

## DEBATE

"For developing countries, economic development needs to be a higher priority than environmental protection and conservation of natural resources."

Our side: **NO**

# Context

All economies in the world exist within the global ecosystem.

Destruction of our ecosystem means destruction of our economies in both developed and developing countries!



This is the only planet we have!

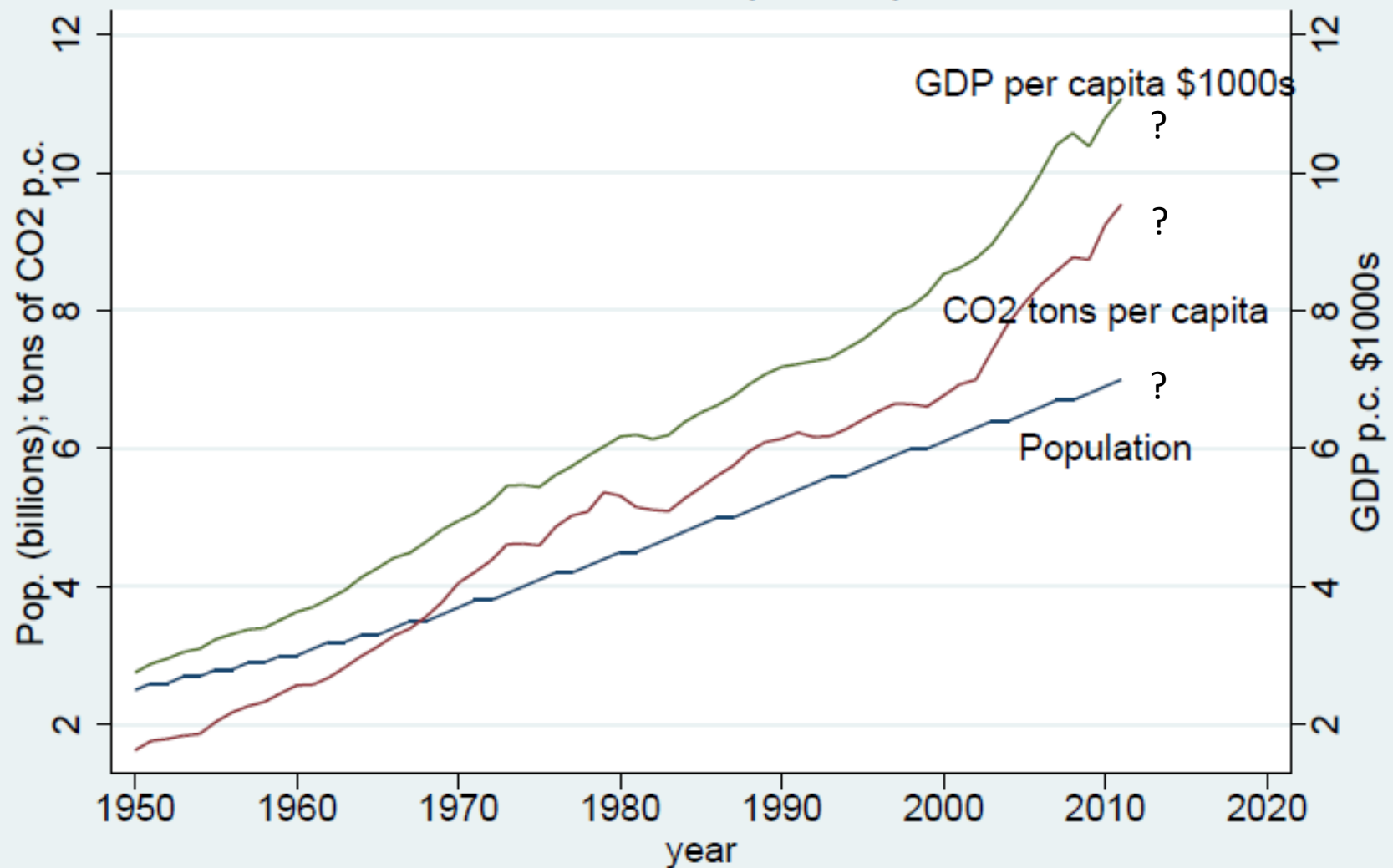
# Three Habitable Planets Found Orbiting Nearby Star Gliese 667C 22 Light Years Away

