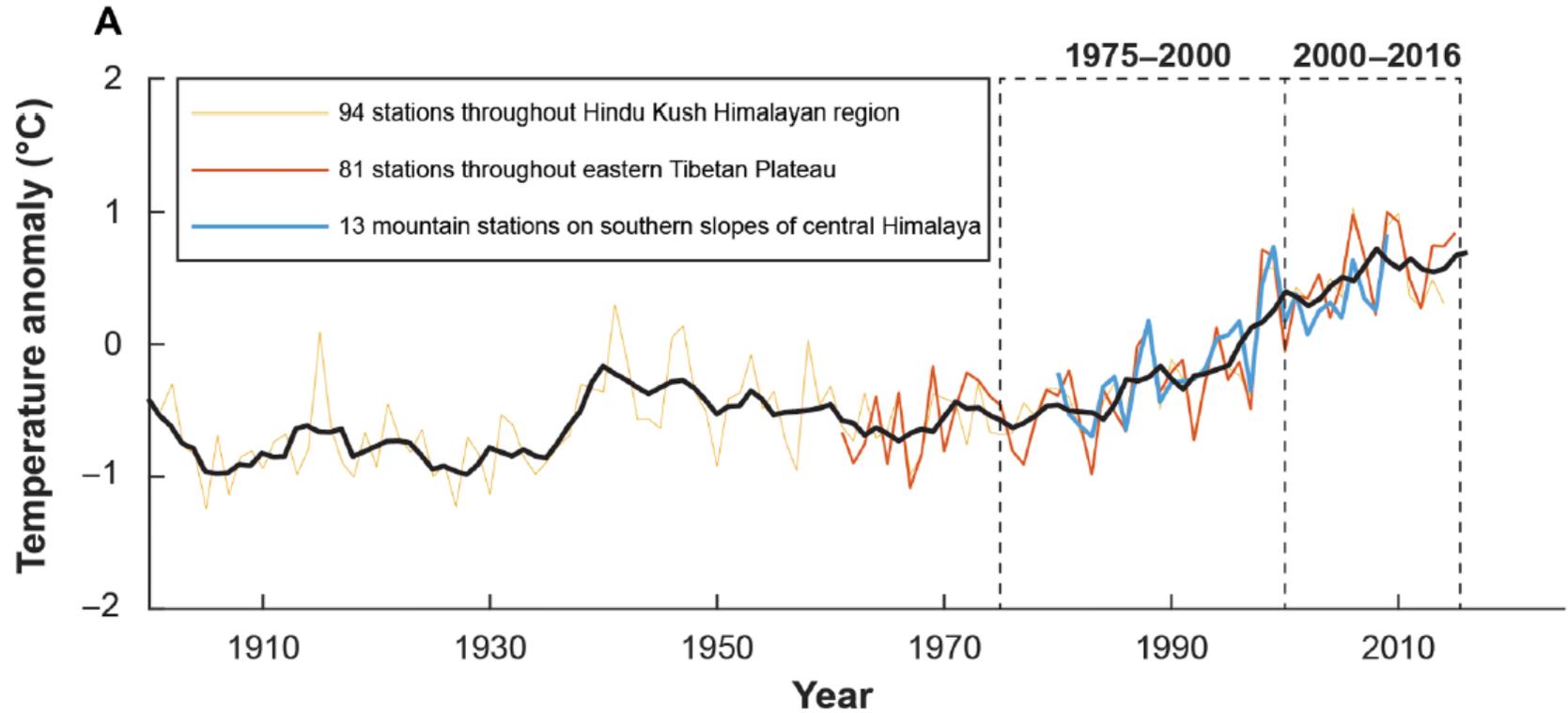


SCIENCE ADVANCES | RESEARCH ARTICLE

CLIMATOLOGY

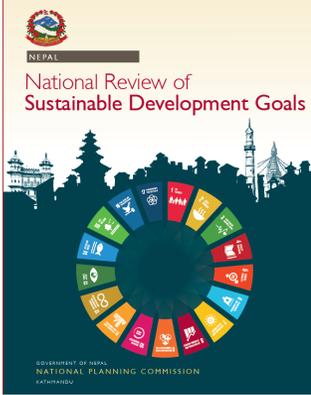
Acceleration of ice loss across the Himalayas over the past 40 years

J. M. Maurer<sup>1,2\*</sup>, J. M. Schaefer<sup>1,2</sup>, S. Rupper<sup>3</sup>, A. Corley<sup>1</sup>



# SDGs in 2021

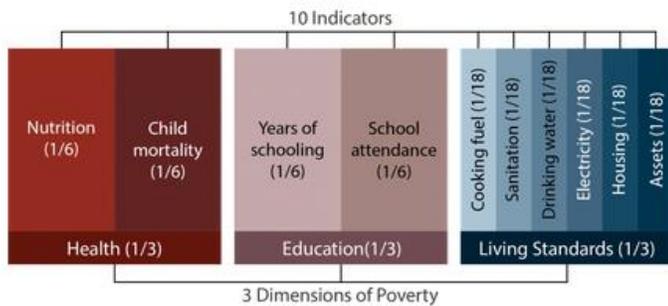
## ... where do we stand?