Source: International Business Times 2013.06.13

# Context

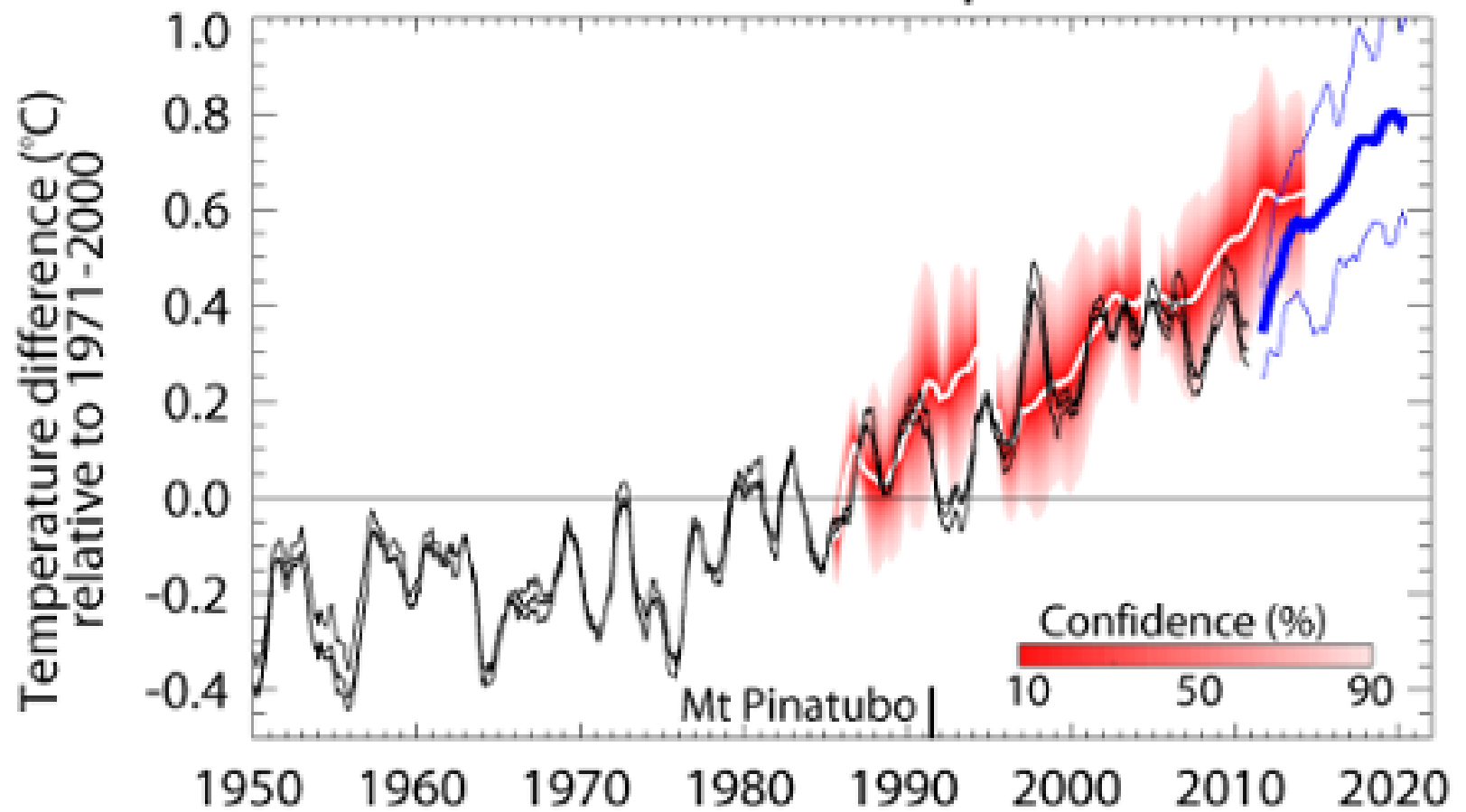
Rapid growth of population, income per capita and use of fossil fuels over the past half century have led to **major threats** to climate stability and to ecosystems in both developed and developing countries.

## Growth of population, GDP per capita and tons of CO2 emissions per capita 1950 to 2010



Source: Earth Policy Institute website

## Global annual temperature



Therefore we need to build  
economic systems in ALL countries  
that do not require destruction of  
ecosystems!



Here are methods of current economic development that are not sustainable. These forms of economic development should be phased out fast to prevent ecosystem collapse!

# Unsustainable methods of economic development

reliance on fossil fuels

overfishing

overuse/pollution of water resources

deforestation

waste accumulation

# Emissions from Coal Plants in China

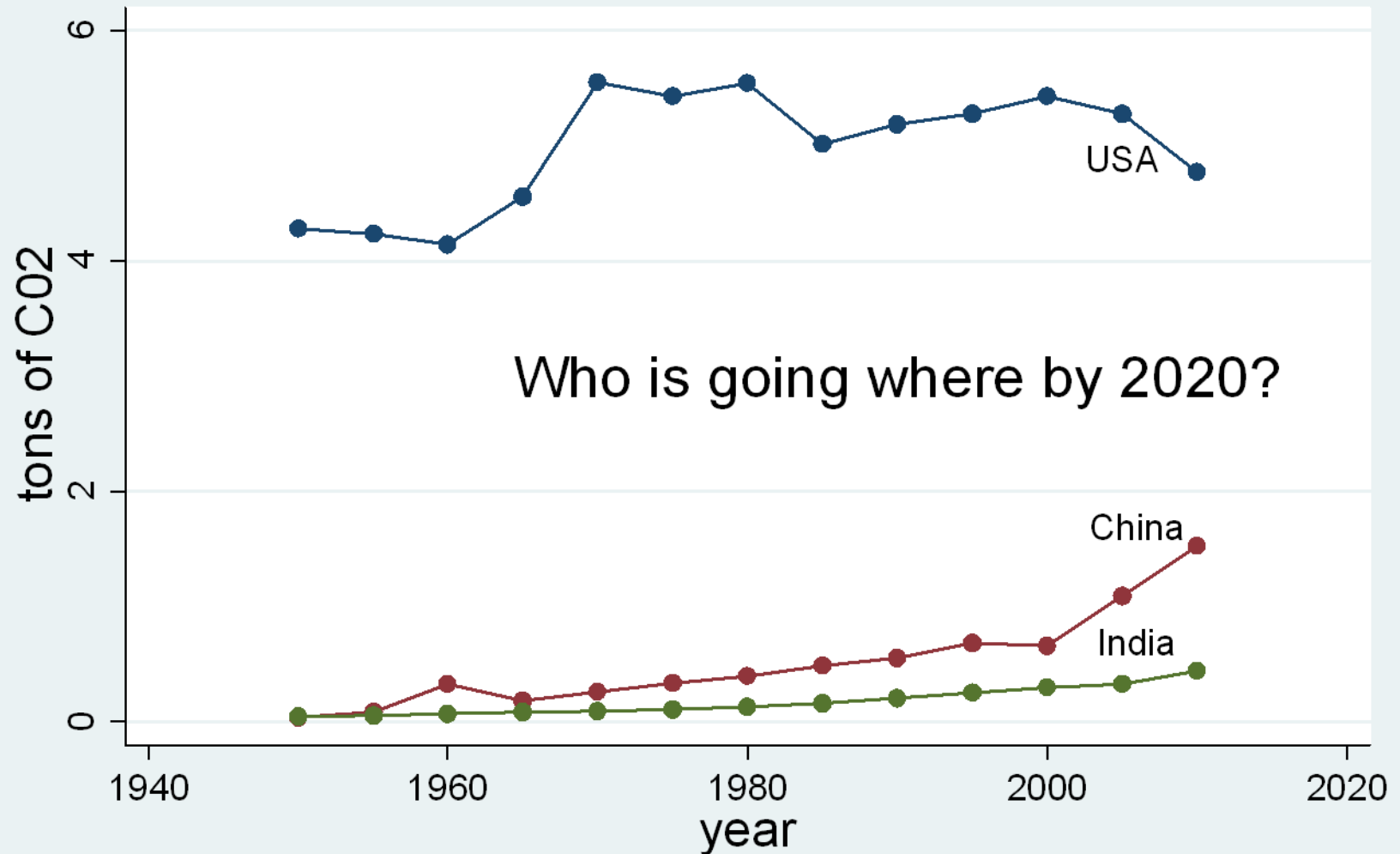


Table I.1 | **Summary of Proposed Coal-Fired Plants**

RANK	COUNTRY	TOTAL INSTALLED CAPACITY (MW)	NUMBER OF PROJECTS
1	China	557,938	363
2	India	519,396	455
3	Russia	48,000	*c.48
4	Turkey	36,719	49
5	Vietnam	34,725	30
6	South Africa	22,633	8
7	United States	20,236	36
8	Ukraine	14,000	*c.14
9	Poland	12,086	13
10	Germany	12,060	10