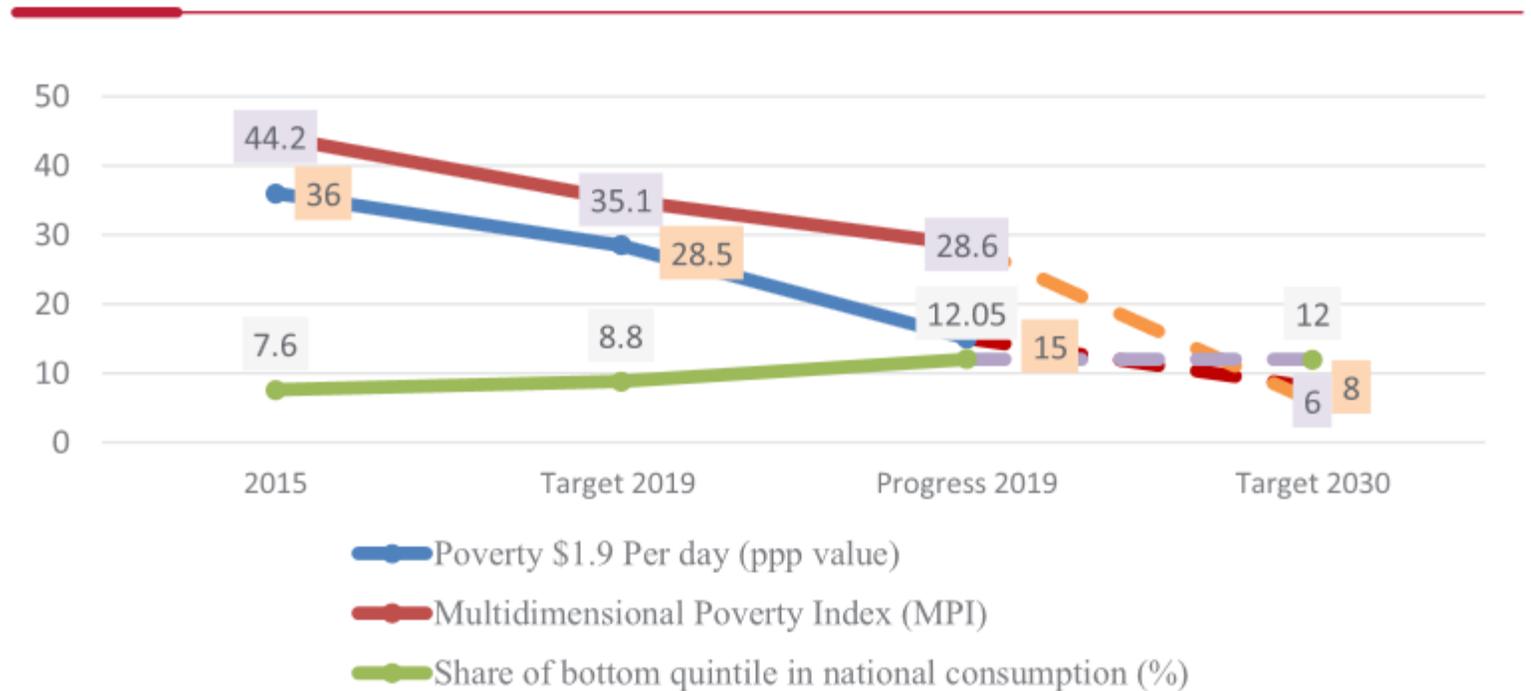
## Nepal

### Targets and achievements in poverty and consumption status (%)

#### MPI: Multidimensional Poverty Index



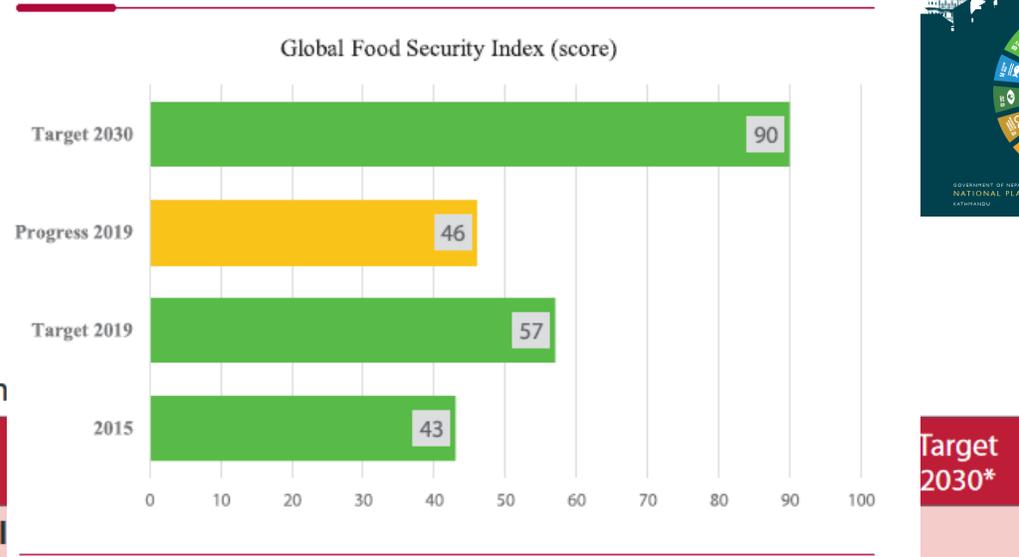
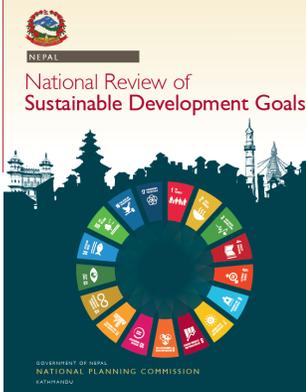
© Oxford Poverty and Human Development Initiative (OPHI)



# SDGs in 2021

## ... where do we stand?

### Nepal



**TABLE 5.2: SDG 2 - End hunger, achieve food security and**

Targets and Indicators					
<b>Target 2.1 By 2030, end hunger and ensure access by all people</b>					
2.1.1	2.1.1 Prevalence of undernourishment	36.1	27.3	8.7	3
2.1.2	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)%	-	-	7.8	-
2	Per capita food grain production (kg)	320	376	376	530
3	Global Food Security Index (score)	42.8	57	46	90
<b>Target 2.2 By 2030, end all forms of malnutrition</b>					
2.2.1	Prevalence of stunting	36	32	31.6	15
2.2.2	Prevalence of malnutrition	11.3	8	10	4
1	Per cent of children under age 5 years who are underweight	30.1	20	24.3	9
2	Prevalence of anemia among women of reproductive age	35	26	40.8	10
3	Prevalence of anemia among children under 5 years	46	33	52.7	10

Source: \*SDGs Status and Roadmap: 2016-2030; \*\*SDGs Progress Report (2016-2019).

# SDGs in 2021

## ... where do we stand?

## Nepal

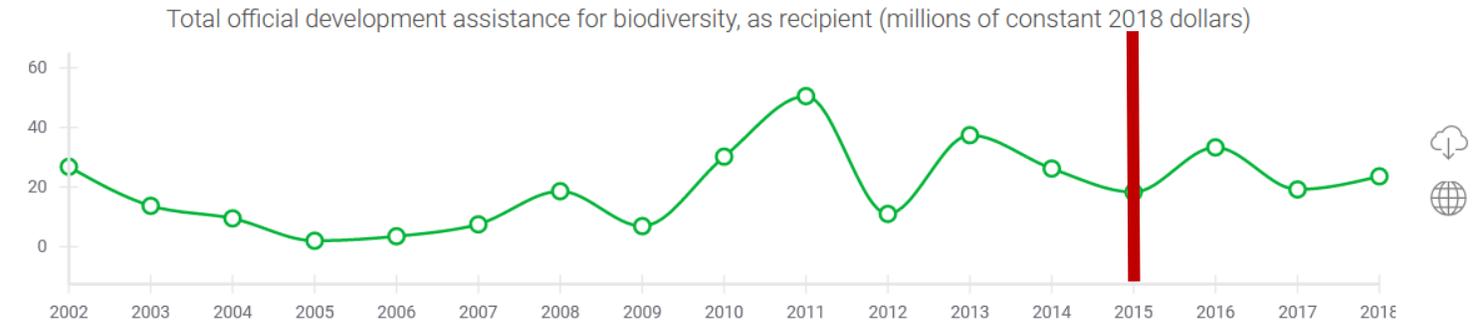


### Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



Total amount received in assistance for biodiversity declined from **26.8 million dollars in 2002 to 23.6 million dollars in 2018.**