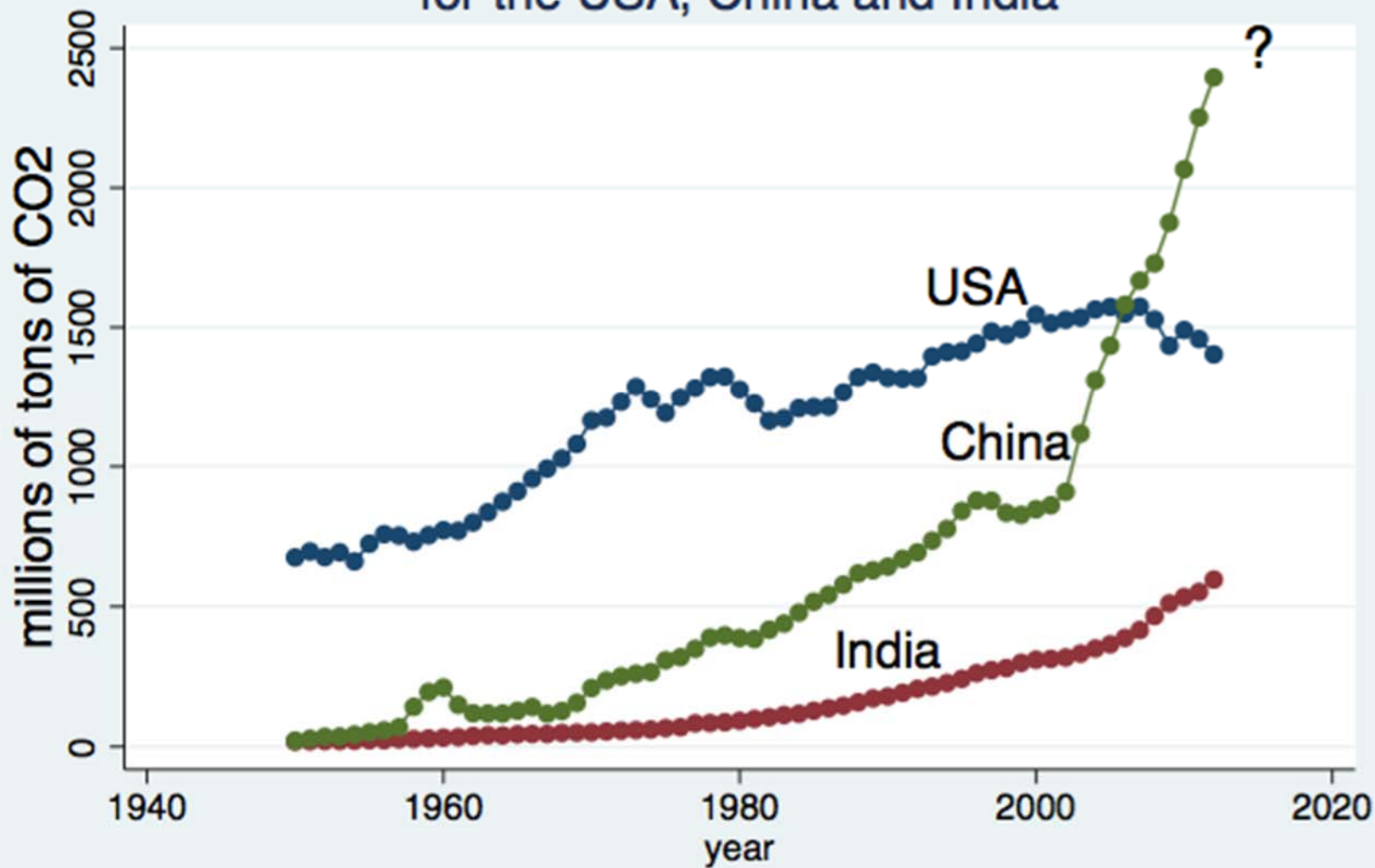
Source: [http://pdf.wri.org/global\\_coal\\_risk\\_assessment.pdf](http://pdf.wri.org/global_coal_risk_assessment.pdf)