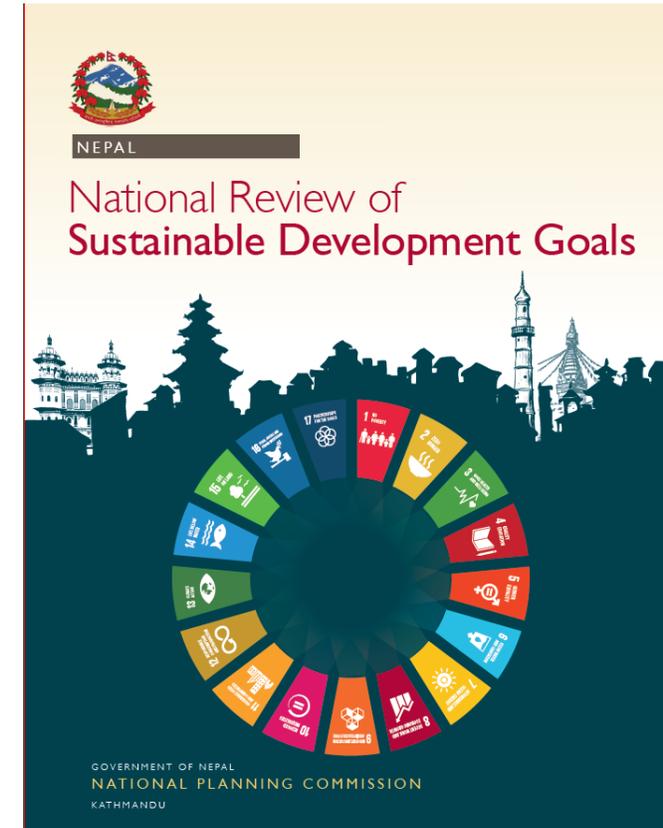


The proportion of forest area under a long-term management plan increased from **13.7 % in 2000 to 24.2% in 2020.**



Nepal has made commendable efforts for the implementation of the SDGs since its adoption. However, different calamities, disasters and the circumstances that were beyond its control have undermined its efforts. The 2015 earthquake led to huge losses of lives and property, and also had extensive adverse impacts on Nepal's development efforts. Similarly, the COVID-19 pandem-

ic has caused abrupt halt in economic activities. The pandemic is not only affecting our health sector, it also has a widespread impact on agriculture, manufacturing, construction, wholesale and retail trade, transport, tourism and education, as well as general economic activities, remittances and employment. The pandemic may not only undermine the present achievements; lockdowns and disruptions in economic activities, social distancing and other restrictions imposed can have long-term impacts on the

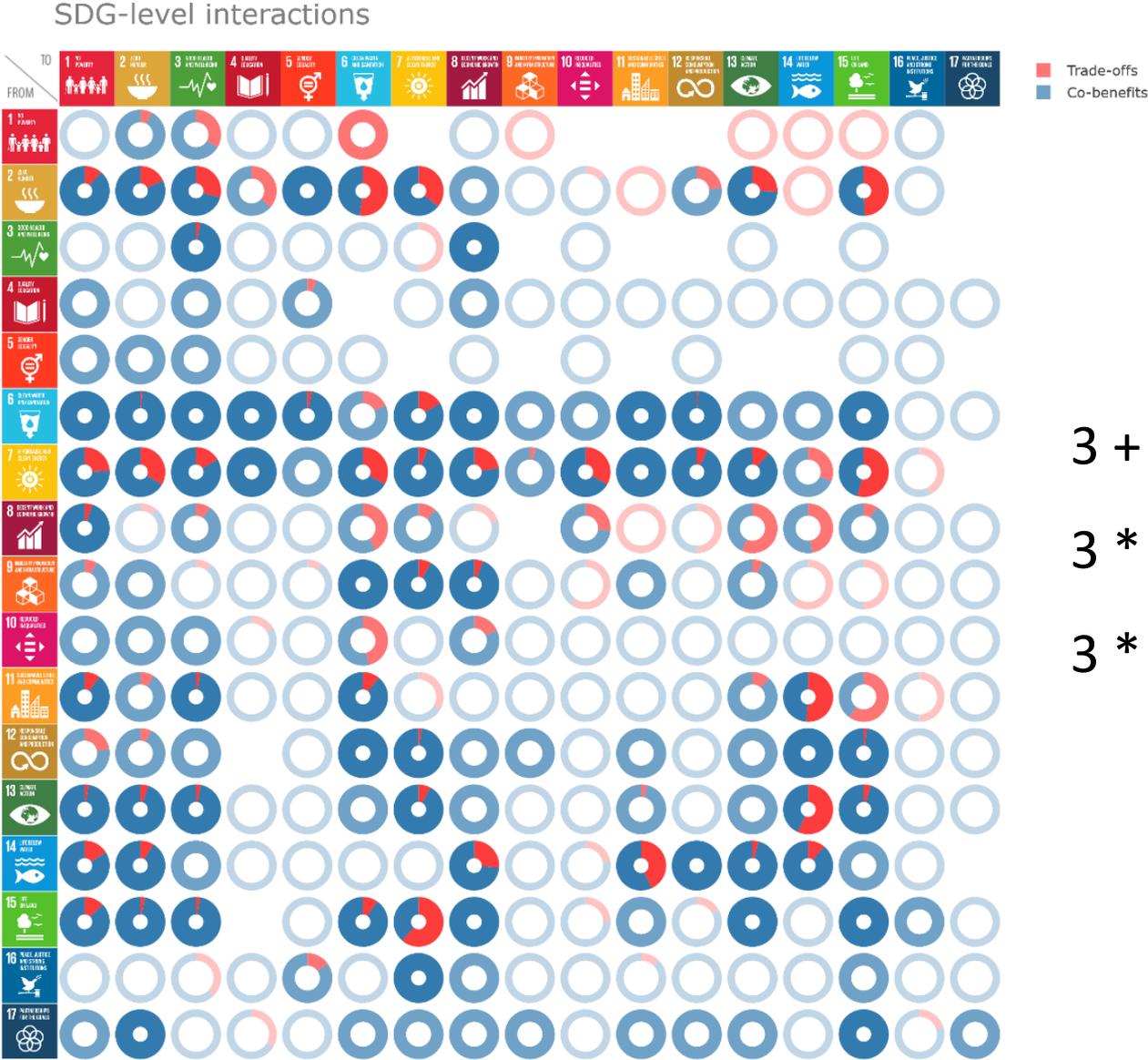




SDGs in 2021 ...  
 where do we  
 stand?

**The complexity  
 issue**

Agenda 2030 is  
 „universal, integrated  
 and indivisible“ (UN  
 2015)



$3 + 5 - 2 = 6$  ✘

$3 * 5 * 0 = 0$  ?

$3 * 5 * 2 = 30$  ✔

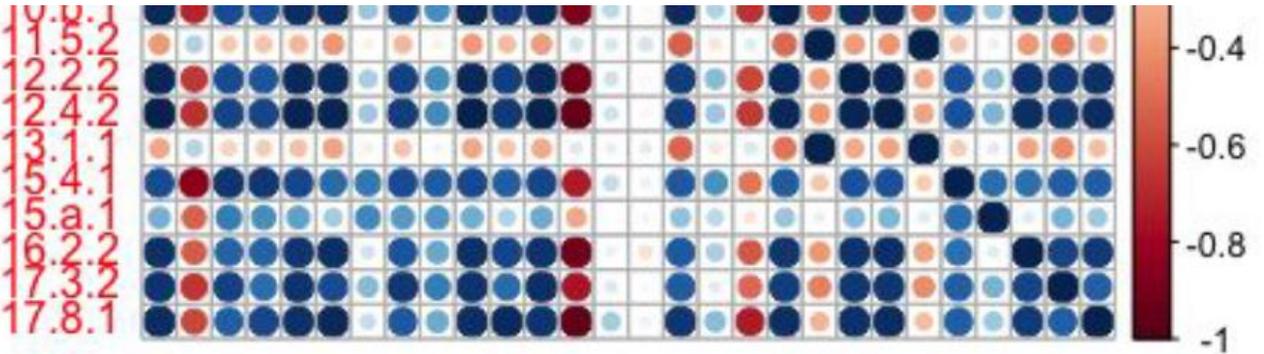
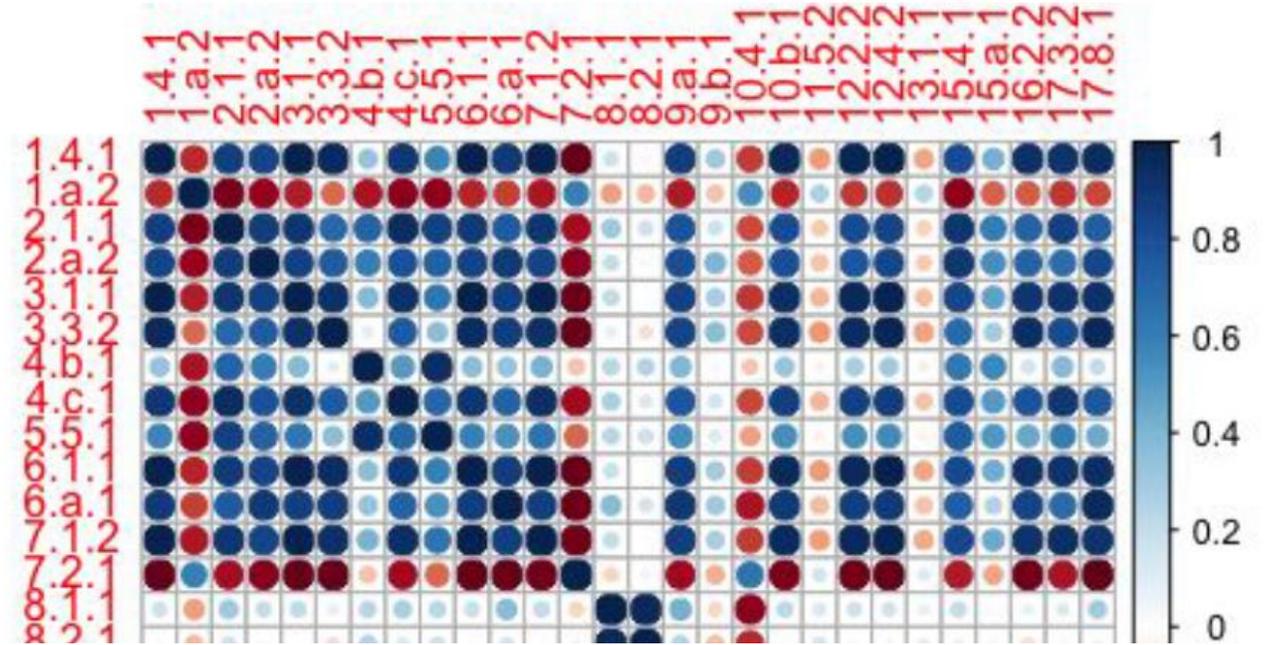
# SDGs in 2021 ... where do we stand?

## The complexity issue

Nepal

More synergies than trade-offs

Complexity and political coherence is not the issue



it is (almost) all about power... .. but!