Per capita CO2 emissions (tons) for:  
US, China and India, 1950-2010



Source: Authors tabulations from World Resources Institute data

Total CO2 emissions 1950-2010  
for the USA, China and India



Water

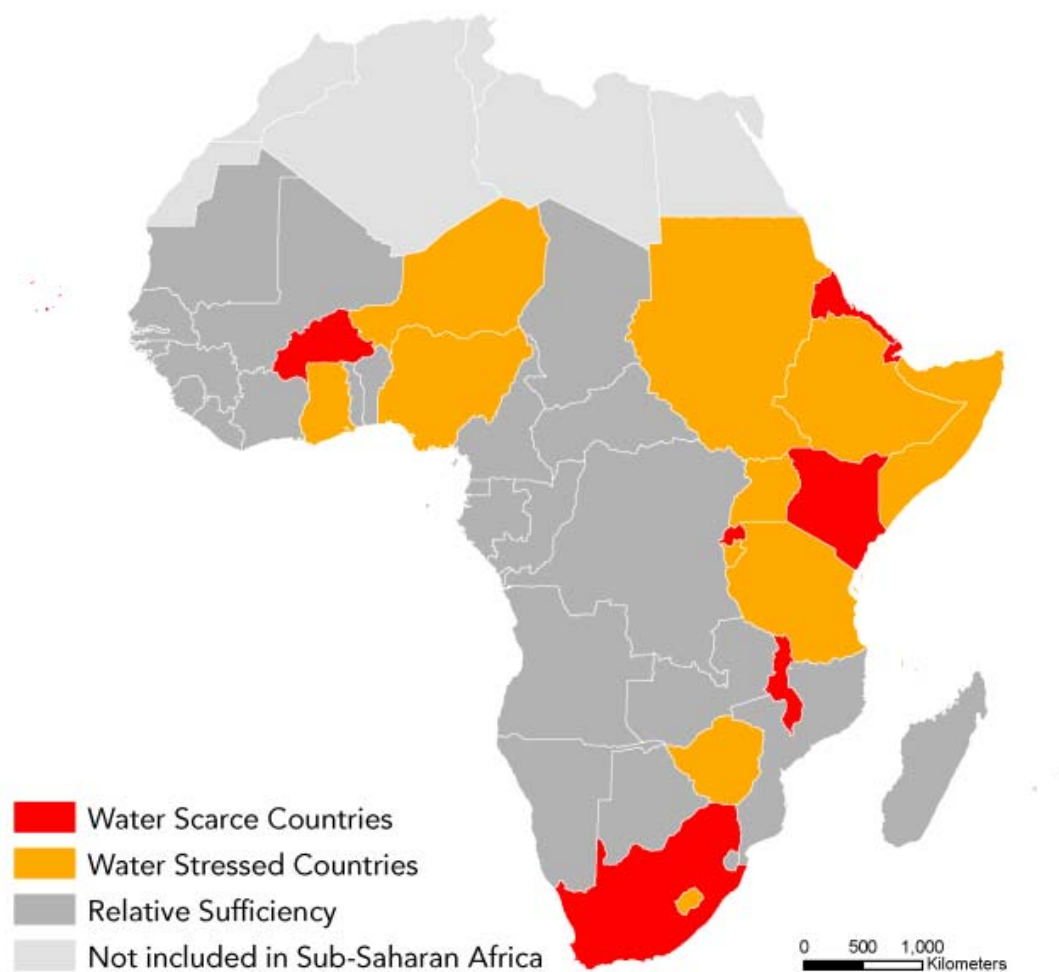
## Percentage distribution of fish stocks by level of exploitation in 1970 and 2008

<u>Classification of fish stocks</u>	<u>Year</u>	
	1970	2008
Under or moderately exploited	50	53
Fully exploited	40	15
Overexploited, depleted, recovering	10	32