## Ranking of top 30 economic units by revenue

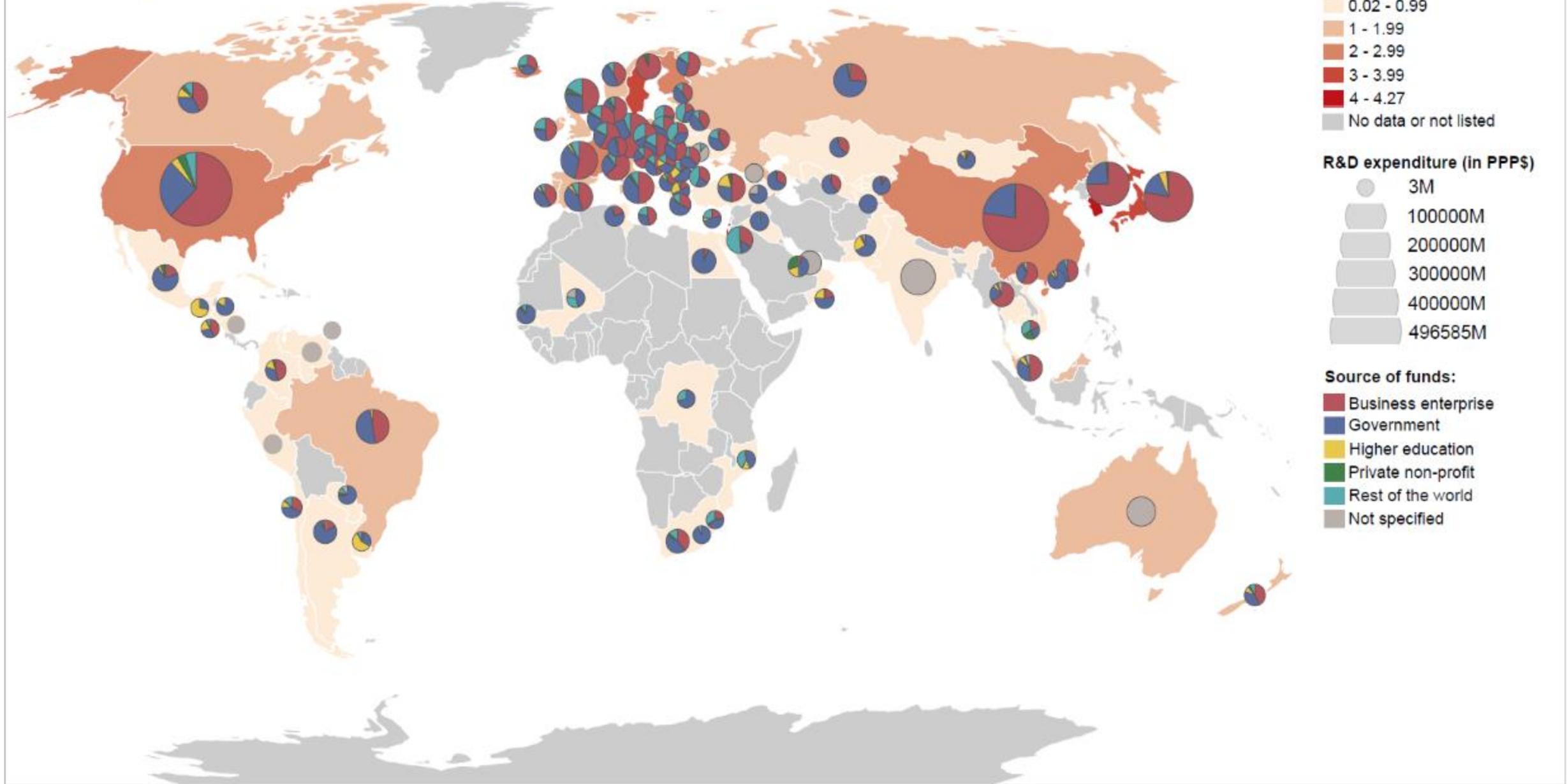
Rank	Country/Corporation	Revenue (US\$B)
1	United States of America	3363
2	China	2465
3	Japan	1696
4	Germany	1507
5	France	1288
6	United Kingdom	996
7	Italy	843
8	Brazil	632
9	Canada	595
10	Walmart (US)	482
11	Spain	461
12	Australia	421
13	State Grid (CN)	330
14	Netherlands	323
15	Republic of Korea	304

16	China Nat. Petroleum (CN)	299
17	Sinopec Group (CN)	294
18	Royal Dutch Shell (NL/GB)	272
19	Sweden	248
20	Exxon Mobil (US)	246
21	Volkswagen (DE)	237
22	Toyota Motor (JP)	237
23	Apple (US)	234
24	Belgium	232
25	BP (GB)	226
26	Mexico	224
27	Switzerland	216
28	Berkshire Hathaway (US)	211
29	India	200
30	Norway	200

Nation States ■ Multinational companies ■

## Do we know enough?

Research and Development (R&D) expenditure worldwide in 2015



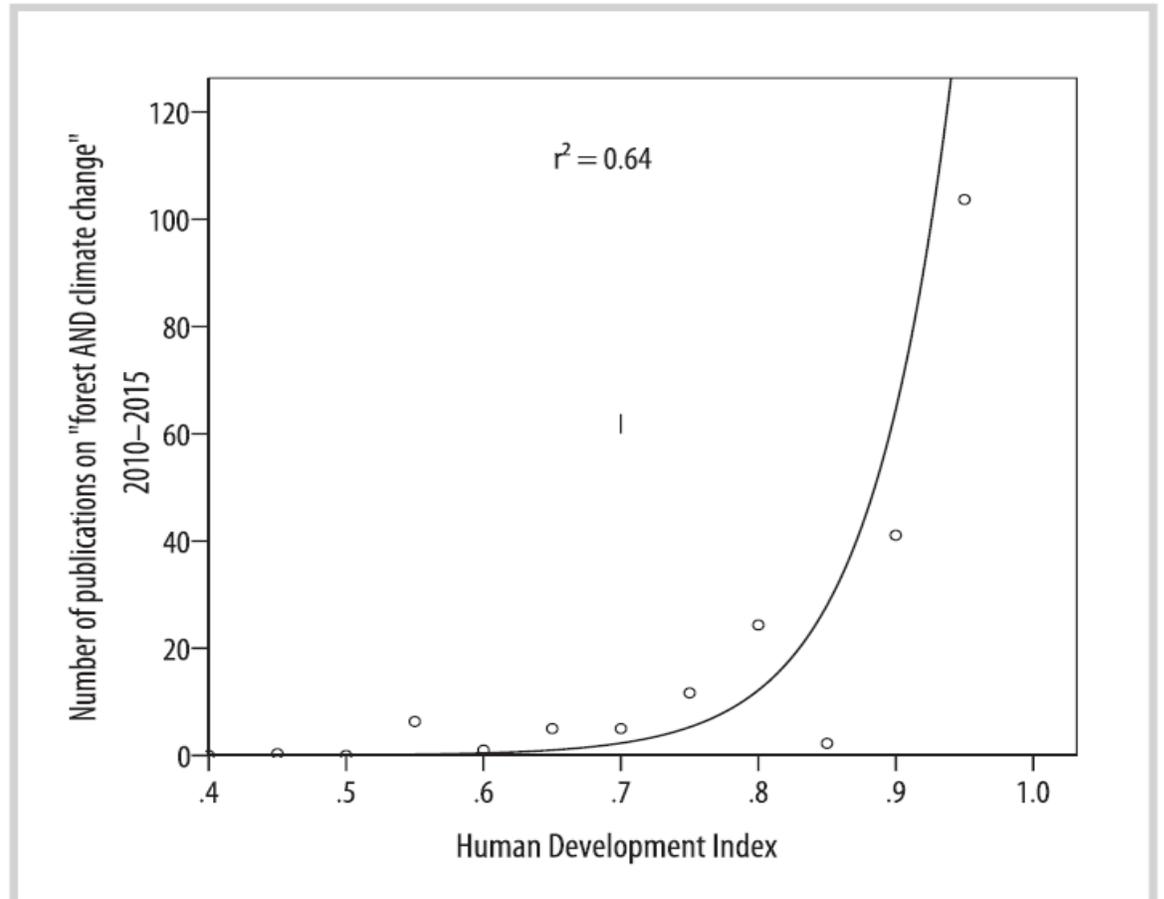
# Do we know enough?

## Overcoming the knowledge divide

...as in the Gaurishankar carbon offset project activities

Publications on Forests & climate change (in Title)  
2010 - 2016

Gratzer and Keeton 2017



## SDGs in 2021 ... where do we stand?

### Conclusions

- ✓ Currently, none of the countries is on track in reaching the SDGs.
- ✓ Agenda 2030 provides a **framework that legitimises integrated, holistic and ambitious approaches**, both for science and society.
- ✓ Agenda 2030 provides a **regulative framework for sectoral policies, particularly to „leave no one behind“** (just as in the Gaurishankar carbon sequestration project or in the BOKU carbon compensation scheme – „not only carbon but multiple benefits“).
- ✓ To bring Agenda 2030 to **„the ground“, to people, remains a challenge**

... the framework **is to be used**





# SDGs in 2021

## ... where do we stand?

## Nepal

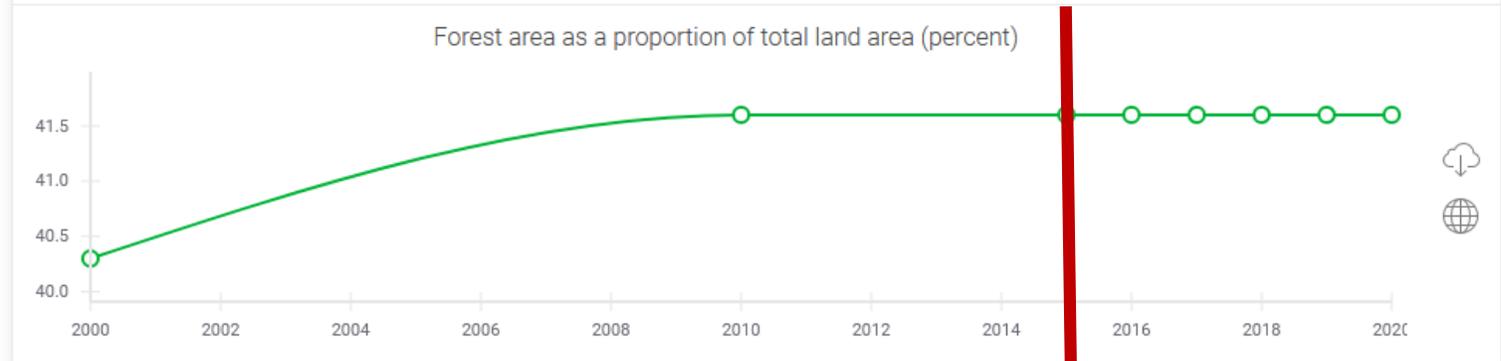


### Life on Land

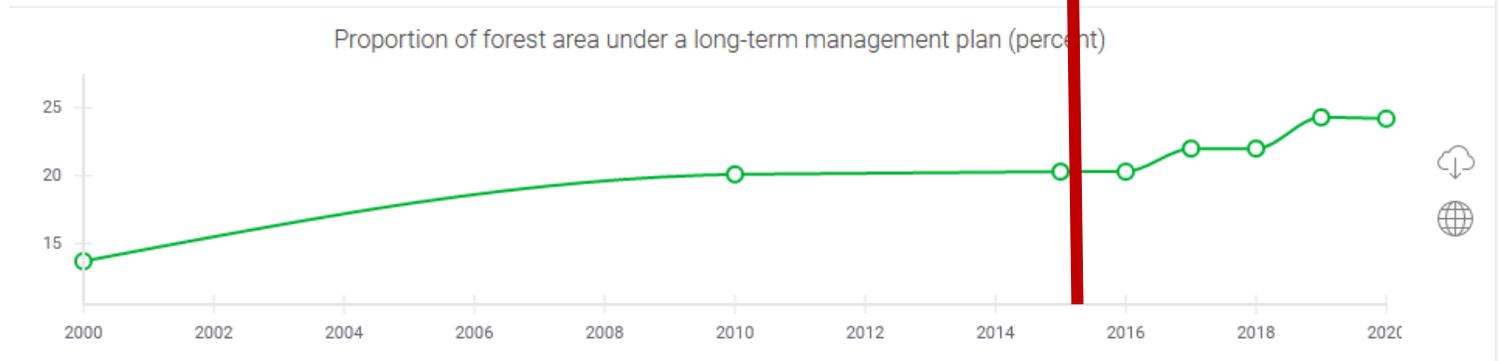
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



The proportion of land area covered by forest was **41.6 %** in **2020**.



The proportion of forest area under a long-term management plan increased from **13.7 %** in **2000** to **24.2%** in **2020**.



# SDGs in 2021

## ... where do we stand?

Nepal...