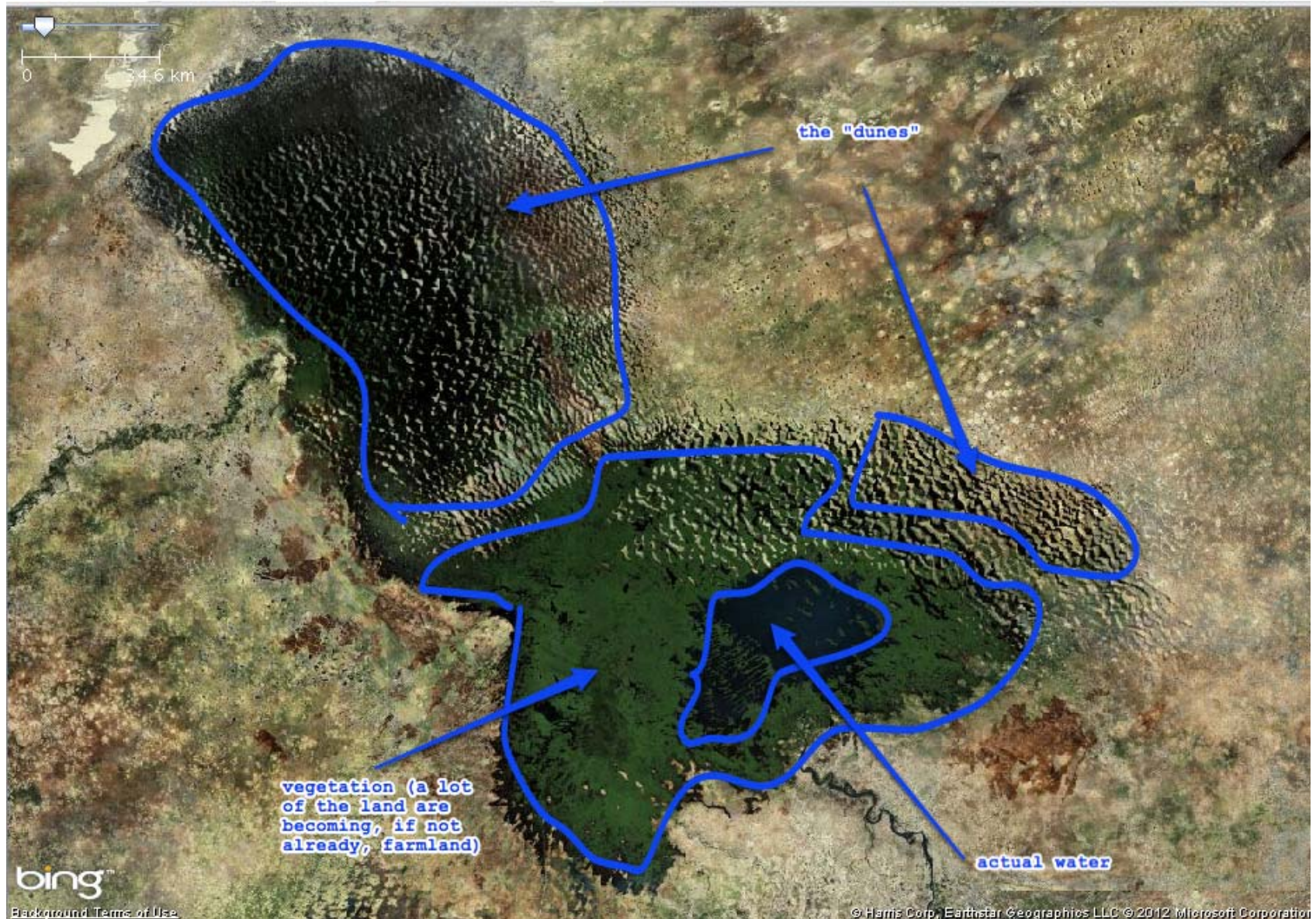
Source: FAO.



# Water stress and scarcity in Sub-Saharan Africa



Very little of Lake Chad remains due to overuse of water resources





# Water pollution in Haiti



Source: Terra Daily 2010.01.20



An estimated 6000 dead pigs in Huangpu River near Shanghai



Source: Associated Press. 2013.03.13

# Deforestation

13 million hectares of forest are lost each year (50,000 square miles)  
= an area the size of Nicaragua or Greece each YEAR!

Source: FAO The Global Forest Resources Assessment 2010

# Deforestation in Brazil



Source: The Guardian 2013.07.13



# How high can the trash go?

## A trash heap in Manila



Source: [dailyimage.net](http://dailyimage.net)

Environmental protection and conservation of natural resources **CAN BE** economic development. Examples are:

ecological tourism

electric vehicles

wind farms

recycling



# Ecotourism in Costa Rica



# Ecotourism in Kenya



Source: [www.ontedek-kenya-safaris.com](http://www.ontedek-kenya-safaris.com)

# Less harmful transport methods: Electric **cars** in India



# Alternative energy: Wind power in China



Source: <http://static.ddmcdn.com/gif/wind-turbines-china-660.jpg>



# Recycling: Plastic shredders of China.



Source: Atlantic Monthly

Look out: Danger ahead

# Global warming: Stop worrying, start panicking?

Hans Joachim Schellnhuber\*†‡

Source: *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 105, No. 38 (Sep. 23, 2008), pp. 14239-14240

# Has the Earth's sixth mass extinction already arrived?

56 | NATURE | VOL 471 | 3 MARCH 2011



## **The Great Law of the Iroquois Confederacy (Native American tribe)**

**“In every deliberation, we must consider the impact on the seventh generation...”**

Source: <http://www.constitution.org/cons/iroquois.txt>

What do we want for our  
grandchildren and great  
grandchildren?

# The future is open; We can decide!

Economic development as usual

(But those darn externalities may lead to  
destruction of the planet as we know it!)

OR

Economic development with ecosystems in  
mind?

“...any successful policy....must be designed such that economic growth and environmental progress go hand in hand”

Source: Mark Lynas *The God Species*, National Geographic 2011

# The way forward

Developing countries need to protect the environment and preserve natural resources with **new forms** of economic development

**Subsidize/“incentivize”** green technology and/or tax pollution

There is a role for **laws and international agreements** for:

Clean air, clean water, recycling, forest preservation and endangered species

The end of a beginning

Thank you

# How can we protect our home?



## Status of large primates in the world

Species	Common name	Status	Trend
Gorilla beringei	Eastern gorilla	Endangered	decreasing
Gorilla gorilla	Lowland gorilla	Endangered	decreasing
Pan paniscus	Gracile chimpanzee	Endangered	decreasing
Pan troglodytes	Common chimpanzee	Endangered	decreasing
Pongo abelii	Sumatran Orangutan	Critically endangered	decreasing
Pongo pygmacus	Bornean Orangutan	Endangered	decreasing
Homo sapiens	Humans	Least concern	increasing



March 22, 2013, New York Times

# India's Coal Power Plants Kill Tens of Thousands Every Year, Study Says

By [JONATHAN MINGLE](#)

# Extra slide (only use if needed)

Good news is from Brazil:

Reportedly deforestation has declined from  
28,000 km<sup>2</sup> in 2004 to 5000 km<sup>2</sup> in 2012

(That is still two times the size of RI each year)

<http://www.obt.inpe.br/prodes/index.php>

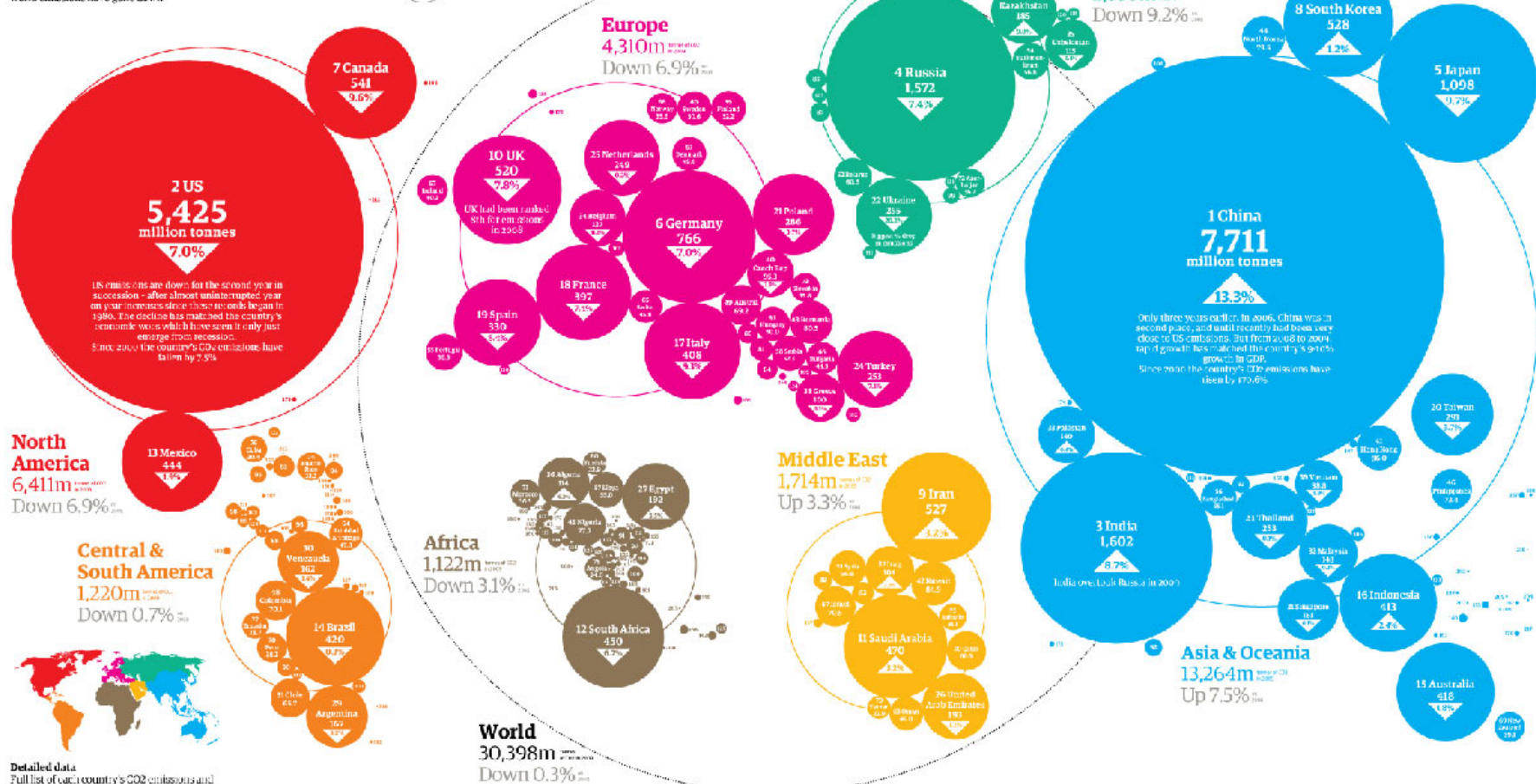
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Our side: NO