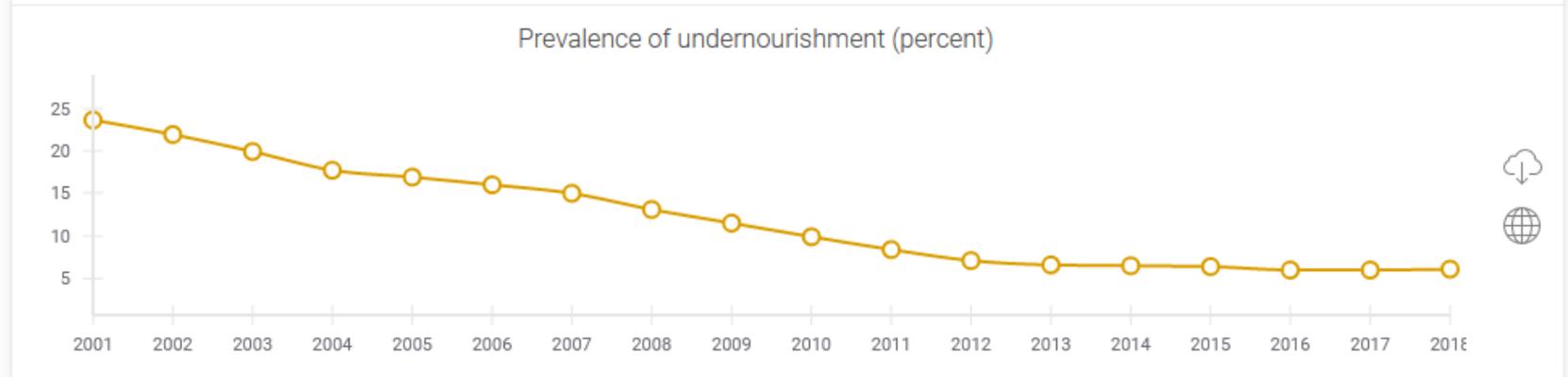


### Zero Hunger

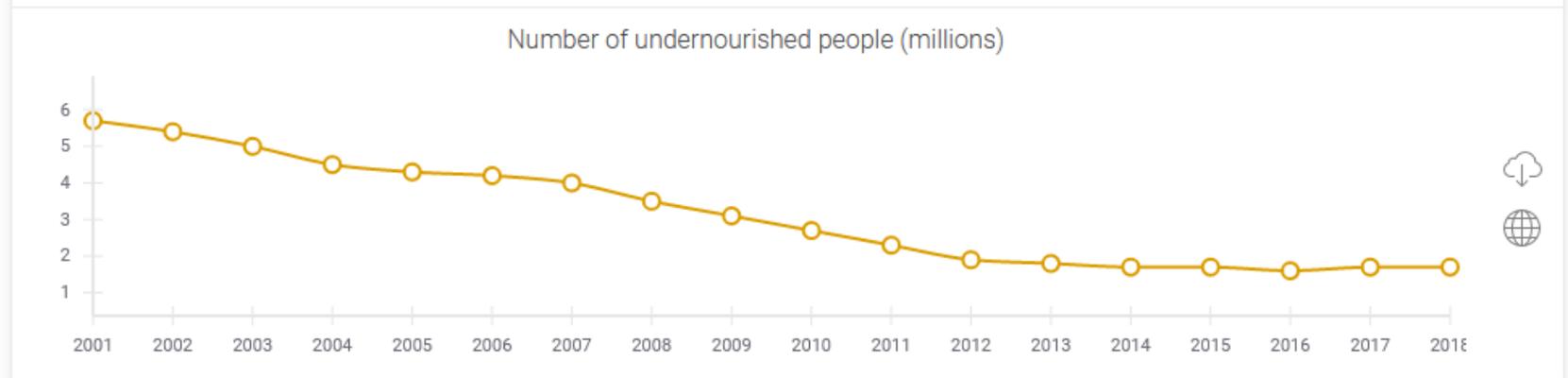
End hunger, achieve food security and improved nutrition and promote sustainable agriculture



The proportion of the population suffering from hunger was **6.1 %** in **2018**.



The number of undernourished people declined from **5.7 million** in **2001** to **1.7 million** in **2018**.

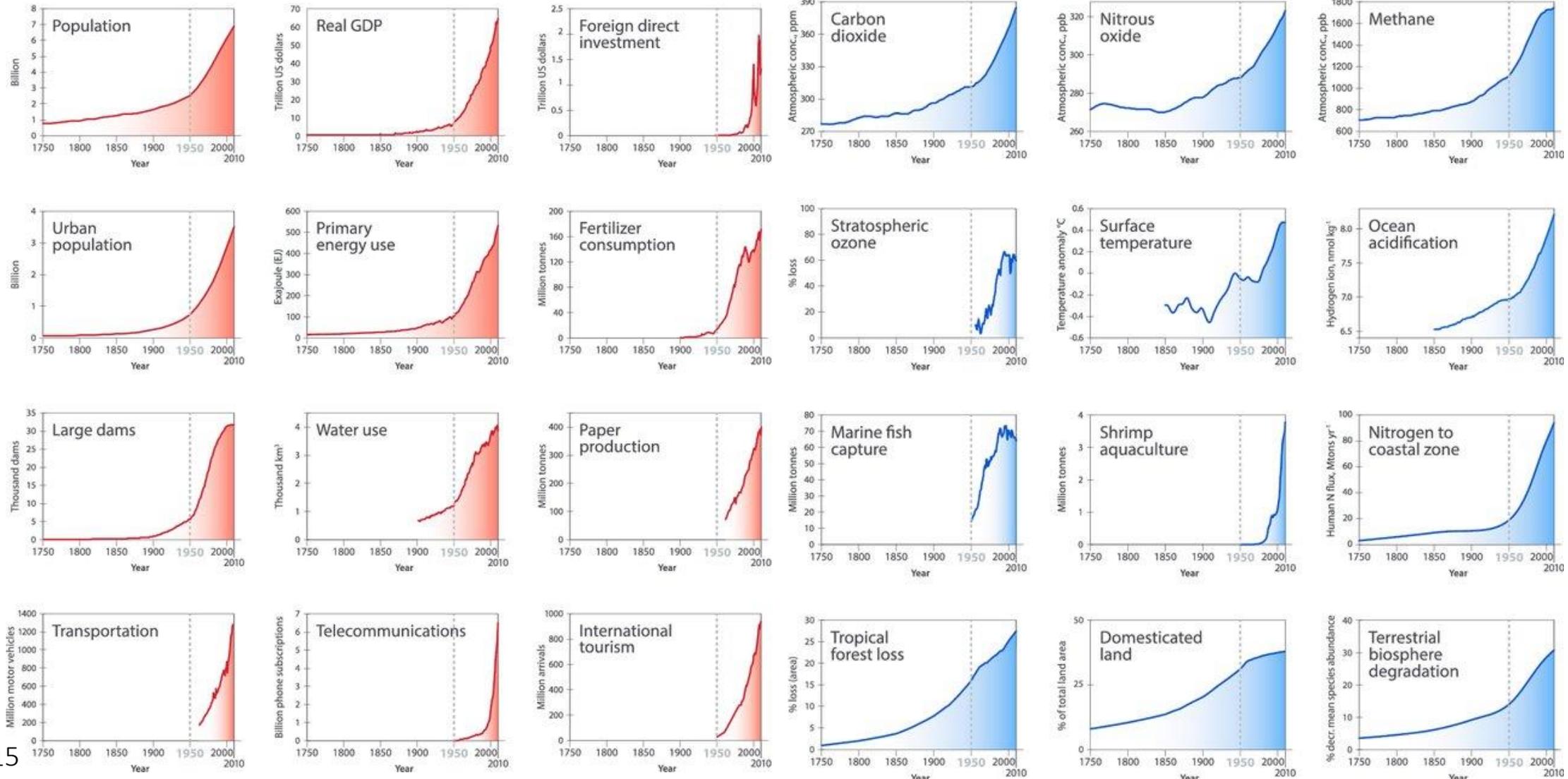


# The great acceleration

Will Steffen,<sup>1,2</sup> Wendy Broadgate,<sup>3</sup> Lisa Deutsch,<sup>1</sup>  
 Owen Gaffney<sup>3</sup> and Cornelia Ludwig<sup>1</sup>

## Socio-economic trends

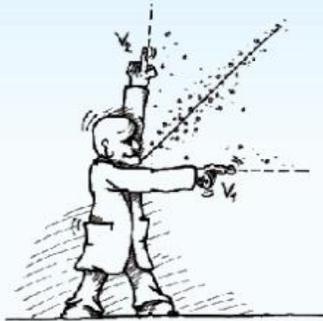
## Earth system trends



# Principles of the Agenda 2030

## Complexity and coherence

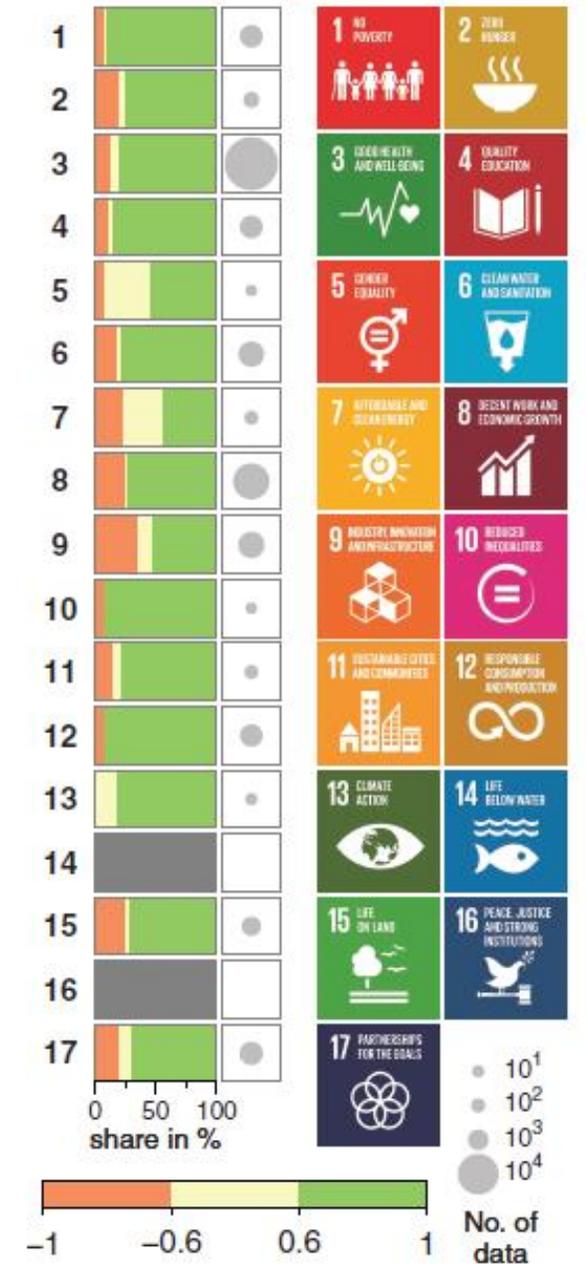
### How and why to use Spearman's Rank...



$$r_s = 1 - \frac{6 \sum D^2}{n(n^2 - 1)}$$

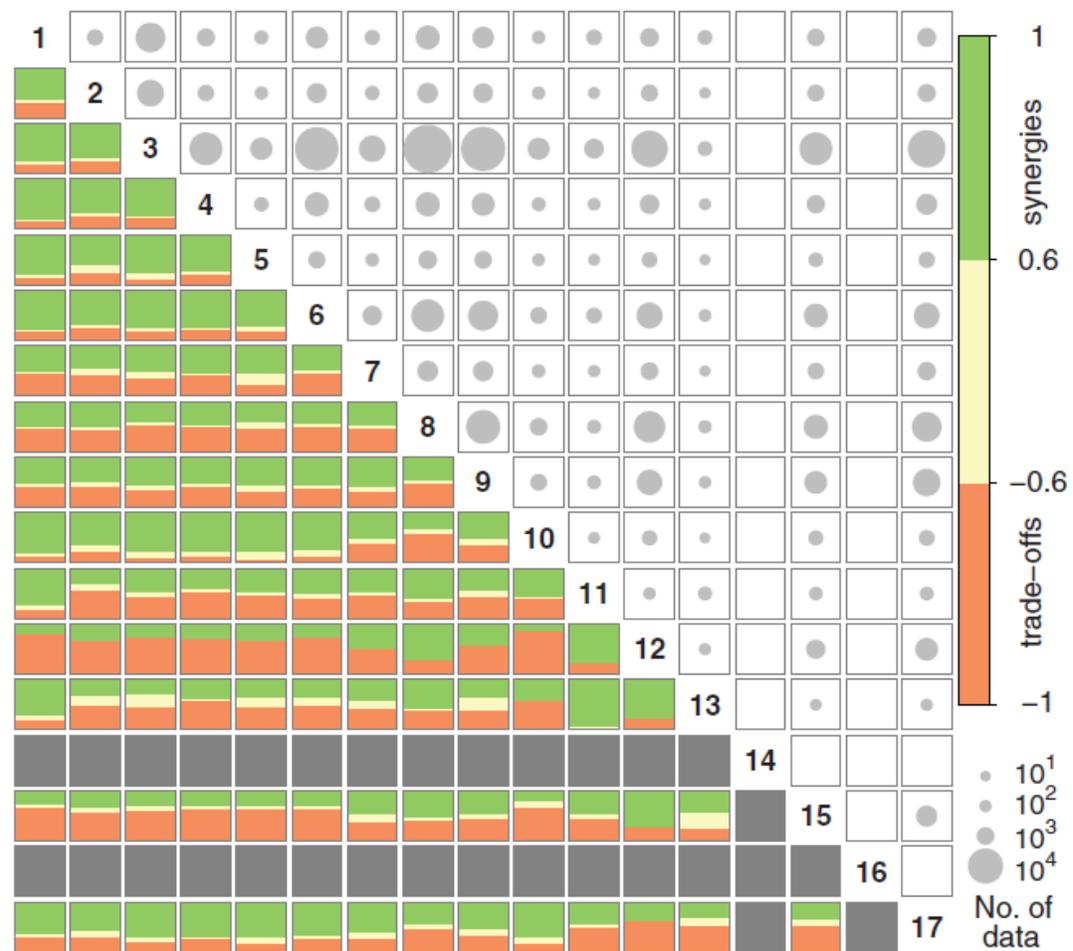
If you have done scattergraphs, Spearman's Rank offers you the opportunity to use a statistical test to get a value which can determine the strength of the relationship between two sets of data...

<https://www.slideshare.net/prioryman/gcse-geography-how-and-why-to-use-spearman's-rank>



# Principles of the Agenda 2030

## Complexity and coherence



Pradhan et al. 2017