# An atlas of pollution: the world in carbon dioxide emissions

Latest data published by the US Energy Information Administration provides a unique picture of economic growth - and decline. China has sped ahead of the U.S., as shown by this map, which reizes each country according to CO<sub>2</sub> emissions. And, for the first time, world emissions have gone down.



**Detailed data**  
Full list of each country's CO<sub>2</sub> emissions and movement in the world emissions league table

Rank	Country	CO <sub>2</sub> Emissions (m tonnes)	% Change (2005-2008)
1	US	5,425	-7.0%
2	China	7,711	+13.3%
3	India	1,602	+8.2%
4	Russia	1,572	+7.4%
5	Japan	1,098	-9.2%
6	Germany	766	-7.0%
7	Canada	541	-9.6%
8	South Korea	528	+1.2%
9	Iran	527	+1.2%
10	UK	520	-7.8%
11	Saudi Arabia	470	+3.3%
12	South Africa	450	+6.3%
13	Mexico	444	+1.4%
14	Brazil	420	+0.7%
15	Australia	418	+1.8%
16	Indonesia	413	+2.2%
17	Italy	408	-9.3%
18	Spain	397	-8.5%
19	Turkey	253	+1.3%
20	Poland	246	-7.0%
21	Ukraine	235	+1.0%
22	Kazakhstan	235	+1.0%
23	Netherlands	235	-1.0%
24	Taiwan	235	+1.0%
25	Thailand	235	+1.0%
26	Vietnam	235	+1.0%
27	Egypt	235	+1.0%
28	Kazakhstan	235	+1.0%
29	Uzbekistan	235	+1.0%
30	Taiwan	235	+1.0%
31	Thailand	235	+1.0%
32	Vietnam	235	+1.0%
33	Kazakhstan	235	+1.0%
34	Uzbekistan	235	+1.0%
35	Taiwan	235	+1.0%
36	Thailand	235	+1.0%
37	Vietnam	235	+1.0%
38	Kazakhstan	235	+1.0%
39	Uzbekistan	235	+1.0%
40	Taiwan	235	+1.0%
41	Thailand	235	+1.0%
42	Vietnam	235	+1.0%
43	Kazakhstan	235	+1.0%
44	Uzbekistan	235	+1.0%
45	Taiwan	235	+1.0%
46	Thailand	235	+1.0%
47	Vietnam	235	+1.0%
48	Kazakhstan	235	+1.0%
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64	Uzbekistan	235	+1.0%
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79	Uzbekistan	235	+1.0%
80	Taiwan	235	+1.0%
81	Thailand	235	+1.0%
82	Vietnam	235	+1.0%
83	Kazakhstan	235	+1.0%
84	Uzbekistan	235	+1.0%
85	Taiwan	235	+1.0%
86	Thailand	235	+1.0%
87	Vietnam	235	+1.0%
88	Kazakhstan	235	+1.0%
89	Uzbekistan	235	+1.0%
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91	Thailand	235	+1.0%
92	Vietnam	235	+1.0%
93	Kazakhstan	235	+1.0%
94	Uzbekistan	235	+1.0%
95	Taiwan	235	+1.0%
96	Thailand	235	+1.0%
97	Vietnam	235	+1.0%
98	Kazakhstan	235	+1.0%
99	Uzbekistan	235	+1.0%
100	Taiwan	235	+1.0%

Source: The Guardian